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13th International Conference on Frailty & Sarcopenia Research (ICFSR)

March 22-24, 2023 Toulouse, France

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The Journal of Frailty & Aging
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Symposia

S1- A ROAD MAP FOR THE DEVELOPMENT OF HIGH PRIORITY PHYSICAL FRAILTY RESEARCH.

Jeremy Walston *(Johns Hopkins University, Baltimore, Maryland, USA)*

Over the past 2 decades, great progress has been made in developing frailty assessment methods, understanding the consequences of frailty, and in identifying important biological characteristics related to physical frailty. Despite this progress, there remain considerable gaps in knowledge related to frailty measurement, biological etiologies, implementation of frailty into clinical practice, and public health measures to prevent and ameliorate frailty. A group of frailty-focused investigators centered at Johns Hopkins University have convened a bimonthly frailty working group and identified several major areas of frailty research that would benefit from increased focus. This symposium provides an overview of progress in physical frailty research to date, and a roadmap for future high priority frailty research in the biological, measurement, clinical implementation, and public health domains

Communication 1: *Biological Research Priorities,* Jeremy Walston (Johns Hopkins University, Baltimore, MD, USA)

Age-related molecular changes and dysregulation of physiological systems have long been hypothesized to drive the development of physical frailty. Chronic inflammation, mitochondria decline, altered energy metabolism, and dysregulated stress response systems and their potential etiological roles in frailty will be discussed. In addition, Dr. Walston will provide suggested directions for next generation of studies that would help to link specific molecular changes to dysregulated physiology and ultimately the frailty phenotype in these domains. Integration of large data sets that include omics and genetics data will also be considered. Finally, the utility of this biological progress will be considered in the context of prevention and intervention strategies targeting frailty in older adults.

Communication 2: *Future Implementation Research Priorities,* Qian-Li Xu (Johns Hopkins University, School of Public Health, Baltimore, MD, USA)

Despite being one of the most described Geriatric syndromes, and the broad knowledge that frailty is highly associated with early mortality and disability, there has to date been no broadly successful implementation of frailty into clinical practice. This may be in part due to (i) difficulty to implement new screening tools into specialty practices, (ii) heterogeneity of frailty etiology, and (iii) lack of randomized studies that show clear efficacy of frailty-focused interventions. Substantial barriers for frailty screening remain that include lack of optimal frailty instruments, poor agreement between assessment methods, insufficient evidence-based intervention strategies, and limited clinical resources. A key step in addressing this challenge is to gain a better understanding of frailty etiology and its heterogeneity. To help guide next generation of etiologic research, studies designed to identify markers of disease-specific pathology distinct from frailty manifestations are necessary in order to refute the possibility of frailty as merely a marker of disease severity with questionable added value. If frailty identified using existing tools represents heterogeneous medical conditions that share phenotypic characteristics, but with different causal mechanisms and natural history, no single intervention strategy is likely to be universally effective for everyone. Therefore, innovative trial designs including adaptive and pragmatic trials that prospectively account for heterogeneity should be actively pursued in intervention research. Dr. Xue will outline potential solutions to these issues, including ideas related to new implementation strategies and the development and testing of clinical management strategies that would buffer adverse health impact in frail, older adults.

Communication 3: *Public Health Research Priorities,* Karen Bandeen-Roche (Johns Hopkins University, Baltimore, MD, USA)

Identifying frail older adults promises to anchor personalized geriatric medicine for them; early intervention to forestall frailty itself promises to prolong healthy life for the older population. We identify three areas of urgently needed research to achieve this latter goal. First, improved methods are needed for identifying impending frailty before it becomes disabling. This entails both improved methods for ascertaining prefrailty and leveraging signal-intensive technologies to improve surveillance for frailty in free-living settings. Second, life course determinants of frailty are not well identified, yet their ascertainment will be crucial in order to forestall frailty beginning in midlife or earlier. Particularly little research has addressed attributable risks and years of healthy—yet these arguably are most important metrics for targeting public and community health efforts. Third, substantial disparities in frailty prevalence have been evidenced by social factors, but we have little insight on pathways by which to address these. Need remains not only to fully document disparities, but to explain these and develop strategies by which to intervene. Inequities in frailty assessment additionally have been evidenced. In this presentation Dr. Bandeen-Roche will elaborate each challenge and outline methods by which to begin addressing them.

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S2- BIOMARKERS OF CELLULAR SENESCENCE: RESULTS FROM THE LIFE, CALERIE, AND HEALTH ABC STUDIES. Nathan K. LeBrasseur *(Mayo Clinic, Rochester, MN, USA))*

Identifying frail older adults promises to anchor personalized geriatric medicine for them; early intervention to forestall frailty itself promises to prolong healthy life for the older population. We identify three areas of urgently needed research to achieve this latter goal. First, improved methods are needed for identifying impending frailty before it becomes disabling. This entails both improved methods for ascertaining prefrailty and leveraging signal-intensive technologies to improve surveillance for frailty in free-living settings. Second, life course determinants of frailty are not well identified, yet their ascertainment will be crucial in order to forestall frailty beginning in midlife or earlier. Particularly little research has addressed attributable risks and years of healthy—yet these arguably are most important metrics for targeting public and community health efforts. Third, substantial disparities in frailty prevalence have been evidenced by social factors, but we have little insight on pathways by which to address these. Need remains not only to fully document disparities, but to explain these and develop strategies by which to intervene. Inequities in frailty assessment additionally have been evidenced. In this presentation Dr. Bandeen-Roche will elaborate each challenge and outline methods by which to begin addressing them.

Communication 1: *Biomarkers of Cellular Senescence Predict Onset of Mobility Disability and are Modifiable by Exercise in Older Adults with Mobility Limitations: Results from the Lifestyle Interventions for Elders (LIFE) Study*, Roger A. Fielding(1), Elizabeth J. Atkinson(2), Thomas A. White(3), Amanda A. Heeren(3), Michelle M. Mielke(4), Nathan K. LeBrasseur(3,5,6) ((1) Nutrition, Exercise Physiology and Sarcopenia Laboratory, Jean Mayer USDA Human Nutrition Research Center on Aging, Tufts University, Boston, USA; (2) Department of Quantitative Health Sciences, Mayo Clinic, Rochester, MN, USA; (3) Robert and Arlene Kogod Center on Aging, Mayo Clinic, Rochester, MN, USA; (4) Department of Epidemiology and Prevention, Wake Forest University School of Medicine, Winston-Salem, NC USA; (5) Department of Physical Medicine and Rehabilitation, Mayo Clinic, Rochester, MN, USA; (6) Paul F. Glenn Center for the Biology of Aging Research at Mayo Clinic, Rochester, MN, USA)

Background: Senescent cells develop in many tissues with advancing age in response to multiple forms of genotoxic, proteotoxic, metabolic, and inflammatory stress and are characterized by distinct changes in morphology, upregulation of cell cycle regulators and anti-apoptosis pathways, alterations in metabolism, and, notably, a marked and pluripotent senescence-associated secretory phenotype (SASP). **Objective:** Using samples obtained from the LIFE study we examined 27 biomarkers of cellular senescence and their association with major mobility disability, and whether these biomarkers were affected in participants randomized to a structured moderate intensity physical activity intervention (PA) compared to a healthy aging intervention (HA). **Methods and Results:** In 1,377 older females and males randomized to PA or HA, we observed significant associations between multiple SASP proteins and the onset of incident and persistent mobility disability. There was no significant difference in any of the SASP proteins between PA and HA at 12 or 24 months. However, when accelerometry assessed physical activity was separated by quartiles from lowest to highest moderate intensity activity (>760 counts/min) at 12 and 24 months, we found a significantly lower concentrations of 10 SASP proteins (eotaxin, IL-15, IL-6, IL-7, MMP1, MMP7, Osteopontin, TNF-a, TNF-R2, VEGF) by quartile of physical activity achieved. **Conclusion:** These data highlight an association between senescence biomarkers and the onset of mobility disability and the potential for physical activity to attenuate these effects in older adults.

Communication 2: *Caloric Restriction Reduces Biomarkers of Cellular Senescence in Humans,* Zaira Aversa(1,2), Beth Atkinson(3), Roger Fielding(4), Nathan K. LeBrasseur(1,2,5) ((1) Robert and Arlene Kogod Center on Aging, Mayo Clinic, Rochester, MN, USA; (2) Department of Physical Medicine and Rehabilitation, Mayo Clinic, Rochester, MN, USA; (3) Department of Quantitative Health Sciences, Mayo Clinic, Rochester, MN, USA; (4) Nutrition, Exercise Physiology and Sarcopenia Laboratory, Jean Mayer USDA Human Nutrition Research Center on Aging, Tufts University, Boston, USA; (5) Paul F. Glenn Center for the Biology of Aging Research at Mayo Clinic, Rochester, MN ,USA)

Background: Calorie restriction (CR) with adequate nutrient intake has emerged as a potential geroprotective intervention. **Objective:** We investigated whether a two-year moderate CR intervention in non-obese young to middle-aged individuals influenced the circulating levels of biomarkers associated with cellular senescence, a state of cell growth arrest triggered by various stressors and implicated in the pathogenesis of aging conditions. We also examined whether the longitudinal changes in circulating senescence-related biomarkers predicted the longitudinal changes in parameters of metabolic health. **Methods:** We examined blood samples and clinical data obtained from the Comprehensive Assessment of Long-term Effects of Reducing Intake of Energy (CALERIE) Phase 2 Study, a two-year, multicenter, randomized controlled trial in healthy non-obese young to middle-aged individuals to examine the feasibility, safety, and effects of moderate CR compared to an ad libitum (AL) diet on predictors of longevity and disease risk factors. **Results:** We found that CR significantly reduced the circulating levels of several candidate senescence biomarkers compared to an ad libitum diet at 12 and 24 months. By using a machine learning approach, changes in the circulating concentration of several biomarkers emerged as important predictors of the change in resting metabolic rate residual and insulin sensitivity index. Moreover, in a subset of participants, CR significantly reduced the enrichment of a novel

gene set (SenMayo) of 125 secreted factors, transmembrane proteins, and intracellular proteins centered on cellular senescence and the senescence-associated secretory phenotype. **Conclusion:** Our results advance the understanding of the effects of CR in humans and suggest a potential link between cellular senescence and measures of metabolic health

Communication 3: *Biomarkers of Cellular Senescence are Associated with Adverse Clinical Outcomes and Mortality in Older Adults,* Steven Cummings(1,2), Lily Liu(2), Nathan LeBrasseur(3,4,5) ((1) Departments of Medicine, Epidemiology and Biostatistics, University of California San Francisco, San Francisco CA, USA; (2) Research Institute, California Pacific Medical Center, San Francisco, CA, USA; (3) Robert and Arlene Kogod Center on Aging, Mayo Clinic, Rochester, MN, USA; (4) Department of Physical Medicine and Rehabilitation, Mayo Clinic, Rochester, MN, USA; (5) Paul F. Glenn Center for the Biology of Aging Research at Mayo Clinic, Rochester, MN, USA)

Background: Senescent cells accumulate with advancing age and contribute to a multitude of aging-related conditions, in part, through their robust SASP (senescence-associated secretory phenotype). Protein components of the SASP that are detectable in the circulation have been used as blood-based biomarkers of systemic senescent cell burden. **Objectives:** Examine whether levels of SASP proteins predict important aging-related clinical outcomes. **Methods:** We studied a panel of 39 proteins that have been identified as components of the SASP in several experimental models. We measured the concentrations of these proteins in archived serum from a random sample of 1,681 participants 70-79 years old from the prospective Health ABC study. We assessed associations between protein levels (analyzed as quartiles (Q)) and the risk (hazard ratios (HR)) of selected clinical outcomes, adjusting for age, sex, race, and BMI. **Results:** We observed multiple associations between individual senescence biomarkers and risk for aging-related clinical outcomes. Notably, GDF-15 had the most consistent and strongest associations with mobility limitations, dementia, heart failure, hip fracture, and mortality, with significant HRs ranging from 1.9-2.6 for Q4 compared to Q1. Similar and significant findings were observed for TNFR1 (1.6-2.7), IL6 (1.8-2.3), MMP7 (1.4-2.0), and activin A (1.3-1.9). **Conclusion:** High serum levels of GDF15, TNFR1, IL6, MMP7, and activin A are associated with elevated risk for mortality, dementia, heart failure, mobility limitation, and hip fracture. These observations support the premise that cellular senescence is a fundamental mechanism of aging and high levels of SASP factors predict the risk of several aging-related conditions.

S3- SOMMA: REIMAGING FRAILTY AND SARCOPENIA.

Peggy M. Cawthon *(California Pacific Medical Center, Research Institute, San Francisco, CA, USA)*

Communication 1: *Classically defined phenotypic frailty and its relationship with muscle mitochondrial energetics in SOMMA,* Theresa Mau(1), Haley Barnes(1), Peggy M. Cawthon(1), Terri L. Blackwell(1), Philip A. Kramer(2), Sofhia V. Ramos(3), Paul M. Coen(3), Russell T. Hepple(4), Stephen B. Kritchevsky(2), Steven R. Cummings(1), Anne B. Newman(5) ((1) California Pacific Medical Center, Research Institute, San Francisco, CA, USA; (2) Wake Forest University, Winston-Salem, NC, USA; (3) Translational Research Institute, Adventist Health, Orlando, FL, USA; (4) ,University of Florida, Gainesville, FL, USA; (5) University of Pittsburgh, Pittsburgh, PA, USA)

A potential biological driver of phenotypic frailty is mitochondrial dysfunction. Age-associated declines in mitochondria have been linked to frailty in older adults, and studies have shown that muscle energetics, measured by 31P magnetic resonance spectroscopy (MRS), in pre-frail or sarcopenic older adults had decreased resting adenosine triphosphate (ATP) and ATPmax compared with age-matched participants. Leveraging data from the Study of Muscle, Mobility, and Aging (SOMMA) cohort (N=873, 58.4% women, 84.9% non-Hispanic white), we investigated phenotypic frailty (the 5 components were defined as follows; shrinking—lowest quintile of D3Cr muscle mass, exhaustion—CES-D questionnaire, weakness—lowest quintile of grip strength stratified by gender and BMI quartile, slowness—lowest quartile of 4-meter walk time stratified by gender and median height, and lowest quintile of physical activity from CHAMPS questionnaire) and its relationship with 2 different measures of muscle mitochondrial energetics: ATPmax determined by 31P MRS and maximal oxidative phosphorylation (Max OXPHOS) measured by high resolution respirometry of vastus lateralis permeabilized muscle fibers. Participants with score of 0 frailty components were considered robust (45.5%), 1 or 2 were pre-frail (47.0%), and 3+ components were frail (7.6%). After full model adjustments, the associations of ATPmax with phenotypic frailty were attenuated (adjusted ATPmax mean = 0.6(robust), 0.5(pre-frail), and 0.5(frail) mM/sec, p=0.22). Whereas, even after fully adjusting for age, gender, race, education, marital status, technician/site, adiposity, height, smoking, alcohol use, and number of morbidities, maximal respiration (OXPHOS) remained significantly associated with frailty status (p<0.001). The adjusted Max OXPHOS mean was 62.7pmol/s*mg (95%CI: 60.9, 64.6) for robust (N=397), 58.2pmol/s*mg (56.3, 60.0) for pre-frail (N=410), and 54.3pmol/s*mg (49.3, 59.3) for frail (N=66) older women and men. There was no gender-interaction between muscle mitochondrial energetics and frailty status. This data suggests that in older adults in SOMMA, higher skeletal muscle mitochondrial respiration is associated with decreased frailty prevalence.

Communication 2: *Relationship of Clinical Sarcopenia Definitions to Aging Muscle Biology in SOMMA,* Russell T. Hepple(1), Peggy M Cawthon(2), Osvaldo Delbono(3), Stephen B. Kritchevsky(3), Anne B. Newman(4), Paul M. Coen(5), Bret Goodpaster(5), Steven R. Cummings(2) ((1) University of Florida, Gainesville, FL, USA; (2) California Pacific Medical Center, Research Institute, San Francisco, CA, USA; (3) Wake Forest University, Winston-Salem, NC, USA; (4) University of Pittsburgh, Pittsburgh, PA, USA; (5) Translational Research Institute, Adventist Health, Orlando, FL, USA)

Sarcopenia was originally defined as the age-related loss of skeletal muscle mass and later evolved to include the reduction in strength with aging. To facilitate clinical research in this area, numerous operational definitions of sarcopenia have been adopted, but the extent to which any clinical sarcopenia definition relates to aging muscle biology is not well established. To this end, we used data generated by the Study of Muscle, Mobility and Aging (SOMMA) for walking speed, whole body muscle mass by D3Cr, quadriceps muscle volume by MRI, knee extensor strength and power, and vastus lateralis muscle histology data in 135 participants (74 women) to provide a means of determining how two current sarcopenia definitions put forth by Sarcopenia Definitions and Outcomes Consortium (SDOC) (Bhasin et al. J Am Geriatr Soc. 68[7]: 1410-18, 2020) and European Working Group on Sarcopenia in Older People (EWGSOP2) (Cruz-Jentoft et al. Age Ageing 48[1]: 16-31, 2019) relate to histological indices of aging muscle biology. Specifically, we used the proportion of grouped fibers (an index of motor unit remodeling consequent to denervation-reinnervation that increases with aging), the type II to type I fiber cross-sectional area ratio (declines with aging), and the proportion of very small muscle fibers (defined as the size corresponding to the first percentile size for healthy young adults and which increases with aging) as indices of aging muscle biology. Amongst the indices, the proportion of very small fibers demonstrated the strongest correlations with muscle strength, muscle power, and 400m walking speed in men ($r=-0.25$, -0.33, and -0.32, respectively, $p<.001$ for all), whereas the type II to type I fiber cross-sectional area ratio had the strongest correlation with quadriceps fat-free muscle mass ($r=-0.16$, $p<.001$ for all). In contrast, in women type II to type I fiber cross-sectional area ratio demonstrated the strongest correlation with muscle strength ($r=-0.15$), the proportion of very small fibers had the strongest correlations with muscle power ($r=-0.19$) and quadriceps fat free muscle mass ($r=-0.23$), and the proportion of grouped type I fibers had the strongest correlation with 400m walking speed ($r=0.18$, $p<.001$ for all).

Communication 3: *SOMMA Frailty: Advancing the Science of Frailty,* Anne B. Newman(1), Steven R. Cummings(2), Russell T. Hepple(3), Peggy M Cawthon(2), Paul M. Coen(4), Bret Goodpaster(4), Stephen B. Kritchevsky(5) ((1) University of Pittsburgh, Pittsburgh, PA, USA; (2) California Pacific Medical Center, Research Institute, San Francisco, CA, USA; (3) University of Florida, Gainesville, FL, USA; (4)Translational Research Institute, Adventist Health, Orlando, FL, USA; (5) Wake Forest University, Winston-Salem, NC, USA)

Physical frailty is a vulnerability to stressors, increasing with age. The frailty syndrome was originally defined using available measures in a cohort study. SOMMA has directly assessed many of the physiologic manifestations of frailty that could lead to more precise diagnostic criteria. We created a new SOMMA frailty scale using peak oxygen consumption, directly assessed muscle mass, leg power, fatigability, actigraphic assessment of physical activity. We will describe its relationship to measures of health and function, including skeletal muscle mitochondrial energetics, in the SOMMA cohort.

S4- DISENTANGLING RELATIONSHIPS AMONG RESILIENCE, FRAILTY, SELF-REPORTED HEALTH: LONGITUDINAL EVIDENCE FROM COMMUNITY AND CLINICAL STUDIES OF OLDER ADULTS.

Qian-Li Xue *(Department of Medicine Division of Geriatric Medicine and Gerontology, School of Medicine, Johns Hopkins University, Baltimore, MD, USA)*

Communication 1: *Frailty and Self-Reported Health as Surrogate Markers of Physiological Resilience: Findings from the SPRING-RESTORE Study,* Brian Buta(1), Fangyu Liu(2), Meredith Dobrosielski(1), Frederick Sieber(3), Julius Oni(4), Jeremy Walston(1), Karen Bandeen-Roche(1,5), Ravi Varadhan(6), Qian-Li Xue(1) ((1) Department of Medicine, Johns Hopkins University, Baltimore, MD, USA; (2) Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; (3) Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University, Baltimore, MD, USA; (4) Department of Orthopaedic Surgery, Johns Hopkins University, Baltimore, MD, USA; (5) Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; (6) Department of Oncology, Quantitative Sciences, Johns Hopkins University, Baltimore, MD, USA)

Background: Surrogate markers of physiological resilience capacity, the capacity of a system to recover to or improve upon a baseline level of function after clinical procedures such as total knee replacement (TKR), could be used to flag older patients at high risk for poor outcomes. These surrogates may include frailty and self-reported health (SRH). **Objectives:** We assessed the association between frailty (frail, prefrail, and robust) and SRH (poor/fair, good, very good/excellent) with a resilience phenotype – defined as change in Short Physical Performance Battery (SPPB) scores pre-and post-surgery – in the TKR arm of the Study of Physical Resilience and

agING (SPRING), known as RESTORE (RESilience in TOtal knee REplacement). **Methods:** Our analysis included 114 participants aged 60 and older at the time of recruitment who completed two baseline visits before TKR surgery. 91 and 63 of these participants completed one-month and 4-6-month follow-up visits post-surgery, respectively. The associations of frailty and SRH with SPPB were analyzed using linear regression after adjusting for age, sex, race, education, and number of diseases. **Results:** At baseline, pre-frail and frail participants had significantly lower SPPB score compared to robust participants (p-value=.03 and <.01, respectively), and the association remained significant after adjusting for SRH. The association between SRH and SPPB however was not statistically significant (p-value=.12). Compared to the excellent/very good SRH group, we found a significantly greater drop in SPPB at one-month post-surgery (p-value=.04) and significantly less recovery at 4-6 months after surgery in the fair/poor SRH group (p-value=.03), and the significance remained after adjusting for frailty. No significant differences in decline at one-month (p-value=.12) or recovery at 4-6-months post-surgery (p-value=.99) were found between the frail and the robust. **Conclusion:** Though physical frailty had a stronger association with SPPB than SRH at pre-surgery baseline, only poor or fair SRH status was statistically significantly associated with changes in SPPB scores at post-surgery follow-up visits. SRH likely reflects multidimensional factors, beyond physical function/frailty, that may improve prediction of less resilient phenotypic trajectories.

Communication 2: *Physical Frailty, Self-Reported Health and All-Cause Mortality: Implications for Resilience,* Qian-Li Xue(1,2,4), Nadia M. Chu(3,4), Chenkai Wu(5) Linda P. Fried(6) ((1) Department of Medicine Division of Geriatric Medicine and Gerontology, School of Medicine, Johns Hopkins University, Baltimore, MD, USA; (2) Center on Aging and Health, Johns Hopkins Medical Institutions, Baltimore, MD, USA; (3) Department of Surgery, School of Medicine, Johns Hopkins University, Baltimore, MD, USA; (4) Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; (5) Global Health Research Center, Duke Kunshan University, Jiangsu, China; (6) Mailman School of Public Health, Columbia University, New York, NY, USA)

Background: Frailty and poor self-reported health (SRH) as potential surrogates of poor resilience are separately associated with all-cause mortality. Whether the associations are independent of each other, of physical disability, and of disease burden, and whether SRH remains predictive of mortality among frail older adults is unknown. **Objectives:** (I) To assess the associations of frailty and SRH jointly with all-cause mortality; (II) To assess the association between SRH and all-cause mortality among the frail subset. **Methods:** We leveraged NHATS, a prospective, nationally-representative cohort of older adult U.S. Medicare beneficiaries, followed annually (2011-2019). Individuals were assessed for frailty (robust, pre-frail, and frail by the physical frailty phenotype) and SRH (excellent/very good, good, or fair/poor) at baseline. Cox models were used to address the study objectives after adjusting for age, race, sex, education, number of diseases, and mobility disability. **Results:** Of 7,425 community-dwelling older adults at baseline, 1,306 (17.6%) were frail and 2,132 (28.7%) reported fair/poor health. Although being frail was positively correlated with fair/poor SRH, 12.4% of those deemed frail reported excellent/very good health and 8.5% reporting fair/poor health were deemed robust. Over a median 4.25-year follow-up, 29.1% of the 7,425 died. Compared to the robust, being pre-frail and frail were associated with 1.4- and 2.0-fold increase in the risk of mortality respectively after adjusting for SRH (p-value<0.01); and reporting good and excellent/very good health were associated with 23% and 36% reduction in mortality risk respectively after adjusting for frailty (p-value<0.01). No significant interaction between frailty and SRH was found (p-value=0.09). Among the frail subset, good and excellent/very good health respectively were associated 24% and 26% reduction in mortality risk (p-value<0.05). **Conclusion:** Physical frailty and SRH, although positively correlated, are not synonymous, a phenomenon resembling the well-being/disability paradox. Physical frailty and SRH were independently predictive of all-cause mortality; and SRH remained highly predictive among the frail. Future investigation into the determinants of positive SRH despite of being frail could provide important targets for intervention to improve resilience, and for risk screening of downstream outcomes in those most vulnerable.

Communication 3: *Interactions between Self-Reported Health and Free-Living Movement Patterns on Frailty Incidence,* Amal A. Wanigatunga(1), Brian Buta(2,3), Jennifer A. Schrack(1,3) Yurun Cai(4), Jeremy D. Walston(2,3), Karen Bandeen-Roche(5,3), Lawrence J. Appel(2,6), Qian-Li Xue(2,3 ((1) Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; (2) Department of Medicine, School of Medicine, Johns Hopkins University, Baltimore, MD, USA; (3) Center on Aging and Health, Johns Hopkins Medical Institutions, Baltimore, MD, USA; (4) School of Nursing University of Pittsburgh School of Nursing, Pittsburg, PA, USA; (5) Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; (6) The Welch Center for Prevention, Epidemiology, and Clinical Research, Johns Hopkins Medical Institutions, Baltimore, MD, USA)

Background: Self-reported health (SRH) is emerging as a marker of physiological resilience defined as homeostatic recovery from adverse stressors and intervening events. Whether lower SRH leads to higher incidence of physical frailty (a severe form of homeostatic imbalance), and whether this relationship is modified by free-living patterns of everyday movement, have not been explored. **Objectives:** To examine whether SRH was associated with incident frailty, and whether accelerometer-derived movement patterns modified the relationship of SRH with incident frailty. **Methods:** Using STURDY (Study to Understand Fall Reduction and Vitamin D

in You) data from 476 robust/prefrail adults (mean age=76+5 years; 41% women), we examined whether SRH rated as either poor, fair, good, very good or excellent (treated as a continuous variable) was associated with incident frailty using Cox regression models. In addition, we tested whether accelerometer-derived activity counts/day, active minutes/day, activity fragmentation (e.g., less continuous active time), and sedentary fragmentation (e.g., less prolonged sedentary time) modified the relationship of SRH with incident frailty. Models were adjusted for demographics, body mass index, intervention, medical conditions, and device wear days. **Results:** Over 2 years of follow-up, 42 (9%) participants developed frailty. For each lower category of SRH, there was a 66% higher frailty risk (HR: 1.66; 95% CI: 1.08-2.55). An interaction between SRH and sedentary fragmentation on frailty risk was observed in that the protective effect of sedentary fragmentation on frailty risk was attenuated among those reporting poorer health compared to those reporting better health (p-value=0.04). The same was not observed for other activity metrics (interaction p-values>0.11 for all). **Conclusion:** The negative relationship between SRH and frailty incidence supports the hypothesis that self-reported health is a potential surrogate marker of resilience. The interaction between sedentary fragmentation and SRH suggests the protective association between breaking up sedentary behaviors and frailty incidence is strengthened with higher SRH. Further research is needed to show that the success of interventions that reduce sedentary behaviors or increase activity might rely on SRH.

S5- TRANSLATIONAL GEROSCIENCE IN SARCOPENIA AND FRAILTY: BIOLOGY, BIOMARKERS AND BIG DATA. John A. Batsis *(School of Medicine (Geriatric Medicine) and Gillings School of Global Public Health (Nutrition), University of North Carolina at Chapel Hill, Chapel Hill, NC, USA)*

This symposium aims to highlight the importance of translational geroscience in sarcopenia and frailty through aging biology, biomarkers, and big data. Professor Duque will begin by describing the geroscience hypothesis as a framework for conceptualizing how aging biology may contribute to age-related changes in muscle, bone, and fat. This hypothesis theorizes that pathophysiological changes observed with age result from perturbations in one of several fundamental biological processes. These changes alter musculoskeletal, metabolic, and stress response physiology, resulting in common geriatric syndromes, including osteoporosis, sarcopenia and frailty. In this talk, we will outline how the geroscience hypothesis has contributed to an increased understanding of the interconnected relationship between changes that occur in muscle, bone, and fat with aging. He will summarize current state of the science and outline promising areas of future research. This will be followed by a presentation by Dr. Justice. She will elaborate and describe the geroscience hypothesis that posits that understanding and addressing chronic diseases, functional decline, and frailty requires a "root cause" approach: to focus on dysregulation of fundamental aging processes rather than individual diseases or conditions. The promise of the geroscience approach is supported by specific examples of translational research models. We are now testing the geroscience hypothesis in clinical trials of pharmacologic (e.g. metformin, senolytics) and lifestyle interventions that may improve healthspan and prevent or delay frailty. This requires new clinical trial frameworks, aging outcomes, and biomarkers. In this session we will outline how geroscience studies have advanced frailty science. She will also provide an overview of promising geroscience interventions, and considerations for trials to test specific approaches in translational research and interventions testing. Finally, the symposium will conclude with Dr. Batsis, who will describe the importance of lifestyle interventions, including diet and exercise. These can mitigate such adverse outcomes associated with sarcopenia and frailty; however, differential response to treatment is often observed due to clinical and biological heterogeneity. Tailoring interventions based on individual characteristics may optimize response. However, there is little evidence to guide such strategies. Precision medicine analytics can be leveraged to explore the biological mechanism underlying the heterogeneity observed in treatment responses. It can also facilitate the targeting of interventions in novel adaptive trial designs. In this session we will review how precision medicine and geroscience principles have been combined in frailty and sarcopenia research and outline potential avenues for future studies.

Communication 1: *How Geroscience can help us understand the muscle-bone-fat interaction,* Gustavo Duque (Division of Geriatric Medicine, McGill University, Montreal, Canada)

The geroscience hypothesis offers a framework for conceptualizing how aging biology may contribute to age-related changes in muscle, bone, and fat. This hypothesis theorizes that pathophysiological changes observed with age result from perturbations in one of several fundamental biological processes. These changes alter musculoskeletal, metabolic, and stress response physiology, resulting in common geriatric syndromes, including osteoporosis, sarcopenia and frailty. In this talk, we will outline how the geroscience hypothesis has contributed to an increased understanding of the interconnected relationship between changes that occur in muscle, bone, and fat with aging. We will summarize current state of the science and outline promising areas of future research.

Communication 2: *Translational Geroscience in Frailty and Sarcopenia – the past, present, and future,* Jamie Justice (Section on Gerontology and Geriatrics, Department of Internal Medicine, and Sticht Center on Healthy Aging and Alzheimer's Prevention, Wake Forest University School of Medicine (WFUSM), Winston Salem, NC, USA)

The geroscience hypothesis posits that understanding and addressing chronic diseases, functional decline, and frailty requires a "root cause" approach: to focus on dysregulation of

fundamental aging processes rather than individual diseases or conditions. The promise of the geroscience approach is supported by specific examples of translational research models. We are now testing the geroscience hypothesis in clinical trials of pharmacologic (e.g. metformin, senolytics) and lifestyle interventions that may improve healthspan and prevent or delay frailty. This requires new clinical trial frameworks, aging outcomes, and biomarkers. In this session we will outline how geroscience studies have advanced frailty science. We will also provide an overview of promising geroscience interventions, and considerations for trials to test specific approaches in translational research and interventions testing.

Communication 3: *The interplay between Precision Medicine and Geroscience in Aging Research,* John A. Batsis (Division of Geriatric Medicine and Department of Nutrition, University of North Carolina at Chapel Hill, NC, USA)

Lifestyle interventions, including diet and exercise, can mitigate such adverse outcomes associated with sarcopenia and frailty; however, differential response to treatment is often observed due to clinical and biological heterogeneity. Tailoring interventions based on individual characteristics may optimize response. However, there is little evidence to guide such strategies. Precision medicine analytics can be leveraged to explore the biological mechanism underlying the heterogeneity observed in treatment responses. It can also facilitate the targeting of interventions in novel adaptive trial designs. In this session we will review how precision medicine and geroscience principles have been combined in frailty and sarcopenia research and outline potential avenues for future studies.

S6- INNOVATIVE FRAILTY AND SARCOPENIA RESEARCH UPDATE FROM ASIA. Hidenori Arai *(National Center for Geriatrics and Gerontology, Tokyo (Japan))*

As Asians have different physiques and cultural and social backgrounds compared to people in Europe and the U.S., we have been seeking our approaches regarding sarcopenia and frailty. For example, the AWGS diagnostic criteria for sarcopenia, revised in 2019, takes a slightly different approach than the EWGSOP, whereas Japan has issued diagnostic criteria for sarcopenic dysphagia and Taiwan has issued the physio-cognitive decline syndrome, which focuses on the interaction between skeletal muscle and brain. We hope that this symposium will also lead to global innovation by introducing new and unique concepts and interventions related to sarcopenia and frailty.

Communication 1: *Muscle-Brain Crosstalk in Healthy Aging,* Liang-Kung Chen (Center for Healthy Longevity and Aging Sciences, National Yang Ming Chiao Tung University, Hsin-Chu, Taiwan; Center for Geriatrics and Gerontology, Taipei Veterans General Hospital. Taipei, Taiwan; Taipei Municipal Gan-Dau Hospital Taipei, Taiwan)

Background: Healthy aging is defined as the process of developing and maintaining the functional ability that enables well-being in older age. The core elements of the so-defined "functional ability" consist of physical, cognitive, sensory, and social dimensions. In epidemiological studies and intervention trials, exercise has been reported to play important role in preventing the development of disability and dementia. Despite the well-evidenced favorable effects of exercise in preventing cognitive declines, the molecular mechanisms remain less clear. Studies have identified several myokines secreted by skeletal muscle, e.g., cathepsin B and irisin, contribute to the regulation of neuron senescence and hippocampal function. Besides, exercise also increases the PGC1α-dependent muscular expression of kynurenine aminotransferase enzymes, which leads to the beneficial balance between the neurotoxic kynurenine and the neuroprotective kynurenic acid that reduces depression-like symptoms. Meanwhile, atrophic skeletal muscle fibers secrete exosomes containing miR-29b-3p that induce senescence of human neurons prepared by the iPSC platform. The circulatory miR-29b-3p appears in dexamethasone-induced skeletal muscle atrophy and in the plasma of older people with sarcopenia. Hence, the muscle-brain crosstalk clearly disclosed the substantial interactions between muscle and brain through circulation instead of the nervous systems. Therefore, an integrated approach to promoting healthy aging by preventing the development of disability and dementia with a more comprehensive mechanistic understanding would benefit the clinical efficacy of healthy aging interventions.

Communication 2: *Innovative approaches for sarcopenic dysphagia: Japan's experiences,* Keisuke Maeda (Department of Geriatric Medicine, Hospital, National Center for Geriatrics and Gerontology, Aichi, Japan)

Older adults may face a risk of swallowing problems. The novel etiology of dysphagia, sarcopenic dysphagia, is gathering great attention in the field of geriatric nutrition. In 2019, four academic societies in Japan published a position paper focusing on the concept, definition, and diagnostic criteria of sarcopenic dysphagia. Current proposed diagnostic criteria for sarcopenic dysphagia include the presence of sarcopenia and dysphagia without apparent cause of dysphagia, such as stroke or neurodegenerative disease, and the presence of low tongue strength. The prevalence of sarcopenic dysphagia has been reported as 13-42% in older inpatients. The risk factors for developing sarcopenic dysphagia are poor physical function, malnutrition, and highly advanced sarcopenia. Since sarcopenic dysphagia develops in association with sarcopenia and many factors are associated with the development of sarcopenic dysphagia, physical and nutritional interventions may improve swallowing muscle function. We recently reported the impact of physical intervention and nutritional intake on increasing tongue strength. The results indicated that physical intervention with nutritional support in addition to swallowing exercises would be necessary to treat sarcopenic dysphagia. Furthermore, another study reported that aggressive nutrition therapy for patients with sarcopenic dysphagia could contribute to better swallowing function in a rehabilitation hospital. In the

statistical model, swallowing function and rates of achieved the minimal clinically important difference of activities of daily living at discharge from the hospital were significantly higher in the mean provided energy ≥ 30 kcal/day (kg) group (p=.004 and P<.001, respectively). Aggressive nutritional support for sarcopenic dysphagia would be vital to improve swallowing function. In summary, we would like to focus on new mechanisms of sarcopenic dysphagia in Japan. In addition, its prevention and treatment require a systemic approach, and the strategy differs somewhat from conventional dysphagia rehabilitation. Physical and nutritional care combined with traditional intervention will probably be essential candidates.

Communication 3: *Renovation of DXA, BIA for diagnosis of sarcopenia,* Chang Won Won (Department of Family Medicine College of Medicine, Kyung Hee University, Seoul, South Korea)

Some Studies show that "measuring muscle mass is not helpful in prediction of bad outcomes and raised uselessness of muscle mass measurement by DXA or BIA in diagnosis of sarcopenia. However, lean mass by CT is significantly associated with outcomes. Therefore, muscle itself is not a culprit, but the modality for muscle measure matters. Then how can we improve correctness of DXA, BIA in assessing skeletal muscle mass through make-up for its shortcomings? 1. BIA : With an advent of multi-frequency BIA from 1 kHz to 1 MHz, more accurate analysis of body composition without relying on empirical estimations became possible. But, it still has inaccuracy. Recently developed high-frequency BIA use the 3 MHz high-frequency measurement technology seems to increase the accuracy of muscle mass analysis. 2. DXA: Though DXA is a recommended method of appendicular lean mass(ALM) measure, it does not assess muscle mass directly, and the ALM assessed includes intramuscular fat, and connective tissue, and therefore overestimates skeletal muscle mass. If we can estimate intramuscular fat, we could improve the correctness of DXA for muscle measure.

S8- CONCEPTUALIZATION, ASCERTAINMENT AND IMPLICATIONS OF PREFRAILTY AS A PUBLIC HEALTH PRIORITY. Karen Bandeen-Roche *(Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA)*

Communication 1: *Pre-Frailty as an Important Public Health Condition,* Rónán O'Caoimh (University College Cork and Mercy University Hospital, Cork, Ireland)

There is a growing recognition that frailty is a public health priority. Hence, early identification of frailty is important to prevent or at least mitigate its adverse consequences, particularly functional decline and disability at both individual and population-level. Recent research has focused on understanding the nature of frailty at its earliest prodromal stage, often referred to as pre-frailty. This may represent an optimal target for public health interventions. However, it currently lacks a recognised definition, which is particularly important to support comparability across populations and types of interventions. A recent international Delphi consensus conducted by this research team suggests that pre-frailty is an aged-associated, multi-factorial, multi-dimensional, and non-linear prodromal risk-state associated with one or more of physical impairment, cognitive decline, nutritional deficiencies and socioeconomic inequalities, predisposing to the development of frailty. Differences in the operationalisation of pre-frailty present a marked challenge to understanding its epidemiology as prevalence, incidence and outcome rates vary considerably by definition. For example, the prevalence of pre-frailty in population-level studies varies from as low as 24% with the Edmonton Frail Scale to as high as 50% with the deficit accumulation model (frailty index). However, the number and type of studies using different measures of pre-frailty vary markedly introducing significant heterogeneity. This research communication provides an up-to-date overview of pre-frailty in a public health context, examining its core features including proposed definitions, current epidemiology, and data exploring its clinical associations and outcomes.

Communication 2: *Next-generation prefrailty assessment in the Physical Frailty Phenotype,* Karen Bandeen-Roche, Charlotte Clapham (Department of Biostatistics, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA)

Regular frailty assessment has been recommended for older adults' health management. To maintain health, prefrailty assessment is as important. With the physical frailty phenotype (PFP), prefrailty defined as 1-2 PFP criteria has been shown to predict adverse health outcomes, but its reliance on a low number of criteria may limit its psychometric strength and diagnostic specificity. A recent international Delphi consensus study affirmed need for improved assessment of pre-frailty as an initially silent risk state which predisposes to frailty onset, disability, and adverse outcomes if poorly managed; the PFP further hypothesizes as etiology an unraveling network of physiological systems governing stress response. This paper explores potential for an improved schema by which to evaluate candidate pre-frailty measures adhering to these concepts—by (1) considering alternative prefrailty assessments employing measures underlying PFP criteria differently than the current definition, or augmenting these; and (2) evaluating reliability and predictive validity for incident frailty and selected downstream outcomes of the candidate measures. Analyses leverage the Women's Health and Aging Studies (WHAS) I and II. Exemplifying approaches: An alternative prefrailty assessment was created by distinguishing 3 population subclusters via latent profile analysis: An intermediate cluster was similar to a most frail cluster on grip strength and relatively similar on energy (both distinguished from a robust cluster); relatively similar to a robust subcluster on physical activity and weight change (both distinguished from a frail subcluster); and distinguished in a stepwise fashion across clusters by gait speed. Downstream outcomes to be considered in predictive validity analyses include onset of frank frailty, mobility

dependence and mortality. The project aims to inform design of (a) a formal conference to elicit further expert opinion/ identify research gaps and (b) a de novo study to develop next-generation measures.

Communication 3: *Effects of Pre-frailty in Working Middle-aged and Older Adults in Europe,* Duygu Sezgin (University of Galway, Galway, Ireland)

People with chronic conditions may develop pre-frailty while still being of working age and this may affect their performance. As the dependency ratio increases in many developed countries, more people must continue working for longer. Extending the working age is also essential for many individuals to minimise income loss and subsequent medical debt associated with managing chronic conditions. To date, studies investigating the link between pre-frailty and work ability of middle-aged and older individuals who work despite suffering from chronic diseases are limited. Further, it is not yet well-known how chronic diseases and pre-frailty affect the perceptions of working middle-aged and older adults on their ability to work despite having health issues and therefore having plans for early retirement. We conducted a study to identify the prevalence of pre-frailty and investigate the association between pre-frailty, fear of health limiting ability to work, and plans for early retirement in working middle-aged and older adults. Data from 29 European countries was gathered using waves 1-8 of the Survey of Health, Ageing and Retirement in Europe (SHARE, 2004-2020). We included participants aged 50 years and over with data on employment and frailty status in the data analyses. Pre-frailty was identified using a modified version of the Fried et al. criteria. A total of 38,220 participants (mean age 55.7±3.8) were included. Thirty-six per cent (13,909) were pre-frail, 46% (17,614) looked for early retirement, and 30% (11,406) were afraid that their health would limit their ability to work. After adjusting for age and sex, logistic regression analyses indicated that those with pre-frailty were more likely to have a fear of health limiting their ability to work and were more likely to have plans for early retirement. We found that pre-frailty may limit middle-aged and older individuals' ability to work and may lead to plans for early retirement. It is important to understand the significance of early frailty in work life so that effective preventative measures and management strategies can be implemented.

Oral Communications

OC1- THE APELIN RECEPTOR AGONIST BGE-105 PREVENTS MUSCLE ATROPHY INDUCED BY BED REST IN HEALTHY VOLUNTEERS AGED ≥ 65 YEARS. Ann Neale(1), Eric Wang(1), Eric Morgen(1), Kristen Fortney(1), Patrick Martin(1), Kristen Reiman(1), Paul Rubin(1), William Evans(2) *((1) BioAge Labs, Richmond, CA, USA; (2) Nutrition Sciences & Toxicology, University of California Berkeley, CA, USA)*

Background: The apelin peptide promotes regeneration and repair of skeletal muscle. BioAge's AI-driven analysis of human aging profiles revealed that people with higher apelin pathway activity as they age live longer and healthier lives. Loss of apelin activity with age is correlated with multiple morbidities. **Objectives:** BioAge tested the small molecule BGE-105, an apelin receptor agonist, in a Phase 1b clinical trial for prevention of muscle atrophy in older people. **Methods:** Healthy volunteers 65 or older were subjected to a 10-day course of strict bed rest, during which they received daily intravenous infusions of BGE-105 (n=11) or placebo (n=10). Thigh circumference, ultrasound measurements of the vastus lateralis, Goutallier grade (an index that quantifies fatty degeneration in muscle), and muscle protein synthesis were recorded before and after bed rest. **Results:** Bed rest resulted in muscle atrophy on day 10 of the study. BGE-105 improved all muscle parameters relative to placebo: thigh circumference (placebo: -6.4% vs. baseline; BGE-105: +0.8% vs baseline; $p < 0.001$), vastus lateralis diameter (placebo: -21.2%; BGE-105: -5.7%; $p < 0.01$); and vastus lateralis cross-sectional area (placebo: -19.5%; BGE-105: -8.0%; $p < 0.05$). Goutallier grade worsened in 8 of 10 volunteers on placebo vs. 1 of 11 volunteers receiving BGE-105 ($p < 0.005$). Bed rest decreased synthesis of muscle proteins, and this effect was significantly ameliorated by BGE-105 (placebo: 15.9%; BGE-105: 22.0%; $p < 0.005$). All percentages are relative to baseline before initiation of bed rest. No severe adverse effects were observed. **Conclusion:** Daily treatment with BGE-105 significantly improved multiple metrics of muscle atrophy in healthy older people on bed rest. BGE-105 may have prevented reductions in muscle dimensions by increasing the rate of muscle protein synthesis. Diseases associated with muscle atrophy, including acute myopathies in mechanically ventilated ICU patients and chronic illnesses driven by progressive loss of muscle function with age, affect millions of people each year. Given that there are no effective therapies for diseases of muscle aging, the trial data warrant further clinical investigation of BGE-105 for acute and chronic indications.

OC2- IMPACT OF L-CITRULLINE SUPPLEMENTATION AND LOW-INTENSITY RESISTANCE TRAINING ON LEG ENDOTHELIAL FUNCTION, LEAN MASS, AND STRENGTH IN POSTMENOPAUSAL WOMEN WITH HYPERTENSION.

Arturo Figueroa(1), Arun Maharaj(2), Stephen M. Fischer(1), Katherine N. Dillon(1), Mauricio A. Martinez(1), Yejin Kang(1) *((1) Department of Kinesiology and Sport Management, Texas Tech University, Lubbock, TX, USA; (2) Department of Epidemiology and Cancer Control, St. Jude Children's Research Hospital, Memphis, TN, USA)*

Background: Sarcopenia is associated with reduced endothelial function (flow-mediated dilation [FMD]) and hypertension. L-citrulline (CIT), an arginine and nitric oxide precursor, has improved blood pressure in hypertensive women and lean mass (LM) in malnourished older women. Low-intensity resistance training (LIRT) has increased strength but not LM in older women. CIT supplementation combined with aerobic training increased muscle strength but not LM in dynapenic older adults. **Objectives:** The aim of this study was to test the hypothesis that CIT supplementation combined with LIRT would have additive benefits on leg endothelial function, LM, and muscle strength in postmenopausal women with hypertension. **Methods:** Twenty-four postmenopausal women aged 50-75 years were randomized to either 10g/day of CIT (n= 13) or placebo (PL, n= 11) alone for 4 weeks and combined with LIRT (CIT+LIRT or PL+LIRT) for another 4 weeks. Leg endothelial function was measured using superficial femoral FMD. Leg LM was measured using DEXA. Muscle strength was measured using leg curl 10RM. LIRT consisted of 3 sets of four leg exercises at 40-50% of 1RM, 3 days/week. Measurements were performed at 0, 4, and 8 weeks. **Results:** CIT supplementation increased FMD compared to PL after 4 weeks (CIT:1.8±0.3% vs. PL:-0.2±0.5%, P=0.004) and 8 weeks (CIT+LIRT:2.7±0.5% vs PL+LIRT:-0.02±0.5, P=0.003). CIT alone for 4 weeks did not improve leg LM or strength. CIT+LIRT increased leg LM compared to PL+LIRT (0.5±0.2 kg vs 0.1±0.1 kg, P=0.046). The increase in leg curl strength from baseline was greater after CIT+LIRT compared to PL+LIRT (6.9±0.9 kg vs. 3.3±0.9 kg, P=0.04). There was a significant correlation between changes in FMD and leg LM (r= 0.44, P= 0.03) but not with changes in leg strength (r= 0.32, P= 0.13) during the combined interventions. **Conclusion:** CIT supplementation alone for 4 weeks improved leg endothelial function but not leg LM and strength. CIT supplementation had and additive effect on leg muscle strength. Our findings suggest that CIT supplementation combined with LIRT induced greater increases in leg LM via improved endothelial function in postmenopausal women with hypertension.

OC3- LIVING LONGER BUT FRAILER? TRENDS IN LIFE EXPECTANCY AND FRAILTY IN OLDER SWEDISH ADULTS.

Clare Tazzeo(1), Debora Rizzuto(1,2), Amaia Calderón-Larranaga(1,2), Serhiy Dekhtyar(1,2), Alberto Zucchelli(1,3), Xin Xia(1), Laura Fratiglioni(1,2), Davide Liborio Vetrano(1,2) *((1) Aging Research Center, Department of Neurobiology, Care Sciences and Society, Karolinska Institutet and Stockholm University, Stockholm, Sweden; (2) Stockholm Gerontology Research Center, Stockholm, Sweden; (3) Department of Information Engineering, University of Brescia, Brescia, Italy)*

Background: Frailty – a clinical syndrome characterized by physiological vulnerability to stressors – is one of the greatest threats to healthy aging. However, it is unclear whether there has been an expansion or compression of frailty over time with increases in life expectancy. **Objectives:** This study aims to: 1) examine frailty state transitions by birth year, and 2) assess whether there has been an expansion or compression of years of life spent frail across birth cohorts. **Methods:** We analyzed approximately 15 years of follow-up data from 2941 individuals, aged 60+ years, participating in the Swedish National study on Aging and Care in Kungsholmen (SNAC-K; baseline 2001-2004). A 40-deficit frailty index (FI) was built, and three frailty states were identified: robust (FI ≤ 0.125), mild frailty (0.125 < FI ≤ 0.25), and moderate & severe frailty (FI > 0.25). Multi-state survival analyses were implemented to compute frailty-state transitions; hazard ratios for the transitions were obtained with birth year and sex as predictors, also adjusting for age. Frailty state-specific life expectancies for robust persons at age 60 were estimated by birth cohort and sex. **Results:** Forecasted life expectancy increased, but a greater proportion of life was spent frail, in later birth cohorts. Hazards of transitioning from mild frailty to death (hazard ratio [HR]: 0.89; 95% confidence interval [CI]: 0.83-0.97) and moderate and severe frailty to death (HR: 0.98; 95% CI: 0.97-0.99) were lower with later birth year. Unfavourable transitions from robust to mild frailty (HR: 0.81; 95% CI: 0.70-0.93), mild frailty to moderate and severe frailty (HR: 0.80; 95% CI: 0.68-0.93), and moderate and severe frailty to death (HR: 0.68; 95% CI: 0.59-0.78) were less likely among women. Women had a greater predicted life expectancy than men, but more time was spent frail; this difference attenuated over time. **Conclusion:** Our results point to an expansion of frailty in older Swedish adults and an attenuation in discrepancies in life expectancy by sex. As population aging continues, it is more important than ever that we continue to monitor frailty trends to inform resource allocation and preventive strategies that promote resiliency and independence in older adults.

OC4- IDENTIFICATION OF BIOMARKERS OF FRAILTY IN SILICO. Kristina Tomkova, Adewale Adebayo, Gavin Murphy, Marcin Wozniak *(Department of Cardiovascular Sciences, University of Leicester, Leicester, UK)*

Introduction: Frailty is a syndrome characterised on a symptomatic level by loss of muscle mass, weakness, low energy levels and overall vulnerability to stressors. However, the lack of a molecular definition of frailty presents a barrier for researchers and clinicians in developing effective interventions or specialised care for patients suffering from this syndrome. **Objectives:** This study aimed to identify gene expression signatures and potential biomarkers characteristic of frailty. **Methods:** Transcriptomic profiles from frail, non-frail, old and young individuals were retrieved from the NCBI Gene Expression Omnibus repository using E-utilities. Differential gene expression analysis was performed using the LIMMA pipeline, gene set enrichment analysis using Reactome annotations, highly correlated genes were identified using weighted correlation network analysis, and a random forest algorithm was used to identify the most discriminatory transcripts. **Results:** Ten studies with 553 individual samples, each examining 13 991 genes, were included. This data comprised of 315 peripheral blood mononuclear cell (PBMC) samples, 28 CD8 cell samples, and 209 muscle tissue samples. Genes involved in nucleolar processes, mitochondrial function, translation and muscle contraction were most affected in samples from frail patients (FDR < 0.001). Small nucleolar RNAs (SNORDs) were the most discriminatory and predicted frailty with high accuracy. The results also indicated that frailty is an independent phenomenon compared to biological ageing. Old age affected a wide variety of pathways including protein translation, immunity, and cell cycle, while frailty affected a more specific portfolio of pathways revolving around nucleolar processes, mitochondrial function and muscle contraction. Further analysis indicated that frailty might be tissue specific. **Conclusion:** Our results suggest that nucleolar processes, including ribosomal assembly, mainly driven by SNORDs, are potentially a frailty-specific mechanism that likely lead to dysregulation of mitochondrial function and changes in the expression of muscle proteins.

OC5- ASSOCIATION BETWEEN DEPRESSIVE SYMPTOMS AND FRAILTY BY DIFFERENT PHYSICAL ACTIVITY LEVELS IN EUROPEAN COMMUNITY-DWELLING OLDER ADULTS ENROLLED IN THE DO-HEALTH TRIAL – A THREE-YEAR PROSPECTIVE OBSERVATIONAL ANALYSIS. Michael Gagesch(1,2), Stephanie Gängler(1,2), Michèle Mattle(1,2), Reto W. Kressig(3), Bruno Vellas(4), Gregor Freystätter(1,2), Heike A. Bischoff-Ferrari(1,2,5) for the DO-HEALTH investigators *((1) Department of Aging Medicine and Aging Research, University Hospital Zurich and University of Zurich, Zurich, Switzerland; (2) Centre on Aging and Mobility, University Hospital Zurich, City Hospital Zurich Waid and University of Zurich, Zurich, Switzerland; (3) University Department of Geriatric Medicine FELIX PLATTER, Basel, Switzerland; (4) Gérontopôle, Toulouse University Hospital, University of Toulouse, UMR INSERM 1027, Toulouse, France; (5) University Clinic for Acute Geriatric Care, City Hospital Waid and Triemli, Zurich, Switzerland)*

Background: Mechanisms leading to frailty root in multi-system dysregulations. In addition, mental health has been associated with an increased frailty risk. Prior studies indicate a bidirectional association of frailty and depressive symptoms. However, longitudinal data as well as data on potential modifiers including physical activity (PA) and sedentary behavior (SB) are limited. **Objectives:** We aim to investigate a) the association of baseline depressive symptoms (DS) in robust participants with incident pre-frailty/frailty over 3 years, and b) the association of change in DS from baseline to year 3 with time, and the incidence of pre-frailty/frailty in the same timeframe. Additionally, we will investigate these associations stratified by different baseline PA and SB levels. **Methods:** This is a prospective observational analysis of 1,137 DO-HEALTH participants robust at baseline (mean age, 74.3 years; 56.5% women, mean gait speed 1.18 m/s). DO-HEALTH is a multi-center clinical trial in community-dwelling European adults aged 70+. We operationalized frailty by the Fried physical frailty phenotype (robust/pre-frail/frail). DS were assessed with the Geriatric Depression Scale 15 items (GDS-15). Levels of PA and SB were classified based on the Nurses' Health Study Physical Activity Questionnaire. **Results:** We will present population characteristics overall and by DS status at baseline. To report the association of baseline GDS-15 scores and incident pre-frailty/frailty we will present odds ratios and 95% confidence intervals from a generalized estimating equation model for repeated binary outcomes for each outcome after adjustments. Predefined adjustments are age, sex, BMI, study center, cognitive function, presence of pain, use of antidepressant drugs, faller status at baseline, DO-HEALTH treatments, time, and their interaction. A stratified analysis by level of PA and SB will be performed, i.e. meeting WHO PA guidelines vs. not meeting WHO PA guidelines; and high vs. low reporting of sedentary behavior. **Conclusion:** Our analysis aims to contribute important knowledge on the association of incident pre-frailty/frailty and DS at baseline and DS change

over three years of follow up in generally healthy participants aged 70+, recruited from five European countries. Additionally, novel data on the influence of different levels of PA and SB on the exposure-disease relationship will be discussed.

OC6- ASSOCIATION BETWEEN THE SEVERITY OF THE DISEASE AND THE RISK OF SARCOPENIA IN PEOPLE WHO RECOVERED FROM COVID-19. Ester Wiggers(1), Gabriel Peinado Costa(2), Paulo Giusti Rossi(3), Átila Alexandre Trapé(2) *((1) Geriatric Department, University of São Paulo, Ribeirão Preto, São Paulo, Brazil; (2) School of Physical Education and Sport of Ribeirão Preto, University of São Paulo, Ribeirão Preto, São Paulo, Brazil; (3) Department of Physical Therapy, Federal University of São Carlos, São Carlos, Brazil)*

Background: Some studies have investigated the relationship between anthropometric variables, such as body mass index and waist circumference, with the severity of COVID-19. However, more specific body composition assessments, such as the one performed through Dual-energy X-ray absorptiometry (DXA), have yet to be explored to study the relationship with the severity of COVID-19. Objectives: To verify the association between the severity of COVID-19 and the risk of sarcopenia in recovered COVID-19 patients. **Methods:** Descriptive and cross-sectional study. Volunteers (aged 30-69 years old) were selected from the community between September and October 2020, about 30 days after recovery from clinical signs or medical discharge. We assessed body composition at baseline by DXA, with the measurement of the skeletal mass index (SMI), physical fitness by 30-s chair stand (CS), and agility and dynamic balance (AGI). Information related to sex and age was collected. COVID-19 severity was classified into four categories: mild: common flu-like symptoms without dyspnea (n=16), moderate: common flu-like symptoms with dyspnea (n=49), severe: hospitalization (n=10), and critical: hospitalization with intensive care (respirator) (n=8). The risk of sarcopenia was classified following the criteria of Janssen et al. into three categories: regular grade, grade 1 risk, and grade 2 risk. Quantitative variables are presented as mean (standard deviation), and categorical variables are presented as relative frequency. The association has been verified by Fisher's exact test, and correlation strength was verified through Pearson (continuous variables) and Spearman (discrete variables), with a 5% significance level. Results: The sample consisted of 83 participants aged 48.5(9.8) without a difference ($p>0.05$) between groups. An association between COVID-19 severity and sarcopenia risk could be observed ($\chi2=13.5$; $df=3$; $p<0.05$), as severity mild, moderate, severe, and critical had 24.5%, 70.7%, 2.4%, and 2.4% for no risk of sarcopenia, respectively, versus 14.3%, 47.6%, 21.4%, and 16.7% for grade 1 sarcopenia risk. Additionally, CS (number of repetitions) correlated positively (r=0.49), and AGI (time to complete the circuit) correlated negatively (r=-0.54) to SMI. **Conclusion:** The COVID-19 severity was associated with SMI classification, with severity 3 and 4 more frequent for grade 1 sarcopenia risk. Additionally, the SMI score correlated moderately with physical fitness. **Keywords:** sarcopenia, COVID-19, body composition.

OC7- BIOCHEMICAL MARKERS OF MUSCULOSKELETAL HEALTH AND AGING TO BE ASSESSED IN CLINICAL TRIALS OF DRUGS AIMING AT THE TREATMENT OF SARCOPENIA. Aurélie Ladang(1), Charlotte Beaudart(2), Jean-Yves Reginster(2,3), Nasser Al-Daghri(3), Olivier Bruyère(2), Nansa Burlet(2), Matteo Cesari(4,5), Antonio Cherubini(6), Mario Coelho da Silva(7), Cyrus Cooper(8), Alfonso J. Cruz-Jentoft(9), Francesco Landi(10), Andrea Laslop(11), Stefania Maggi(12), Ali Mobasheri(2,13-15), Sif Ormarsdottir(16), Régis Radermecker(17), Marjolein Visser(18), Maria Concepcion Prieto Yerro(19), René Rizzoli(20), Etienne Cavalier(1) *((1 Department of clinical chemistry, CHU de Liège, University of Liège, Liège, Belgium; (2) WHO Collaborating Center for Public Health aspects of musculo-skeletal health and ageing, Division of Public Health, Epidemiology and Health Economics, University of Liège, Belgium; (3) Chair for Biomarkers of Chronic Diseases, Biochemistry Department, College of Science, King Saud University, Riyadh, Saudi Arabia; (4) Department of Clinical Sciences and Community Health, University of Milan, Milan, Italy; (5) Geriatric Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy; (6) Geriatric Unit, IRCCS Istituti Clinici Scientifici Maugeri, Milan, Italy; (7) Laboratory of Clinical and Therapeutical Pharmacology, Portugal; (8) MRC Lifecourse Epidemiology Unit, University of Southampton UK; (9) Servicio de Geriatría. Hospital Universitario Ramón y Cajal (IRYCIS). Madrid, Spain; (10) Department of Geriatrics, Neurosciences and Orthopedics, Catholic University of the Sacred Heart, Rome, Italy; (11) Scientific Office, Federal Office for Safety in Health Care, Vienna, Austria; (12) CNR Aging Branch-IN, Padua, Italy; (13) State Research Institute Centre for Innovative Medicine, Vilnius, Lithuania; (14) Research Unit of Medical Imaging, Physics and Technology, Faculty of Medicine, University of Oulu, Oulu, Finland; (15) Department of Joint Surgery, The First Affiliated Hospital of Sun Yat-sen University, Guangzhou, China; (16) Landspitali, University Hospital of Iceland, Reykjavik, Iceland; (17) Department of Diabetes, Nutrition and Metabolic Disorders, Clinical Pharmacology, University of Liege, CHU de Liège, Liège, Belgium; (18) Vrije Universiteit Amsterdam, Department of Health Sciences, Amsterdam, the Netherlands; (19) Agencia Española de Medicamentos y Productos Sanitarios, Madrid, Spain; (20) Service of Bone Diseases, Faculty of Medicine, Geneva University Hospitals, Geneva, Switzerland)*

Background: In clinical trials, biochemical markers provide useful information on drug's mode of action, on therapeutic response and side effect monitoring, and can act as surrogate endpoints. In pharmacological intervention development for sarcopenia management, there is an urgent need to identify biomarkers that should be measured in clinical trials and

could be used in the future in clinical practice. **Objective:** The objective of this consensus report is to provide a clear list of biochemical markers of musculoskeletal health and ageing that can be recommended to be measured in Phase II and Phase III clinical trials evaluating new chemical entities for sarcopenia treatment. **Methods:** The European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Disorders (ESCEO ASBL) jointly with the Centre Académique de Recherche et d'Expérimentation en Santé (CARES SRL) organized in September 2022, under the auspices of the World Health Organization Collaborating Center for Epidemiology of Musculoskeletal Health and Aging, a working group including scientists, specialists in Laboratory medicine and clinicians expert in the field of biochemical markers and sarcopenia as well as representatives of the regulatory bodies. Following a systematic literature review on the existing evidences, all experts met during a face-to-face meeting to discuss and agree on recommendations. **Results:** the group proposed to classify biochemical markers into 2 series: biochemical markers evaluating musculoskeletal status and biochemical markers evaluating causal factors. For series 1, the group agreed on 4 biochemical markers that should be assessed in Phase II or Phase III trials (i.e. Myostatin-Follistatin, Brain Derived Neurotrophic Factor, N-terminal Type III Procollagen and Serum Creatinine to Serum Cystatin C Ratio – or the Sarcopenia Index). For series 2, the group agreed on 6 biochemical markers that should be assessed in Phase II trials (i.e. the hormones Insulin-like growth factor-1 (IGF-I), dehydroepiandrosterone sulfate, and cortisol, and the inflammatory markers C-reactive protein (CRP), interleukin-6 and tumor necrosis factor-α), and 2 in Phase III trials (i.e. IGF-I and CRP). The group also proposed optional biochemical markers that may bring insights on the mode of action of pharmacological therapies. **Conclusion:** Further research and development of new methods for biochemical marker assays may lead to the evolution of these recommendations.

OC8- ASSOCIATION BETWEEN THYROID FUNCTION AND LOWER LIMB COMPOSITION IN OLDER ADULTS: ANALYSIS FROM THE BALTIMORE LONGITUDINAL STUDY OF AGING. Hamza Ibad(1), Shadpour Demehri(1), A. Zenobia Moore(2), Eleanor M Simonsick(2), Jennifer SR Mammen(3) *((1) Johns Hopkins University School of Medicine, Department of Radiology, Baltimore MD, USA; (2) National Institute on Aging, National Institutes of Health, Baltimore MD, USA; (3) Johns Hopkins University School of Medicine, Department of Medicine, Division of Endocrinology, Diabetes, and Metabolism, Baltimore MD, USA)*

Background: In older adults, higher thyroid hormone levels have been associated with slower gait speed, lower endurance and higher fatigability. As thyroid hormone is catabolic, higher levels have the potential to accelerate age-related functional decline including loss of muscle mass and development of sarcopenia. Furthermore, thyroid hormone treatment is the most common cause of thyroid hormone excess. Therefore, any negative impact of higher thyroid hormone levels on sarcopenia would have implications for the clinical use of thyroid hormone replacement in older adults and especially in those with frailty. **Objectives:** Investigate the association between thyrotropin (TSH) and thyroid hormone levels and lower limb composition measured by dual-energy X-ray absorptiometry (DEXA) in participants of the Baltimore Longitudinal Study of Aging (BLSA). **Method:** Clustered-robust standard errors linear regression models were used to estimate crosssectional relationships between visit-specific thyroid function tests and lower limb composition, adjusted for levothyroxine use, age, race, sex, BMI, smoking, alcohol intake, total cholesterol, systolic blood pressure, and self-reported history of type II diabetes mellitus or knee osteoarthritis. **Results:** 1168 participants, 51% female and 73% white, made a total of 4669 eligible visits between 2003 and 2019, with 63.8% of participants making at least 3 visits. Mean age across all observations was 78 years, and levothyroxine (LT4) was in use for thyroid hormone replacement at 14% of visits. Knee osteoarthritis was reported at 36% of visits. Mean TSH was 2.4 mU/L and mean Free T4 (FT4) was 1.0 ng/dL. FT4 was negatively associated with lean mass (beta: -118.57, p-value <0.01) and positively associated with fat mass (beta: 98.16, p-value < 0.01) in fully adjusted models. Excluding visits at which participants were on LT4 did not change the associations between FT4 and body composition (FT4 and lean mass beta: -143.33, p-value <0.001). Neither TSH nor Free T3 were significantly associated with body composition. **Conclusion:** The association between higher FT4 and lower lean and higher fat mass suggests that higher thyroid hormone levels maybe a modifiable risk factor for sarcopenia that warrants further investigation. Prospective studies with a sufficient exposure time-frame are needed to assess for causality

OC9- AGING TRANSCRIPTOMIC SIGNATURES OF HIGH INTENSE EXERCISE AFFECTING MUSCLE BIOENERGETICS. Stefano Donega(1), Nirad Banskota(1), Julian Candia(1), Yulan Piao(1), Chee Chia(1), Supriyo De(1), Ranjan Sen(1), Luigi Ferrucci(1) *((1) National Institute on Aging, National Institutes of Health, Baltimore, MD, USA)*

Background: Mitochondrial mass and function decline with aging in humans and such decline affects many biological processes, in particular the capacity of organisms to expand the proteome in response to exterior stimuli or unfavorable metabolic conditions. There is evidence that some of these molecular changes involve the production of alternative RNA splicing variants, either directly or indirectly in response to those that modulate master regulators of the energy crisis response, namely AMPK. Mechanisms that maintain an optimal steady-state level of ATP are only partially understood but there is initial evidence in multiple model species that while mitochondrial mass and function decline with age, compensatory mechanisms are activated including alternative splicing. **Objectives:** Skeletal muscles require high amount of energy to function properly and muscle tissue is an ideal model to understand changes that occur in the absence and in

the presence of sufficient energy availability. **Methods:** The Genetic and Epigenetic Signatures of Translational Aging Laboratory Testing (GESTALT), a cross-sectional study that investigated relationships between aging and biomarkers of human blood/tissue, enrolled healthy individuals dispersed over a wide age-range (n=92, age 22-89). In this study, we investigated the relationship between muscle bioenergetics - measured by skeletal muscle oxidative capacity (kPCr) using 31P magnetic resonance spectroscopy - and the emergence of splicing variants. **Results:** In fully adjusted regression models, transcripts enriched for mitochondria- and respirasome- processes were lower at older ages and were higher in individuals with high mitochondrial function estimated by KPCr. Interestingly, when we compared the aging transcriptome in donors with low and high mitochondrial function - we detected pre-mRNA pathways to be up-regulated in poorer mitochondrial function donors, indicating possible key-role for specific mRNA isoforms governing muscle damage homeostasis with age. **Conclusion:** The association between spliceosome transcripts and age were substantially more evident in those individuals with low mitochondrial function (low kPCr) that in those with high mitochondrial function (high kPCr). We are currently investigating possible interactions with RNA subtype regulatory elements such lncRNAs, circRNAs and miRNAs, as well as contribution of Transposable Elements (TEs) and Epigenetic changes, since methyltransferase activity has been previously shown to be affected by physical activity.

OC10- BIOPHYTIS BIO101: A CANDIDATE TREATMENT FOR LONG COVID AFTER HOSPITALIZATION? Cendrine Tourette(1), Waly Dioh(1), Sandrine Rabut(1), Mounia Chabane(1), Serge Camelo(1), Myriem Louze(1), Jean Mariani(1,2), Rob Van Maanen(1), Stanislas Veillet(1) *((1) Biophytis - Sorbonne Université, BC9, Paris, France; (2) Sorbonne Université, CNRS - Institute de Biologie Paris Seine (UMR B2A), Paris, France)*

Background: BIO101 (20-hydroxyecdysone) is an investigational product that activates Mas receptor (MasR), part of the renin-angiotensin system (RAS), downstream of the SARS-CoV-2 virus receptor (ACE2) and involved in several protective pathways including muscle metabolism and structure. **Objectives:** Assessment of safety and efficacy of BIO101 treatment in 2 vulnerable populations: sarcopenic seniors and hospitalized severe COVID-19 patients. **Methods:** SARA-INT was a randomized three-arm interventional study (BIO101 175 mg or 350 mg bid / placebo) with planned treatment duration of 6 Months (up to 9 months in 50 subjects). Eligibility criteria for sarcopenia: meeting FNIH criteria and SPPB score ≤ 8/12 in community-dwelling seniors. Primary endpoint was the 400-meter walking test (400MWT), secondary endpoints being other physical activity assessments. COVA trial was a randomized, placebo-controlled phase 2/3 trial. Hospitalized adults ≥45 years with respiratory decompensation due to SARS-CoV-2 were randomized 1:1 to placebo or BIO101 (350 mg bid), up to 28 days or endpoint. Primary endpoint was proportion of patients dying or requiring high-flow oxygen, mechanical ventilation or ECMO; key secondary endpoint was proportion of patients recovered and discharged; both analysed using Cochran-Mantel-Haenszel (CMH) test. **Results:** Besides the promising results of SARA-INT, COVA included 233 participants in the ITT population (63.5% male, mean age 62.8 years). Primary (CMH) analysis at day 28 showed a statistically significant difference favouring BIO101 (BIO101: 15.8%, placebo: 26.0%), adjusted difference -11.4% (p=0.042), a relative risk (RR) reduction of death or respiratory failure of 44.0%. Kaplan-Meier (KM) analysis of difference in proportion of patients with death or respiratory failure over 28 days was nominally statistically significant favouring BIO101 at day 28 (10.9%, p=0.023), a 45.0% RR reduction. In both studies, safety and tolerability of BIO101 was very good: less patients treated with BIO101 350mg bid experienced adverse events (AEs) compared to placebo. **Conclusion:** BIO101(20E), targeting the MasR, is a candidate to treat vulnerable populations (sarcopenic seniors and severe hospitalized COVID-19 patients), with meaningful efficacy data and very good safety profile at the dose of 350 mg bid and may be a potential pharmacological strategy against physical performance deterioration associated with COVID-19.

OC11- DESIGN, METHODS AND PRELIMINARY FINDINGS FOR THE ENGAGE TRIAL: AN EXERCISE AND SOCIAL ENGAGEMENT INTERVENTION FOR MULTIMORBID, HOMEBOUND AFRICAN AMERICAN OLDER ADULT-CARE PARTNER DYADS DELIVERED OVER VOICE-ACTIVATED TECHNOLOGY. Megan Huisingh-Scheetz(1), Brittni Bryant(1), Corliss Taylor(1), Brandon Foster(1), Brad Appelhans(2), Marshini Chetty(1), Margaret Danilovich(3), Elizabeth Davis(2), Nicolas Feamster(1), Laura Finch(4), Marc Richardson(1), Nikita Thomas(1), Kelly Wagman(1) Wen Wan(1), Jocelyn Wilder(4), Louise Hawkley(4) *((1) University of Chicago, Chicago, IL, USA; (2) Rush University, Chicago, IL, USA; (3) Center for Jewish Elderly, Chicago, IL, USA; (4) NORC at the University of Chicago, Chicago, IL, USA)*

Background: Physical activity is essential for all age groups, across all comorbidities and geriatric syndromes; it has been described as the 'ideal' intervention for aging. Multimorbidity is more severe and more prevalent among African-Americans (AA) over their lifespan and they experience more accelerated aging than any other race in the US. Multimorbid OAs face increasing challenges to maintaining activity over time: disrupted physiology; required assistance to leave the home; reliance on care partners (CPs) with limited training; and restricted reimbursement for in-home exercise services. Increasing activity among homebound, multimorbid, AA OAs requires a shift in interventions to target the older adult-care partner (OA-CP) dyad and to test innovative vehicles for remote intervention delivery. EngAGE was co-developed through iterative participatory design and previously piloted. **Objective:** Our objective is to conduct a randomized efficacy trial of EngAGE in multimorbid, AA, homebound OAs and their CPs. **Methods:** The EngAGE trial

is a multisite randomized controlled trial designed to compare an exercise and social engagement intervention delivered over a voice-activated device (EngAGE) or on paper in n=124 AA, multimorbid OA-CP dyads in northeast Illinois. The intervention phase will last 6 months. Older adults are eligible if they score 3-8/12 on the Short Physical Performance Battery (SPPB). WiFi hotspots are provided when needed. Primary outcomes include lower and upper extremity strength and frequency of social contact. Secondary outcomes include the SPPB score, frailty phenotype, disability and relationship quality. We will assess individual, interpersonal and community-level moderators and will ascertain perceived barriers and facilitators to intervention use. **Results:** Recruitment began in October 2022; n=10 dyads have been enrolled and randomized as of January 2023. Most OAs are women (n=9); the mean age is 76.4 years. All 10 OAs scored a 0 or 1/4 on the SPPB chair subscale (mean performance time 23.5 seconds). Mean maximum grip strength among OAs is 23.5 kg. All CPs (n=10) are also African-American with a mean age of 61.6 years; 5 are women. **Conclusion:** This trial will evaluate whether EngAGE represents an effective, user-friendly, scalable approach to improving long-term exercise and social engagement for vulnerable AA OA-CP dyads. **Trial registration:** ClinicalTrials.gov NCT05337514

OC12- EFFECTS OF A 12-WEEK VIVIFRAIL EXERCISE PROGRAM ON INTRINSIC CAPACITY AMONG FRAIL COGNITIVELY IMPAIRED COMMUNITY-DWELLING OLDER ADULTS: SECONDARY ANALYSIS OF A MULTICENTER RANDOMIZED CLINICAL TRIAL. Juan Luis Sánchez-Sánchez(1,2,3), Philipe de Souto Barreto(1,4), Iván Antón-Rodrigo(5,6), Fernanda Ramón- Espinoza(7), Itxaso Marín Epelde(7), Marina Sánchez-Latorre(7), Debora Moral Cuesta (7) Álvaro Casas-Herrero(7,8,9) *((1) Gérontopôle de Toulouse, Institut du Vieillissement, Centre Hospitalier Universitaire de Toulouse, Toulouse, France; (2) MOVE-IT Research Group, Department of Physical Education, Faculty of Education Sciences, University of Cadiz, Cadiz, Spain; (3) Universidad Pública de Navarra (UPNA), Pamplona, Spain; (4) CERPOP, Inserm 1295, Université de Toulouse, UPS, Toulouse, France; (5) Hospital of Eibar, OSI Debabarrena. Osakidetza. Gipuzkoa, Spain; (6) Grupo de Investigación en Atención Primaria. Biodonostia Institute of Health Research. San Sebastián. Gipuzkoa. Spain; (7) Geriatric Department, Hospital Universitario de Navarra (HUN), Pamplona, Spain; (8) Navarrabiomed, Hospital Universitario de Navarra (HUN), Universidad Pública de Navarra (UPNA), IdiSNA, Pamplona; (9) CIBER of Frailty and Healthy Aging (CIBERFES), Instituto de Salud Carlos III, Madrid, Spain)*

Introduction: The World Health Organization (WHO) recently defined the construct of intrinsic capacity (IC), a function-based marker of older adult's health encompassing all mental and physical capacities of the individual. Multicomponent physical exercise (MCE) is a potential intervention capable to maintain/increase IC at older age; however, evidence is scarce on the effects of MCE on IC in cognitively impaired pre-frail/frail older adults. **Methods:** Secondary analyses of a randomized clinical trial. 188 older outpatients (age=84.06±4.77, 70.2% women) presenting with pre-frailty/frailty (according to Fried Criteria) and mild-cognitive impairment/mild-dementia were recruited in the Geriatric clinics of 3 tertiary hospitals in Spain. Subjects were randomized to participate in the 12-week home-based individualized Vivifrail MCE or usual care. An IC index was created based on the z-score of the locomotion (Short Physical Performance Battery), cognitive (Montreal Cognitive Assessment), psychology (15-item GDS Yesavage) and vitality (handgrip strength) domains. **Results:** After the 3-month intervention, linear mixed models showed significant between-group differences in the evolution of the IC composite score (β=0.48; 95% CI=0.24, 0.74; p<0.001), IC Locomotion (β=0.42; 95% CI=0.10, 0.74; p<0.001), IC Cognition (β=0.45; 95% CI=0.03, 0.87; p<0.05) and IC Vitality domains (β=0.50; 95% CI=0.25, 0.74 at 3-month) favoring the MCE group. **Conclusion:** The 12-week Vivifrail multicomponent exercise program is an effective strategy to enhance IC, especially in terms of locomotion, cognition, and vitality IC domains in community-dwelling older adults with pre-frailty/frailty and MCI/mild-dementia, compared to usual care.

OC13- BODY FAT MASS MEDIATES THE EFFECT OF INSULIN RESISTANCE ON FUNCTIONAL DECLINE BUT NOT ON MORTALITY IN A COMMUNITY-DWELLING OLDER ADULTS: RESULTS FROM TOLEDO STUDY OF HEALTHY AGING. Mariam El Assar(1,2), Javier Angulo(2,3), Jose A Carnicero-Carreño(1,2), Patricia Sosa(1), Alejandro Álvarez-Bustos(2), Francisco J García-García(2,4), Leocadio Rodríguez-Mañas(2,5) *((1) Fundación de Investigación Biomédica, Hospital Universitario de Getafe, Getafe, España; (2) Centro de Investigación Biomédica en Red sobre Fragilidad y Envejecimiento Saludable (CIBERFES), Instituto de Salud Carlos III, Madrid, España; (3) Servicio de Histología-Investigación, Unidad de Investigación Traslacional en Cardiología (IRYCIS-UFV), Hospital Universitario Ramón y Cajal, Madrid, Spain; (4) Servicio de Geriatría, Hospital Virgen del Valle, Toledo, España; (5) Servicio de Geriatría, Hospital Universitario de Getafe, Getafe, España)*

Background: Recent evidence suggests that insulin resistance (IR) is a risk factor for functional decline meanwhile it protects from mortality in non-diabetic older adults. Both age-related outcomes seem to be associated with body composition. **Objectives:** We aim to assess the potential role of body composition in the association of IR with functional decline and with mortality risk in older subjects. **Methods:** 1,114 non-diabetic subjects from the Toledo Study of Healthy Ageing cohort were included (mean age 74.56±5.73; 56.10% female). IR was determined by the homeostasis model assessment index (HOMA-IR) at baseline while frailty was assessed by the Frailty Trait Scale-5 (FTS5) at baseline and after a median follow-up period of 2.99 years. The functional decline during

follow-up was determined as the worsening in 2.5 points for the FTS5 score. Deaths were also registered (6.31 years median follow-up). Body compositions were determined using Dual-Energy X-ray absorptiometry. Multivariate regression models were used to analyze the effects of HOMA-IR on outcomes. Age, gender, and Charlson index were included in basic adjustment model while fat and lean mass were included as potential confounding variables. **Results:** HOMA-IR increased the risk of functional decline in FTS5 after basic adjustment (OR 1.44 [1.11-1.86], p=0.0056). This significant association was lost when further adjusted by total fat mass (OR 1.15 [0.88-1.52], p= 0.3046). Meanwhile, when controlling for lean mass, HOMA-IR was still able to predict incident worsening in FTS5 (OR 1.40 [1.07, 1.82], p= 0.01416). By contrast, HOMA-IR was inversely associated with mortality risk after basic adjustment (HR 0.67 [0.50-0.88], p=0.0043). Adjustment by total fat mass or by total lean mass did not modify the association (HR 0.72 [0.53-0.97], p= 0.0324; HR 0.67 [0.50-0.89], p= 0.0059 for fat mass and lean mass respectively). **Conclusion:** Fat mass but not lean mass mediates the associations of IR with functional decline but not with mortality in non-diabetic older adults. The present work was funded by grants from the Spanish Ministry of Economy, Industry and Competitiveness, cofinanced by the FEDER Funds (Instituto de Salud Carlos III, PI20/00977) and CIBERFES (CB16/10/00464), and el Proyecto MITOFUN, Fundación Francisco Soria Melguizo.

OC14- COGNITIVE STATUS AS A PREDICTOR OF BODY COMPOSITION PROFILES: A LATENT CLASS ANALYSIS. John A. Batsis(1,2,3), David H. Lynch(1), Annie Green Howard(2,3), Hsiao-Chuan Tien(3), Hillary Spangler, Shufa Du(3,4), Bing Zhang(5), Huijun Wang(5), Penny Gordon Larsen(3,4) *((1) Division of Geriatric Medicine and Center for Aging and Health, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA; (2) Department of Nutrition, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA; (3) Carolina Population Center, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA; (4) National Institute for Nutrition and Health Chinese Center for Disease Control and Prevention, China)*

Background: Aging biology results in changes in body composition that are associated with adverse outcomes. Evidence suggests that cognitive status may lead to different phenotypes of body composition in older age. **Objectives:** We sought to evaluate whether cognition in late mid-life is associated with different clusters of body composition phenotypes. **Methods:** We included participants aged 60+ in 2015 from the China Health and Nutrition Survey, a nationally representative survey, with complete bioelectrical impedance analysis, body composition, and anthropometry measures in 2015 and cognitive data collected 9 to 11 years prior to 2015. Cognition was estimated based on a subset of the modified Telephone Interview for Cognitive Status (TICS, 0—27). Latent class analysis was done to identify different body composition patterns. Our primary analysis identified classes based on percent body fat, total skeletal muscle/height^2, and BMI adjusted for age and sex. In sensitivity analysis we ran the same models replacing appendicular mass for total skeletal muscle. We combined latent classes to improve study power and align with the Fried frailty phenotype (robust, pre-frail, frail). **Results:** Of the 1,424 adults (55% female, age 72.0±5.9 in 2015), mean BMI was 23.8±3.6, and TICS at the visit prior to 2015 was 13.5±6.2. Five classes were found to have the best fit: Class I (n=29, moderate BMI, lowest body fat, highest muscle); Class II: (n=211, lowest BMI, % body fat, and muscle); Class 3 (n=65, high BMI, body fat, muscle); Class 4 (n=602, low BMI, low body fat, low muscle); and Class 5 (n=517, moderate BMI, body fat, muscle). In our 5-class model, higher cognition roughly 10 years prior was associated with lower odds of being in Class 2 (low BMI, low % body fat, and low muscle mass) as compared to Class 5 (moderate BMI, body fat, muscle) with an odds ratio of 0.91 [0.82,1.00]). Presence of mild cognitive impairment or dementia in 2006 was suggestive of frailty at follow-up. **Conclusion:** Cognitive impairment reflected by the TICS may be a marker for future frailty phenotypes over time. Future, adequately powered studies are needed to confirm a statistically significant relationship.

OC15- CT-DERIVED BODY COMPOSITION IS ASSOCIATED WITH GRIP STRENGTH AND GAIT SPEED IN MROS STUDY. Peggy M. Cawthon(1), Katey Webber(1), Eric S. Orwoll(2), Kristine E. Ensrud(3) Jane A. Cauley(4), Leon Lenchik(5) *((1) California Pacific Medical Center, Research Institute, San Francisco, CA USA; (2) Oregon Health and Sciences University, Portland, OR, USA; (3) University of Minnesota, Minneapolis, MN, USA; (4) University of Pittsburgh, Pittsburgh, PA, USA; (5) Wake Forest University, Winston-Salem, NC, USA)*

Background: Automated analysis of biomarkers of body composition on CT images may improve prediction of physical function decline in older adults. **Objective:** In 2,644 men (mean age 74.0) in MrOS, determine if body composition biomarkers derived from abdominal CT images are associated with grip strength and walking speed. **Methods:** On CT images at L3 level, our fully-automated machine learning algorithm determined total abdominal skeletal muscle area (SMA) - biomarker of sarcopenia, skeletal muscle density (SMD) - biomarker of intramuscular myosteatosis, intermuscular adipose tissue area (IMAT) - biomarker of intermuscular myosteatosis, visceral adipose tissue area (VAT), and subcutaneous adipose tissue area (SAT). Association of CT metrics with grip strength and walking speed was determined using linear regression models adjusted for CT parameters (scanner model, slice thickness, tube current) and participant age and height. **Results:** For grip strength, Muscle area, muscle density, VAT, and SAT (but not IMAT) were significantly associated with grip strength in fully adjusted models. [standardized βs per 1 SD increment for grip: SMA (β = 2.16, CI = 1.78, 2.55); SMD (β = 0.56, CI = 0.16, 0.97); VAT (β = -0.65, CI = -1.04, -0.26); SAT (β = -0.41, CI = -0.75, -0.06); IMAT (β = -0.02, CI = -0.66,

0.62] For gait speed, only IMAT and VAT were associated with gait speed in fully adjusted models. [standardized βs, 1 SD increment in IMAT (β = -0.04, CI = -0.06, -0.02) and VAT (β = -0.01, CI = -0.02, -0.00); other non-significant β not shown]. **Conclusion:** In older men, CT-derived biomarkers of sarcopenia, intramuscular myosteatosis, and adiposity, but not the biomarker of intermuscular myosteatosis, are associated with lower grip strength. CT-derived biomarker of intermuscular myosteatosis and VAT are associated with slower gait speed.

OC16- COMBINED PHYSICAL AND COGNITIVE STIMULATION IN AN INNOVATIVE DUAL-TASK IN MICE AND APPLICATION IN AGING. Elpidio Attoh-Mensah, Antoine Huret, Camille Laurent, Marianne Léger, Gilles Loggia, Daniel Zuba, Chantal Chavoix, Pascale Schumann-Bard, Thomas Fréret *(Normandie Université, UNICAEN, INSERM, COMETE, CYCERON, CHU de Caen, Caen, France)*

Background: Physical activity (PA) is a recommended non-pharmacological intervention to prevent age-related frailty (for review see Smith et al., 2010). PA interventions have been associated with functional improvement particularly, through enhancement of gait and cognitive performance in older adults. Recent studies argued that PA would convey a stronger impact when combined with cognitive challenges within a single dual-task (DT) (Lipardo et al.,2018). Having an animal model of dual-tasking would therefore be useful to better understand underlying mechanisms of these benefits. **Objectives:** In this study, we sought to develop an innovative model of dual-task – combining physical activity and cognitive challenge – in adult mice. The effects of DT practice on motor and cognitive performance in young mice and subsequent effects at an older age were also examined. **Methods:** C57BL/6J mice of 3 months of age were trained to visual discrimination task and then to its reversal, in touchscreen chambers. During cognitive training sessions, mice were randomly split into 3 groups (n=10/group), either without PA (control), or with PA administrated apart from (single task, ST) or simultaneously with (DT), the cognitive task. PA was given through a home-made treadmill, specifically designed to fit in the touchscreen chambers. The speed was set at 9 m/min. Besides, mice were retested 15 months later, i.e. at 19 months, to assess long-lasting effect of single and dual tasks (versus control) on aged mice performance. **Results:** First, we have shown that this dual-task model was feasible in mice. Besides, young mice in DT group displayed better procedural ($p<0.001$) and cognitive flexibility ($p<0.01$) performance, than either ST or control groups. Furthermore, these positive impacts still remained 15 months later in aged mice, that displayed both better cognitive ($p<0,001$) and motor ($p<0,009$) performance in the DT versus ST and control groups. **Conclusion:** We developed for the first time a dual stimulation task in mice. This innovative task could help to unravel physiological and neurobiological correlates of the benefits of dual-tasking on cognitive and motor performance in various normal and pathological conditions.

OC17- PLASMA INFLAMMATORY MARKERS PREDICT LONGITUDINAL TRAJECTORIES OF INTRINSIC CAPACITY IN OLDER ADULTS. Wan-Hsuan Lu(1,2), Bruno Vellas(1,2), Philipe de Souto Barreto(1,2) *((1) Gerontopole of Toulouse, Institute of Ageing, Toulouse University Hospital (CHU Toulouse), Toulouse, France; (2) Maintain Aging Research team, Centre d'Epidémiologie et de Recherche en santé des POPulations (CERPOP), Inserm, Université Paul Sabatier, Toulouse, France)*

Background: Intrinsic capacity (IC), the composite of physical and mental capacities, declines with age at different rates and patterns between individuals. Whether aging biomarkers can predict different IC trajectories remains unclear. **Objectives:** This study had two objectives: (1) to identify IC multi-trajectories among older adults; (2) to investigate the association of trajectory groups with plasma biomarkers related to inflammation and mitochondrial dysfunction. **Methods:** This is a secondary analysis of the Multidomain Alzheimer Preventive Trial (MAPT). We included 1,271 community-dwelling older adults aged ≥70 with IC data over four years. IC was operationalized as a 0-to-100 score consisting of cognition (assessed by Mini-Mental State Examination [MMSE]), locomotion (evaluated by Short Physical Performance Battery [SPPB]), psychology (measured by Geriatric Depression Scale [GDS]), and vitality (assessed by handgrip strength). We performed group-based multi-trajectory modeling to identify participants who followed similar longitudinal patterns across four IC domains. Associations between the multi-trajectory groups and plasma biomarker levels were examined by multinomial logistic regression. **Results:** Five IC multi-trajectory groups were determined: low in all domains (8%), low locomotion (25%), low psychological domain (17%), robust (28%), and robust with high vitality (22%). The "low in all domains" group had the oldest age, the highest percentages of low educational levels, and the highest number of chronic diseases (all $p<0.01$). Compared to the best trajectory group (i.e., robust with high vitality), elevated levels of plasma interleukin-6 (IL-6), tumor necrosis factor receptor-1 (TNFR-1), and growth differentiation factor-15 (GDF-15) were associated with a higher risk of belonging to the "low in all domains" group (IL-6: relative risk ratio (RRR) [95% CI] = 1.42 [1.07 – 1.88]; TNFR-1: RRR = 1.46 [1.09 – 1.96]; GDF-15: RRR = 1.99 [1.45 – 2.73]). Higher GDF-15 was associated with an increased risk of being in the "low locomotion" group (RRR = 1.48 [1.17 – 1.89]) and "low psychological domain" group (RRR = 1.29 [1.01 – 1.64]). **Conclusion:** Plasma biomarkers reflecting inflammation distinguished older people with multi-impaired IC trajectories from those with high-stable IC trends.

OC18- THE PATHOGENESIS OF SARCOPENIA IS DIFFERENT IN THE GROUP OF MALE COPD AND NON-COPD SUBJECTS. Chih-Ming Lin(1), Jhih-Jhen Wu(2), Huan-Ting Lin(3), Shih-Wei Huang(4) *((1) Division of Internal Medicine, Taipei Chang Gung Memorial Hospital, Taipei, Taiwan; (2) Chang Gung Medical College, Taipei, Taiwan; (3) Mackey Medical College, Taipei, Taiwan; (4) Department of Internal Medicine, Linko Chang Gung Memo rial Hospital, Taipei, Taiwan)*

Background: The incidence and prevalence of sarcopenia is strongly age, sex, and diseases dependent. Men are more likely to develop sarcopenia according to previous study. The purpose of this study was to identify possible pathogenesis of sarcopenia for the male older adults with and without chronic obstructive pulmonary disease (COPD) using plasma metabolites. **Objective:** Cross-section study. **Methods:** Our participants are a group of healthy older people who live in retirement homes and can take care of their daily lives without nursing assistance. There were 305 enrolled and the average age was 81.8 years old with 43.3% being male. The incidence of COPD was 12.5% according to the 2017 GOLD guidelines. There were 38 in group of COPD subjects and 267 in the group of non-COPD subjects. There were 20 had sarcopenia in 25 COPD of 132 male subjects and 5 had sarcopenia in 13 COPD of 173 female subjects according to Asian Working Group for Sarcopenia (AWGS) 2019 criteria. Mass spectrometry-based profiling of metabolites in plasma of all participants were measured and then the results were calculated the difference between the group of male COPD and non-COPD subjects with/without sarcopenia. **Results:** Metabolite patterns of male COPD and non-COPD subjects with/without sarcopenia were explored in our study. Plasma acylcarnitines (C2, C4, C5, C9 and C14) were identified with higher concentrations with significant difference in the group of male non-COPD subjects with sarcopenia. Plasma amino acid (BCAA, essential AA, Ile, Leu, Lys, Orn, Thr, and Val) were identified with lower concentrations with significant difference in the group of male non-COPD subjects with sarcopenia. The concentration of plasma acylcarnitines and amino acid in the group of male COPD subjects with sarcopenia did not have difference with significant difference compared with the group of male COPD subjects without sarcopenia. **Conclusion:** The pathogenesis of sarcopenia in the group of male COPD and non-COPD subjects may be different by the metabolomic study.

OC19- HEALTH-RELATED QUALITY OF LIFE IN SARCOPENIA: A SYSTEMATIC REVIEW AND META-ANALYSIS. Charlotte Beaudart(1), Céline Demonceau(1), Jean-Yves Reginster(1), Médéa Locquet(1), Matteo Cesari(2,3), Alfonso J. Cruz Jentoft(4), Olivier Bruyère(1) *((1) WHO Collaborating Center for Public Health aspects of musculo-skeletal health and ageing, Division of Public Health, Epidemiology and Health Economics, University of Liège, Belgium; (2) Department of Clinical Sciences and Community Health, University of Milan, Milan, Italy; (3) Geriatric Unit, IRCCS Istituti Clinici Scientifici Maugeri, Milan, Italy; (4) Servicio de Geriatría, Hospital Universitario Ramón y Cajal (IRYCIS). Madrid, Spain)*

Background: The decrease of physical abilities and functional decline that can be caused by musculoskeletal disorders as sarcopenia, can lead to a higher level of dependence and disabilities. Therefore, it may influence patient reported outcome measures (PROM), such as the health-related quality of life (HRQoL). The purpose of this systematic review and meta-analysis is to provide an exhaustive view on the relationship between sarcopenia and HRQoL. **Methods:** Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) were followed through the whole process of this work. A protocol was previously published on PROSPERO. The electronic databases MEDLINE, Scopus, Allied and Complementary Medicine (AMED), EMB Review – ACP Journal Club, EBM Review- Cochrane Central of Register of Controlled Trials and APA PsychInfo were searched up to October 2022 for observational studies reporting a HRQoL assessment in both sarcopenic and non-sarcopenic individuals. Study selection and data extraction were carried out by two independent researchers. Meta-analysis was performed with a random effect model giving an overall standardized mean difference (SMD) and its 95% confidence interval (CI) between sarcopenic and non-sarcopenic. Quality of individual studies was measured using the Newcastle Ottawa Scale and strength of evidence was assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) tool. **Results:** The search strategy identified 3,725 references from which 43 observational studies were eligible and included in this meta-synthesis study. A significant lower HRQoL was observed for sarcopenic individuals compared to non-sarcopenic (SMD -0.76; 95%CI -0.95; -0.57). Significant heterogeneity was associated with the model (I^2=93%, Q test <0.01). Subgroups analysis showed that the specific questionnaire SarQoL discriminates better sarcopenia in regards of HRQoL (SMD -1.09; 95%CI -1.44; -0.74 versus -0.49; 95%CI -0.63; -0.36 with generic tools; p-value for interaction <0.01). A higher difference of HRQoL between sarcopenic and non-sarcopenic was found for individuals residing in living home cares compared to community-dwelling individuals (p-value for interaction <0.001). No differences between age, diagnostic techniques, and continents/regions were found. Level of evidence was rated as moderate using GRADE assessment. **Conclusion:** This systematic review and meta-analysis combining 43 observational studies demonstrates that HRQoL

is significantly reduced in sarcopenic patients. Using disease-specific HRQoL instruments may better discriminate sarcopenic patients in regards of their quality of life.

OC21- FISH INTAKE AND PRE-FRAILTY IN NORWEGIAN OLDER ADULTS. A PROSPECTIVE COHORT STUDY: THE TROMSØ STUDY 1994–2016. Dina Moxness Konglevoll(1), Lene Frost Andersen(1), Laila Arnesdatter Hopstock(2), Bjørn Heine Strand(3,4,5), Magne Thoresen(6), Torunn Holm Totland(5), Anette Hjartåker(1), Monica Hauger Carlsen(1) *((1) Department of Nutrition, Institute of Basic Medical Sciences, University of Oslo, Oslo, Norway; (2) Department of Health and Care Sciences, UiT The Arctic University of Norway, Tromsø, Norway; (3) The Norwegian National Centre for Ageing and Health, Vestfold Hospital Trust, Tønsberg, Norway; (4) Department of Geriatric Medicine, Oslo University Hospital, Oslo, Norway; (5) Department of Physical Health and Ageing, Norwegian Institute of Public Health, Oslo, Norway; (6) Department of Biostatistics, Institute of Basic Medical Sciences, University of Oslo, Oslo, Norway)*

Background: Fish are suggested as being part of a healthy diet and a dietary factor in the prevention of frailty. However, the influence of a lifelong habitual fish intake on pre-frailty is unknown. **Objective:** To investigate the longitudinal association between the frequency of fish intake and pre-frailty in Norwegian older adults. **Methods:** This prospective cohort study used data from the fourth (1994–1995), sixth (2007–2008) and seventh (2015–2016) survey of the large, population-based Tromsø Study in Tromsø, Norway. We included 4350 men and women aged ≥65 years with data on frailty (modified Fried's frailty phenotype: weight loss, exhaustion, and low physical activity, grip strength and walking speed) in Tromsø7 and self-reported frequency of fish intake (low (0–3 times/month), medium (1–3 times/week) and high (≥4 times/week)) in Tromsø4, Tromsø6 and Tromsø7, respectively. We used multivariable logistic regression to study the association between (1) frequency of intake of lean, fatty and total fish in Tromsø6 and pre-frailty in Tromsø7, and (2) stable patterns of total fish intake across Tromsø4, Tromsø6 and Tromsø7 (21 years) and pre-frailty in Tromsø7. **Results:** The prevalence of pre-frailty was 28% (n = 1124). A medium and high intake of fatty fish in Tromsø6 was associated with 18% (odds ratio (OR) = 0.82, 95% confidence interval (CI) = 0.69, 0.98) and 37% (OR = 0.63, 95% CI = 0.43, 0.91) lower odds of pre-frailty after 8 years, compared with a low intake. For lean and total fish, a high intake was associated with 28% (OR = 0.72, 95% CI = 0.53, 0.97) and 31% (OR = 0.69, 95% CI = 0.52, 0.91) lower odds of pre-frailty after 8 years, respectively, compared with a low intake. There was no association between patterns of total fish intake over 21 years and pre-frailty. **Conclusion:** A higher frequency of intake of lean, fatty and total fish was associated with lower odds of pre-frailty after 8 years in older community-dwelling Norwegian adults. This underlines the importance of promoting frequent fish intake as part of a healthy diet to facilitate healthy ageing.

OC23- DESCRIPTIVE STUDY OF THE ICOPE PATHWAY FROM STEP 1 TO 3 IN THE INSPIRE-T COHORT. Catherine Takeda(1), Christelle Cantet(1), Emeline Muller(1), Sophie Guyonnet(2), Bruno Vellas (1,2) for the INSPIRE Plateform group *((1) Gérontopôle, Geriatric Department, CHU of Toulouse, Toulouse, France; (2) CERPOP Inserm UMR 1295, Toulouse, France; University of Toulouse III, Toulouse, France)*

Background: The World Health Organization (WHO) has been leading international action plans under the United Nations 2021–2030 Decade of Healthy Ageing. In 2017–2019 WHO published guidelines on the implementation of an Integrated Care for Older People (ICOPE) framework targeting intrinsic capacity through mobility, cognition, psychological, vitality, hearing and vision. The INSPIRE study is implementing this program in the INSPIRE-T cohort (1014 participants; aged 20-102 years at baseline; with 10 years follow-up). **Objectives:** The primary objective of this study was to describe the intrinsic capacity characteristics in the INSPIRE-T cohort and identify abnormalities in intrinsic capacity during step 1 with the screening tool, step 2 with a full assessment of each capacity and describe the different step 3 (care plan). **Methods:** In this prospective study, we analyzed the ICOPE step 1 to 3 for the participants aged 60 years and older from the INSPIRE-T cohort at base line. All individuals were screened using the step 1 screening tool. In-depth assessments (step 2) was systematically performed regarding the results of the screening test and a personalized care plan was proposed according to the ICOPE guidelines. **Results:** Between October 2019, and March 2022, 603 participants, 60 years and older, (mean age 74·7, SD 8·8 years; 357 [59.2%] of whom were women) were included in the INSPIRE-T cohort. 595 (98·8%) participants had a positive intrinsic capacity result during screening at baseline. Step 2 findings: mean MMSE 28.2, SD 2.2; mean MNA 27.4, SD 2.3; mean PHQ-9 3.3, SD 3.8; mean SPPB 11.2 SD 1.8 and 213 (36.2%) had visual impairment. Among the subjects 338 (56.5%) were robust, 206 (34.4%) were pre-frail and 54 (9%) were frail. A step 3 (care plan) was proposed to 602 participants. **Conclusion:** The very high prevalence of positive screening for impaired intrinsic capacity during step 1, were confirmed deficits in intrinsic capacity during step 2. The 10 year follow-up of the INSPIRE-T cohort will allow a longitudinal prospective study to helps us confirm that the ICOPE program is able to target individuals with increased risk for functional loss, frailty, age related disease and disability.

OC24- MUSCLE COMPOSITION CHANGES IN TYPE 2 DIABETES AND CORONARY HEART DISEASE – RESULTS FROM THE LONGITUDINAL UK BIOBANK IMAGING STUDY. J. Linge(1,2), O. Dahlqvist Leinhard(1,2,3) for the INSPIRE Plateform group *((1) AMRA Medical, Linköping, Sweden; (2) Department of Health, Medicine and Caring Sciences, Linköping University, Sweden; (3) Center for Medical Image Science and Visualization (CMIV), Linköping University, Sweden)*

Background: Previous studies have indicated people with metabolic disorders may experience more rapid muscle wasting with aging. **Objective:** To determine change in fat-free muscle volume (FFMV) and muscle fat infiltration (MFI) of the thighs and spinal erectors in participants with type 2 diabetes (T2D) and coronary heart disease (CHD) from the longitudinal UK Biobank imaging study. **Methods:** 2,942 participants were scanned twice approximately 2.2 years apart using magnetic resonance imaging. Muscle composition was quantified using AMRA Researcher. Sex-, height- and weight-invariant thigh FFMV z-scores were calculated using N≥150 matched controls. Changes in muscle composition comparing controls (participants without T2D, CHD) to T2D (without CHD), and CHD (without T2D) respectively were tested using t-test and linear regression adjusted for sex, baseline BMI, age, and muscle composition, and change in weight. **Results:** Controls showed significant change in thigh FFMV (mean (SD) -0.16 (0.34) L, p=0.032), FFMV z-score (-0.15 (0.25) SD, p<0.001), and MFI (+0.26 (0.37) pp, p<0.001), as well as spinal erectors FFMV (-0.17 (0.31) dL, p<0.001) and MFI (+0.58 (0.82) pp, p<0.001). For T2D, significant differences compared to controls were observed for change in thigh FFMV (T2D=-0.25 (0.44) L; p=0.005, padjusted=0.018 vs controls) and FFMV z-score (-0.21 (0.29) SD; p=0.020, padjusted=0.011 vs controls) as well as spinal erectors FFMV (T2D=-0.23 (0.33) dL; p=0.029, padjusted=0.080 vs controls). No significant differences were observed comparing CHD to controls. **Conclusion:** Significant changes in muscle composition were observed following 2.2 years of aging. People with T2D experienced a more rapid loss in muscle volume of the thighs and spinal erectors compared to controls.

OC25- A NEW SEX-SPECIFIC SARCOPENIC OBESITY Z-SCORE FOR THE APPRAISAL OF THE RISK OF MORTALITY: A POPULATION-BASED STUDY. E. Benz(1,2), A. Pinel(1), C. Guillet(1), F. Capel(1), B. Pereira(3), M. de Ridder(4), M. Pouget(5), T. Voortman(2), J. Schoufour(6), P. Weijs(7,8), Y. Boirie(1,5) and JPI SO-NUTS consortium *((1) Human Nutrition Unit, Université Clermont Auvergne, Clermont Ferrand, France; (2) Department of Epidemiology, Erasmus University Medical Center, Rotterdam, Netherlands; (3) Biostatistics Unit, Université Clermont Auvergne, Clermont Ferrand, France; (4) Department of Medical Informatics, Erasmus University Medical Center, Rotterdam, The Netherlands;C (5) Clinical Nutrition , Université Clermont Auvergne, Clermont Ferrand, France; (6) Faculty of Sports and Nutrition, Centre of Expertise Urban Vitality, Amsterdam University of Applied Sciences; (7) Department of Nutrition and Dietetics, Amsterdam University Medical Centers, Amsterdam; (8) Public Health Institute, VU University, Amsterdam, Netherlands)*

Background: Sarcopenic obesity (SO) has been recently defined as a combination of low muscle function/mass and high-fat mass, both of which are independently associated with adverse outcomes such as mortality among older people. Nevertheless, there is limited evidence regarding SO prevalence and its association to overall mortality. **Objectives:** to determine the prevalence of SO using the recent definition of SO, and to assess its association with all-cause mortality by using a sex-specific SO z-score. **Methodology:** Baseline characteristics of 5,888 (mean age 69.5±9.1, BMI 27.5±4.3, 56.8% female) participants from the Rotterdam Study were collected and they were followed for mortality for a median of 9.9 years [interquartile range:8.7-11.1]. SO was defined using muscle strength measured by handgrip (HGS), muscle mass (ALM/weight) and body fat percentage (BF%) by dual-energy X-ray absorptiometry (DXA) as recommended by the ESPEN/EASO consensus. In addition, we calculated a new SO z-score as a combination of sex-specific z-scores of HGS and ALM/weight minus z-score of BF%. Cox regression models were adjusted for age, comorbidities and smoking status. Differences of SO z-score among SO categories were tested by using ANOVA. **Results:** By applying the ESPEN/EASO consensus, which screens obese subjects as the first step (n=2938, age 69.6±8.9, BMI 30.8±3.3, 55.7% female) 12% [95% CI: 10.9; 13.3] had low handgrip strength (probable SO), and in the second step 1.2% [95% CI: 0.8; 1.5] had low handgrip strength plus high BF% and low ALM/weight (confirmed SO). Significant differences were found in the SO z-score among probable SO (SO z-score; mean -2.93±1.30, p-value <0.001), confirmed SO (z-score:-5.46±1.23, p-value <0.001) and no SO subjects (z-score: -0.58±1.74). Probable SO (HR:1.97 [95%CI: 1.66; 2.33]) and confirmed SO (HR: 2.80 [95%: 1.86; 4.21]) had a worse survival probability than obese people without SO; whereas each unit increase in z-score reduced the risk of death in the whole population (HR:0.88 [95% CI: 0.86; 0.91] and in subjects with obesity (HR:0.84 [95% CI: 0.81; 0.88]). **Conclusion:** The ESPEN/EASO consensus and its cut-

offs allows to determine the prevalence of SO. However, the SO score is able to determine the risk of all-cause mortality, allowing a preventive approach of SO-associated risk of outcomes.

OC26- FRAILTY INDEX AND ITS ASSOCIATION WITH THE ONSET OF POSTOPERATIVE DELIRIUM IN OLDER ADULTS UNDERGOING ELECTIVE SURGERY. Janina Steenblock(1,2,3,4), Ulrike Braisch(1,2,5), Simone Brefka(1,2,3), Christine Thomas(6,7,8), Gerhard W. Eschweiler(9), Michael Rapp(10), Brigitte Metz(11), Christoph Maurer(12), Christine A. F. von Arnim(13), Matthias. L. Herrmann(7,9), Sören Wagner(8,14), Michael Denkinger(1,2,3,4), Dhayana Dallmeier(1,2,4,15) *((1) Agaplesion Bethesda Clinic, Ulm, Germany; (2) Geriatric Center Ulm/Alb-Donau, Ulm, Germany; (3) Institute for Geriatric Research, University Clinic Ulm, Ulm, Germany; (4) Medical Faculty, Ulm University, Ulm, Germany; (5) Institute of Epidemiology and Medical Biometry, Ulm University, Ulm, Germany; (6) Department of Old Age Psychiatry and Psychotherapy, Klinikum Stuttgart, Stuttgart, Germany; (7) Department of Neurology and Neurophysiology, Medical Center-University of Freiburg, Freiburg, Germany; (8) Department of Anesthesia, Critical Care and Pain Medicine, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA; (9) Geriatric Center, University Hospital Tuebingen, Tuebingen, Germany; (10) Department of Social and Preventive Medicine, University of Potsdam, Potsdam, Germany; (11) Geriatric Center Karlsruhe, ViDia Christian Clinics Karlsruhe, Karlsruhe, Germany; (12) Center for Geriatric Medicine and Gerontology, University of Freiburg, Germany; (13) Department of Geriatrics, University Medical Center Göttingen, Göttingen, Germany; (14) Department of Anaesthesiology, Klinikum Stuttgart, Stuttgart, Germany; (15) Department of Epidemiology, Boston University School of Public Health, Boston, MA, USA)*

Background: The association of frailty based on the accumulation of deficits with postoperative delirium (POD) in older adults has been poorly examined. **Objective:** We aimed to analyze this association in older patients undergoing elective surgery. **Methods:** Preoperative data was used to build a 30-item frailty index (FI) for participants of the PAWEL-study. Delirium was defined by a combination of I-CAM and chart review. Using logistic regressions models we analysed the association between frailty and POD adjusting for age, sex, smoking, alcohol consumption, education and type of surgery. **Results:** Among 701 participants (mean age 77.1, 52.4% male) median FI was 0.27 (Q1 0.20| Q3 0.34), with 528 (75.3%) frail participants (FI≥0.2). Higher median FI were seen in orthopedic than cardiac surgery patients (0.28 versus 0.23), and in women (0.28 versus 0.25 in men). Frail participants showed a higher POD incidence proportion (25.4% versus 17.9% in non-frail). An increased odds for POD was observed in frail versus non-frail participants (OR 2.14 [95% CI 1.33, 3.44], c-statistic 0.71). A 0.1 increment of FI was associated with OR 1.57 [95% CI 1.30, 1.90] (c-statistic 0.72) for POD. No interaction with sex or type of surgery was detected. Adding timed-up-and-go-test and handgrip strength to the FI did not improve discrimination. **Conclusion:** Our data showed a significant association between frailty defined through a 30-item FI and POD among older adults undergoing elective surgery. Adding functional measures to the FI did not improve discrimination. Hence, our preoperative 30-item FI can help to identify patients with increased odds for POD.

OC27- ASSOCIATION OF HEALTHY LIFESTYLE AND SOCIAL ENVIRONMENT WITH MORTALITY AMONG THE FRAIL: FINDINGS FROM THE UK BIOBANK. Junhan Tang(1), Jie Chen(2), Jirong Yue(3), Chenkai W(1) *((1) Global Health Research Center, Duke Kunshan University, Kunshan, Jiangsu, China; (2) Center for Global Health, Zhejiang University School of Medicine, Hangzhou, Zhejiang, China; (3) Department of Geriatrics and National Clinical Research Center for Geriatrics, West China Hospital, Sichuan University, Chengdu, Sichuan, China)*

Background: Physical frailty is a prevalent aging-related geriatric syndrome associated with various adverse health outcomes. Among the frail, adherence to a healthy lifestyle may provide an opportunity to decrease the risk of adverse health outcomes, including mortality and disability. In addition, the health benefits of adhering to a healthy lifestyle may be heterogenous across different social environments. **Objectives:** To examine whether adherence to a healthy lifestyle was associated with lower all-cause mortality among the frail; to evaluate the associations between lifestyle factors and all-cause mortality by the desirability of social environment; to measure the joint association of healthy lifestyle and social environment with all-cause mortality. **Methods:** Data were from the UK Biobank; 15,594 frail adults without missing lifestyle information were included. Frailty was assessed by five criteria: slowness, weakness, exhaustion, inactivity, and shrinking. We created a composite healthy lifestyle score using four lifestyle factors: smoking, alcohol consumption, physical activity, and diet. We used 17 social factors to construct a polysocial score. We classified the lifestyle score into unhealthy and healthy levels, and the polysocial score into low, intermediate, and high level. We used the Cox regression to measure the association of each lifestyle factor and the binary lifestyle score with all-cause mortality, respectively. We also measured the associations within low, intermediate, and high polysocial score categories, respectively. We evaluated the joint association of the binary lifestyle score and the categorical polysocial score with all-cause mortality. **Results:** After multivariable adjustment, frail participants with a healthy level of smoking, physical activity, diet, and lifestyle score had a 40%, 33%, 15%, and 34% lower hazard of all-cause mortality than those with an unhealthy level, respectively. We found significant associations between smoking and lifestyle score with all-cause mortality across polysocial score categories. We revealed the joint effect of a healthy lifestyle and social environment on all-cause mortality. **Conclusion:** A healthy lifestyle may offer an effective solution

to decrease the risk of adverse health outcomes among the frail, especially among those living in an unfavorable social environment.

OC28- EFFECT OF A ONE-YEAR PERSONALIZED INTENSIVE DIETARY INTERVENTION ON BODY COMPOSITION IN COLORECTAL CANCER PATIENTS: A RANDOMIZED CONTROLLED TRIAL. Dena Helene Alavi(1), Hege Berg Henriksen(1), Manuela Zucknick(2), Peter Mæhre Lauritzen(3), Rune Blomhoff(1,4) *((1) Department of Nutrition, Institute of Basic Medical Sciences, University of Oslo, Oslo, Norway; (2) Oslo Centre for Biostatistics and Epidemiology, Institute of Basic Medical Sciences, University of Oslo, Norway; (3) Division of Radiology and Nuclear Medicine, Oslo University Hospital, Oslo Norway and Faculty of Health Sciences, Oslo Metropolitan University, Oslo Norway; (4) Norway and Department of Clinical Service, Division of Cancer Medicine, Oslo University Hospital, Oslo, Norway)*

Background: Given the last years' decrease in mortality rates for colorectal cancer (CRC) patients, there is a growing number of elderly CRC survivors. These may experience larger changes in body composition, such as declines in fat-free mass (FFM) or increases in fat masses (FM). The suggested treatment for low muscle mass or high FM mass is diet and physical activity. There is little evidence on how a personalized dietary intervention influences body composition alone. **Objectives:** Investigate the effect of a dietary intervention on total body weight and body composition after 6 and 12 months of follow-up in patients with CRC stage I-III. **Methods:** Patients from the randomized controlled trial CRC-NORDIET study were included. Body composition was measured using Lunar iDXA at baseline, 6 months and 12 months. The intervention group received an intensive dietary intervention. The control group underwent similar measurements, but no dietary intervention. **Results:** Both groups increased significantly in weight, but the intervention group increased 0.74 kg less than the control group at 6 months (p=0.020). For total FM, the intervention group increased 0.59kg less at 6 months (p=0.019). For FM%, the intervention group had a 0.50% and 0.69% lower increase at 6 months (p=0.012) and 12 months (p=0.011) compared to the control group, respectively. The intervention group gained 63g less visceral adipose tissue (VAT) than the control group at 6 months (p=0.031). No difference between groups was found for FFM and subcutaneous adipose tissue (SAT) at any time point. The control group had a higher increase in FM/FFM ratio after both 6 (p=0.011) and 12 months (p=0.021) compared to the intervention group. **Conclusion:** The dietary intervention mostly affected the fat masses, but not SAT and FFM. Despite the small changes, the dietary intervention may have resulted in an overall more favourable body composition development in the intervention group.

OC29- THE IMPACT OF FRAILTY ON THE OUTCOMES AFTER CARDIAC SURGERY. Jaewon Chang *(St George Hospital, department of cardiothoracic surgery, Sydney, NSW, Australia)*

Background: Frailty is an increasingly recognized marker of poor surgical outcomes in cardiac surgery. Frailty first was described in the seminal «Fried» paper, which constitutes the longest-standing and most well-recognized definition. **Objectives:** This study aimed to assess the impact of the Fried and modified Fried frailty classifications on patient outcomes following cardiac surgery. **Methods:** The PUBMED, MEDLINE, and EMBASE databases were searched from January 2000 until August 2021 for studies evaluating postoperative outcomes using the Fried or modified Fried frailty indexes in open cardiac surgical procedures. Primary outcomes were one-year survival and postoperative quality of life. Secondary outcomes included postoperative complications, intensive care unit (ICU) length of stay (LOS), total hospital LOS, and institutional discharge. **Results:** Eight eligible studies were identified. Meta-analysis identified that frailty was associated with an increased risk of one-year mortality (Risk Ratio [RR]:2.23;95% confidence interval [CI]1.17 -4.23), postoperative complications (RR 1.78;95% CI 1.27 - 2.50), ICU LOS (Mean difference [MD] 21.2 hours;95% CI 8.42 - 33.94), hospital LOS (MD 3.29 days; 95% CI 2.19 - 4.94), and institutional discharge (RR 3.29;95% CI 2.19 - 4.94). A narrative review of quality of life suggested an improvement following surgery, with frail patients demonstrating a greater improvement from baseline over non-frail patients. **Conclusion:** Frailty is associated with a higher degree of surgical morbidity, and frail patients are twice as likely to experience mortality within one-year post-operatively. Despite this, quality of life also improves dramatically in frail patients. In the age of increasing life expectancy and patient complexity owing to advancement in interventional cardiology, patient selection, thus recognising frailty, is more important than ever in cardiac surgery.

OC30- FRAILTY INDEX AND MEXICAN AMERICANS LIVING ON THE US-MEXICO BORDER. Eron G Manusov, Vincent Diego *(University of Texas Rio Grande Valley Rio Grande City, Brownsville, TX, USA))*

Background: Frailty results from overwhelmed resilience related to biopsychosocial and cultural determinants of well-being. The Frailty Index (FI) comprises a ratio of suffered health deficits and total deficits. The FI can identify contributors to health and well-being targeted in healthcare delivery and research across the lifespan. **Objective:** The purpose of our community case study is to describe a Frailty Index calculated from data in a predominantly Mexican American Community residing on the Texas-Mexico border. **Methods:** We used Logistic regression and factor component analysis to identify potential associations between clinical variables, candidate predictor variables, seven physiological health variables, and two survey instruments. We analyzed data obtained from

participants (894) that live in two Colonias located on the Texas-Mexico border. We calculated the FI for 19 health deficits (seven physiological variables, the PHQ-9 score, and the 11 domain-specific Duke Profile scores). **Results:** FI against age in males (n = 272) and females (n = 622) was regressed. Females had a significantly higher starting frailty, and males had a substantially greater change rate with age. FI against age for Cameron Park Colonia and Indian Hills Colonia was regressed. We calculated a significantly higher starting FI in Indian Hills and a considerably greater change rate in Cameron Park residents. Men score higher in the Health-Related Quality of Life (HrQoL), and women higher in anxiety, depression, anxiety/depression, and pain. **Conclusion:** Contributors to Frailty are complex, especially in neighborhoods of poverty, immigration, low education level, and high chronic disease prevalence. We report characteristics of Frailty in a vulnerable population. The methods and the Frailty Index used in this study effectively identify Frailty. Our discussion explores possible explanations.

OC31- MITOCHONDRIAL CALCIUM IMPORT DECLINES DURING SARCOPENIA AND IS STIMULATED BY THE POLYPHENOL OLEUROPEIN TO BOOST ENERGY METABOLISM AND SKELETAL MUSCLE PERFORMANCE. Gaia Gherardi(1), Anna Weiser(2), Flavien Bermont(2), Benjamin Brinon(2), Guillaume E. Jacot(2), Aurélie Hermant(2), Eugenia Migliavacca(2), Mattia Sturlese(3), Leonardo Nogara(1), Denis Barron(2), Stefano Moro(3), Bert Blaauw(1), Rosario Rizzuto(1), Cristina Mammucari(1), Astrid Horstman(2), Umberto De Marchi(2), Jerome N. Feige(2) *((1) Department of Biomedical Sciences, University of Padova, Padova, Italy; (2) Nestlé Institute of Health Sciences, Nestlé Research, EPFL Innovation Park, Lausanne, Switzerland; (3) Department of Pharmaceutical and Pharmacological Sciences, University of Padova, Padova, Italy)*

Background: Mitochondrial decline during aging is a hallmark of sarcopenia. Mitochondrial calcium (mtCa2+) import via the Mitochondrial Calcium Uniporter (MCU) couples the regulation of cellular calcium homeostasis to energy production across organs. In skeletal muscle, MCU-mediated mtCa2+ import is rate-limiting for mitochondrial activation during contraction, but how MCU is affected during physiopathology and whether it can be stimulated therapeutically remains largely uncharacterized. **Objectives:** We aimed to understand the preclinical and clinical association of mitochondrial calcium import with skeletal muscle aging and sarcopenia and to discover a novel MCU-targeted nutritional intervention for skeletal muscle health. **Methods:** We analyzed biomarkers and functional measures of mitochondrial calcium in muscle biopsies and primary myoblasts from older people with or without sarcopenia, and their association with muscle mass and performance. We developed a high-throughput screen of 5000 natural bioactives present in food, that specifically increase Ca2+mt and determined the efficacy and molecular mechanism of Oleuropein as the best nutritional activator of mitochondrial calcium import with a history of safe human use. **Results:** We identified the natural polyphenol Oleuropein and its major metabolites as direct activators of MCU via binding to MICU1. Oleuropein stimulates mtCa2+, mitochondrial respiration and ATP production in an MCU- and MICU1-dependent fashion. Oral administration of Oleuropein acutely stimulates mtCa2+, pyruvate dehydrogenase (PDH) and muscle energy metabolism to increase physical performance and limit muscle fatigue in young, aged but not MCU muscle-specific KO mice. The design of an ongoing clinical trial will be presented where Oleuropein in an olive leave extract is being tested in older people to improve muscle energy and decrease physical fatigue. **Conclusion:** Our work demonstrates that mitochondrial Ca2+ is a direct regulator of mitochondrial decline during aging, and establishes Oleuropein as a novel nutrient that specifically targets MCU to stimulate mitochondrial bioenergetics and muscle performance in healthy and aged individuals.

OC32- DYNAPENIA, MUSCLE QUALITY AND HEPATIC STEATOSIS IN PATIENTS WITH OBESITY AND SARCOPENIC OBESITY. Francesco Frigerio(1), Marina De Marinis(1), Francesca Camardella(1), Vito Cantisani(2), Alessandro Pinto(1), Marco Bernardi(3), Carla Lubrano(1), Lucio Gnessi(1), Massimo Federici(4), Lorenzo Maria Donini(1), Eleonora Poggiogalle(1) *((1) Department of Experimental Medicine, Sapienza University, Rome, Italy; (2) Department of Radiological, Oncological and Pathobiological Sciences, Sapienza University, Rome, Italy; (3) Department of Clinical, Internal Medicine, Anesthesiology and Cardiovascular Sciences, Sapienza University, Rome, Italy; (4) Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy; Center for Atherosclerosis, Policlinico Tor Vergata, Rome, Italy)*

Background: Accumulating evidence supports a connection between sarcopenic obesity (SO) and NAFLD. To which extent fatty liver contributes to impaired muscle contractility is not well established yet. **Objectives:** The aim of our study was to investigate the effect of NAFLD on dynapenia in patients with SO. **Methods:** Study participants were recruited among patients referring to the High Specialization Center for the Care of Obesity, Policlinico "Umberto I" Hospital, Sapienza University, Rome, Italy. Inclusion criteria were: age > 18 and < 75 years, body mass index >= 30 kg/m^2, Caucasian ethnicity. Obesity was defined as BMI >=30 kg/m^2. Sarcopenic obesity was defined in accordance with the 2022 EASO-ESPEN consensus statement. Muscle strength and quality were assessed through the Handgrip strength (HGS) test using a digital dynamometer (DynEx, Akern, Pontassieve, FI, Italy). The arithmetic mean of three consecutive measurements was calculated for each arm. Hepatic ultrasonography was performed and hepatic steatosis was evaluated based on a semiquantitative method, i.e. the computerized calculation of the hepatorenal index (HRI >=1.28). **Results:** In this study 71 non-diabetic subjects [age 55 (7.8) years, BMI 35.2 kg/m^2 (32.6-38.8)] were classified as having SO and non-sarcopenic obese (NSO). SO patients

displayed worse serum lipid profile, higher body fat and lower skeletal muscle mass (both total and appendicular) than NSO patients, despite no significant difference in body weight, glycometabolic parameters and hepatic steatosis prevalence. A positive correlation between disposition index and muscle quality index (MQI) (r=0.393, p=0.013) emerged after controlling for menopause and body fat percentage. Based on multiple linear regression analysis, MQI was significantly positively associated with the disposition Index (β: 0.059, SE: 0.002, p=0.006) after adjustment for menopause, body fat percentage and the presence of hepatic steatosis according to Hepato-Renal Index (HRI). Similar findings emerged when including liver enzyme levels in place of hepatic steatosis. **Conclusion:** Muscle quality is positively associated with β-cell function corrected for insulin resistance among patients with obesity and sarcopenic obesity, irrespective of fatty liver disease presence.

OC33- INTRINSIC CAPACITY TRAJECTORIES IN THE INSPIRE ICOPE CARE COHORT. Emmanuel Gonzalez-Bautista(1,2), Philipe de Souto Barreto(1,2), Maria Eugenia Soto Marin(1,2), Caroline Berbon(1), Neda Tavassoli(1) *((1) Gerontopole, W.H.O Collaborative Center for Frailty, Clinical Research and Geriatric Training, Toulouse University Hospital, 31059 Toulouse, France; (2) Maintain Aging Research team, CERPOP, Université de Toulouse, Inserm, Université Paul Sabatier, Toulouse, France)*

Background: Intrinsic capacity (IC) is the aggregate of physical and mental capacities people can draw upon as they age. Five domains operationalize IC: cognition, locomotion, nutrition, vision, hearing and psychological with clinical pathways in the WHO's Integrated Care for Older People (ICOPE). The INSPIRE ICOPE Care cohort has assessed IC among 21,000 people aged 60 and over in France. **Objectives:** To characterize the transition patterns between two consecutive IC assessments; and the cross-sectional and longitudinal trajectories of the IC domains in the INSPIRE ICOPE Care cohort participants. Also, to explore the interrelation among the IC domains. **Methods:** We explored INSPIRE ICOPE care data from professional assessments of ICOPE Steps 1 and 2. We used descriptive techniques to obtain the cross-sectional trajectories of IC domains by age and sex. We got the transition patterns between two consecutive assessments. We applied group-based trajectory modelling and mixed-effects methods to explore the longitudinal IC trajectories. **Results:** There were 2,246 people with at least 3 IC screenings and about 150 adults with at least three IC in-depth assessments. The following pairs of domains showed similar transition patterns: cognition-locomotion, psychological-nutritional and hearing-vision. More than half of the participants with positive malnutrition screening reversed to negative at 5.5 months follow-up. All the domains showed screening reversion ≥20% except for hearing. Trajectories of deteriorated cognition and nutrition were associated with functional declines for ADLs. Locomotion trajectories showed capacity recoveries (SPPB). **Conclusion:** In this exploratory analysis, we found that the IC domains exhibit differential patterns in older adults seeking health care in the French Occitania region, notably positive screening reversion and capacity recovery. Further research is needed to understand the natural history of the IC domains and their interrelation.

OC35- MOVING TOWARDS THE ICOPE APPROACH: EVALUATION OF COMMUNITY-BASED INTERVENTION ACTIVITIES ON IMPROVING INTRINSIC CAPACITY. Ruby Yu(1,2), Derek Lai(1), Grace Leung(1), Jean Woo(1,2) *((1) CUHK Jockey Club Institute of Ageing, The Chinese University of Hong Kong, Hong Kong, China; (2) Department of Medicine & Therapeutics, The Chinese University of Hong Kong, Hong Kong, China)*

Background: Community-based intervention activities can be effective in improving the intrinsic capacity (IC) of older people. However, it is less well-known whether different types of activities may have differential effects. **Objectives:** Following the ICOPE framework, this study aims to guide community service providers in Hong Kong to adopt a people-centred approach for maximizing the benefits of their intervention activities. To this end, the study attempts to (1) identify subgroups of older people based on their IC, (2) examine whether and how the effects of different types of activities vary across these subgroups, and (3) assess whether the activity par-ticipation patterns of older people align with their actual needs. **Methods:** Participants were community-dwelling older people aged 60 years or above. They were screened for impairments in IC domains at baseline, and their participation records of different types of intervention activities were collected for one year. Cluster analysis was used to group participants based on their IC impairment patterns. Mixed-effects regression was used to examine whether and how the effects of activity partici-pations on IC vary across the identified subgroups. Activity participation patterns were compared across subgroups using a profile analysis. **Results:** Four clusters were identified, including those who were robust (cluster 1), those who had cognitive decline (cluster 2), those who had impaired mobility and vitali-ty (cluster 3), and those with poor psychological well-being (cluster 4). Using cluster 1 as the reference, the effects of cognitive, exercise, and mental activities were respec-tively higher for cluster 2 (β = 0.031, 95% CI [0.013, 0.049]), cluster 3 (β = 0.044, 95% CI [0.018, 0.069]), and cluster 4 (β = 0.044, 95% CI [0.009, 0.080]). However, the profiles of activity participations of the four clusters were parallel (Wilk's Λ = 0.997, F = 1.735, p = .053) and coincident (Wilk's Λ = 1.000, F = 0.236, p = .872), indicating that the activi-ties might not have targeted the populations based on their needs. **Conclusion:** Given that intervention activities are most beneficial to those with impair-ments in the corresponding IC domains, a people-centred and targeted approach should be adopted to maximize the overall benefits.

OC36- FRAILTY IN THE CHRONIC RESPIRATORY PATIENT: ASSOCIATION WITH MORTALITY AND CLINICAL FEATURES IN OBSTRUCTIVE, RESTRICTIVE AND MIXED SPIROMETRIC PATTERNS. Simone Scarlata(1), Sonia Zotti(1), Panaiotis Finamore(1), Matteo Cesari(2,3), Christian R. Osadnik(4,5), Raffaele Antonelli Incalzi(1), Pedone Claudio(1) *((1) Unit of Internal Medicine and Geriatrics; Fondazione Policlinico Campus Bio-Medico University Hospital, Rome- Italy; (2) Geriatric Unit, Fondazione IRCCS Istituti Clinici Scientifici Maugeri, Milan, Italy; (3) Department of Clinical Sciences and Community Health, University of Milan, Milan, Italy; (4) Department of Physiotherapy, Monash University, Melbourne, Australia; (5) Monash Lung and Sleep, Monash Health, Melbourne, Australia)*

Background: Frailty showed to be strongly associated with respiratory impairment and likely accounts for additional mortality in subjects with poor lung function. However, little is known on whether differences exist in frailty determinants according to the different respiratory patterns. We hypothesized that qualitative parameters composing the Frailty Index (FI) may vary according to different spirometry-related dysfunction. **Objectives:** The aim of the present study was therefore to evaluate the mortality risk between frail and not-frail subjects with chronic lung impairment, and identify if factors leading to frailty present differently according to spirometric groups. **Methods:** Data from the Salute Respiratoria nell'Anziano – Respiratory Health in the Older Persons (SARA) study were retrospectively analyzed, including 1,339 participants (aged 73.7, SD 6.3 years). Hazard ratios (HR) for 5-year mortality were calculated using Cox regression models. The accuracy of the FI, computed on 21 health domains, in predicting mortality was estimated using Receiving Operator Curves and calculation of the Area Under the Curve (AUC). The association between spirometric groups and frailty parameters was quantified using Odds Ratios (OR). **Results:** After adjustment for age and sex, a two-fold increased mortality risk was found in all spirometric groups with frailty versus the not frail comparators (HR 2.25, 95%CI 1.37-2.84, p<0.001 overall cohort; HR=2.08, 95%CI 1.37-3.18, p=0.001 obstructive; HR=2.27, 95%CI 1.04-1.17, p=0.04 restrictive; HR=2.21, 95%CI 1.20-3.08, p=0.03 mixed). The overall ROC-AUC of FI in predicting mortality was 0.68, ranging from 0.641 in obstructive to 0.741 in restrictive patterns. A strong association in having reduced walking distance capability, smoking history, and dyspnea was found in all spirometric groups (p<0.05). History of myocardial infarction presented significatively with obstructive pattern (OR: 1.6, 95% CI: 1.04 – 2.66), cognitive impairment and chronic heart failure with restrictive (OR: 3.6, 95% CI: 1.9 – 6.8; OR: 3.8, 95% CI: 1.5 – 9.3, respectively) and type 2 diabetes mellitus with mixed one (OR: 1.7, 95% CI: 1.07 – 3). **Conclusion:** Fragile patients affected by chronic respiratory disease, have an increased risk of mortality, independently of age and sex. Differences in FI parameters across respiratory patterns, may help clinicians to treat reversible frailty aspects and prevent associated worse outcomes in chronic respiratory disease.

OC37- ASSOCIATION BETWEEN INTRINSIC CAPACITY AND FRAILTY IN THE PRIMARY CARE POPULATION WITH MULTIMORBIDITY. X Ng(1), SZ Sim(1), SY Tan(1), GTY Ding(1), ES Lee(1,2) *((1) National Healthcare Group Polyclinics, Singapore, Singapore; (2) Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore, Singapore)*

Background: Multimorbidity is prevalent in primary care and is associated with declines in intrinsic capacity (IC), frailty and subsequent disability. Although IC is a distinct concept from frailty, there is overlap between them and it is important to understand their relationship, to enable implementation of appropriate and timely interventions in individuals with multimorbidity. **Objectives:** We aimed to determine the association between IC and frailty with respect to disease burden, demographic, social and lifestyle factors in an elderly primary care population with multimorbidity. **Method:** A cross-sectional survey was conducted in three primary care centres in Singapore from August to October 2022. Participants were aged 60 to 100 years who could walk independently and had at least the most common multimorbidity triad in Singapore- hypertension, hyperlipidaemia, and diabetes mellitus. Data collected included socio-demographic variables, social factors including social isolation (Lubben Social Network Scale-6), loneliness (three-item UCLA loneliness scale) and social participation (social role domain of the Late-Life Function and Disability Instrument); smoking, level of multimorbidity, IC (WHO Integrated Care for Older People (ICOPE) Screening Tool), and frailty (modified Fried). The association between IC (number of intact domains) and frailty status (robust and pre-frailty/frailty) was determined using Mann-Whitney U test and then adjusted for the other factors using multiple regression analysis. **Results:** The study included 412 participants (mean age 69.9±6.0 years). Robust participants had a median of four intact IC domains (IQR 3-4) while pre-frail/frail participants had a median of three intact domains (IQR 2-4). Mann-Whitney U showed significant association between IC and frailty (p<0.001) but that was lost in multiple regression analysis (p-value=0.147) which instead showed significant associations between IC and age (older participants had lower IC, p-value<0.01), gender (females had lower IC, p-value=0.036), ethnicity (non-Chinese had lower IC than Chinese, p-value=0.001), loneliness (those who were somewhat lonely or lonely had lower IC, p-value=0.002) and social participation (those with increased participation had higher IC, p-value=0.005). **Conclusion:** Social factors may influence the association between IC and frailty in the primary care population with multimorbidity. More longitudinal studies are required to understand their role in the development of declines in IC and frailty.

OC38- CIRCULATING REJUVENATING FACTORS AND DECLINE OF GRIP STRENGTH IN OLDER ADULTS: THE BALTIMORE LONGITUDINAL STUDY OF AGING. Yuko Yamaguchi(1,2), Pingbo Zhang(1), Min Zhu(3), Ruin Moaddel(3), Elango Palchamy(3), Luigi Ferrucci(3), Richard D. Semba(1,4) *((1) Wilmer Eye Institute, Johns Hopkins University School of Medicine, Baltimore, MD, USA; (2) Graduate School of Health Sciences, Kobe University, Kobe, Hyogo, Japan; (3) National Institutes on Aging, National Institutes of Health, Baltimore, MD, USA; (4) Center for a Livable Future, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD USA)*

Background: Although growth/differentiation factor 11 (GDF11), growth/differentiation factor 8 (GDF8), and their circulating antagonists, which include GDF11 and GDF8 propeptides, follistatin (FST), WFIKKN1, and WFIKKN2, have been shown to influence skeletal muscle and aging in mice, the relationship of these circulating "rejuvenating factors" with human phenotypes is less clear. Objectives: To characterize the relationship between plasma GDF8, GDF11, FST, WFIKKN1, and WFIKKN2 concentrations with the decline of grip strength in adults, ≥65 years, who participated in the Baltimore Longitudinal Study of Aging and had grip strength measured over time. **Methods:** Plasma GDF8 and GDF11 mature proteins, GDF8 and GDF11 propeptides, FST (isoform FST315 and cleaved form FST303), WFIKKN1, and WFIKKN2 concentrations were measured using selected reaction monitoring-tandem mass spectrometry at baseline. Grip strength was measured at baseline and at follow-up visits (median follow-up 8.87 months). **Results:** Mean (standard deviation) grip strength declined in men and women by -0.84 (2.45) and -0.60 (1.32) kg/year, respectively. Plasma GDF8 and GDF11 mature proteins, GDF8 and GDF11 propeptides, FST315, FST303, WFIKKN1, and WFIKKN2 concentrations were not independently predictive of the decline of grip strength in men or women in multivariable linear regression analyses that adjusted for potential confounders. Rejuvenating factors and their antagonists and interaction terms between proteins were not associated with decline of grip strength in men or women in alternative analyses in which all proteins were entered together in the models. **Conclusion:** Circulating GDF8, GDF11 and their antagonists do not appear to influence the decline of grip strength in older men or women. Studies in humans have largely been unable to replicate the findings regarding "rejuvenating factors" from aging studies in mice.

OC39- PREOPERATIVE FRAILTY AND MORTALITY IN MEDICARE BENEFICIARIES UNDERGOING MAJOR AND MINOR SURGICAL PROCEDURES. Chan Mi Park(1), Jessica J. Lie(2), Laiji Yang(1), Natalia Gouskova, Dae Hyun Kim(1) *((1) Hebrew SeniorLife, Boston, MA, USA; (2) Division of General Surgery, University of British Columbia, Vancouver, BC, Canada)*

Background: The number of older adults receiving surgical procedures is increasing owing to advancements in surgical and anesthetic techniques. Previous studies showed that preoperative frailty is associated with postoperative mortality and poor surgical outcomes even after low-risk procedures. Whether the association is consistent across major and minor surgical procedures of different surgical stress has not been well studied. **Methods:** This retrospective study used the 2014-2019 5% random sample of Medicare fee-for-service beneficiaries who underwent surgical procedures (N=1,129,055). Surgical procedures were categorized by the Operative Stress Score (OSS) (range: 1 [e.g., knee arthroscopy] to 5 [e.g., removal of lung]). Preoperative frailty was measured by a claims-based frailty index (range: 0 to 1; non-frail <0.15, pre-frail 0.15-0.24, mildly frail 0.25-0.34, and moderate to severely frail ≥0.35). We estimated the age and sex-adjusted risk ratio (RR) of mortality at 30 days, 6 months, and 1 year associated with frailty category stratified by OSS category. **Results:** We identified 1,885,652 surgical procedures (OSS category 1 to 5: 30.1%, 47.7%, 20.2%, 1.9%, and 0.2%). The mean age was 76.3, 48.5% were female, and 90.3% were white. Overall, postoperative mortality was 1.6% at 30 days, 5.1% at 6 months, and 7.8% at 1 year. Frailty was associated with increased 30-day, 6-month, and 1-year postoperative mortality across OSS categories. At 1 year, patients with moderate-to-severe frailty had significantly elevated mortality after OSS category 1 minor procedures (27.4% vs 3.2%; adjusted RR [95% CI], 7.9 [7.6-8.1]) as well as after OSS category 5 major procedures (33.3% vs 15.8%; adjusted RR [95% CI], 2.1 [1.4-3.1]) compared to non-frail patients. **Conclusion:** Frailty is associated with increased 30-day, 6-month, and 1-year mortality after major and minor procedures. These national data can be useful for risk stratification and shared decision-making before surgery with older patients.

OC40- ASSOCIATIONS BETWEEN CIRCULATING MICRONUTRIENTS, CLINICAL BIOMARKERS AND SKELETAL MUSCLE MASS: PRELIMINARY RESULTS FROM A CROSS-SECTIONAL ANALYSIS OF DATA FROM THE BALTIMORE LONGITUDINAL STUDY OF AGING. Jamie Scott(1), Donnie Cameron(1,2), Max Yates(1), Toshiko Tanaka(3), Luigi Ferrucci(3), Ailsa Welch(1) *((1) Norwich Medical School, University of East Anglia, Norwich, UK; (2) Department of Radiology, C.J. Gorter MRI Center, Leiden University Medical Center, Leiden, Netherlands; (3) Translational Gerontology Branch, Intramural Research Program, National Institute on Aging, National Institutes of Health, Baltimore, MD, USA)*

Background: Over the next two decades the prevalence of sarcopenia is predicted to increase dramatically due to an ageing population, resulting in increased healthcare costs and challenges for public health (1). Loss of skeletal muscle mass (SMM) is a key component of sarcopenia (2): many micronutrients and routinely-measured clinical biomarkers influence muscle physiology, but relationships between these and SMM have not been extensively explored. Investigating these relationships may highlight micronutrients that are important for maintaining muscle mass during ageing, and

biomarkers that are useful for identifying individuals at risk of sarcopenia. Our prior preliminary work investigated micronutrients and clinical biomarkers and measures of muscle function. **Objectives:** To investigate associations between blood concentrations of micronutrients (vitamin B12, vitamin D, magnesium, potassium and iron), clinical biomarkers (albumin, haemoglobin, HbA1c, creatinine and homocysteine) and SMM. **Methods:** Cross-sectional data were provided for 1,761 adults aged between 22 and 103 years old from the Baltimore Longitudinal Study of Aging. DXA-measured appendicular SMM (ASM) was calculated as the sum of lean mass minus bone mass in the arms and legs, and was scaled for height (ASM/height2: ASMht). This preliminary analysis investigated associations between circulating micronutrients or clinical biomarkers and ASMht using univariate linear regression, and multiple linear regression, adjusted for age, BMI, smoking status and race. **Results:** After adjustment for age, BMI, smoking status and race, both haemoglobin (g/dL) (B = -0.056, p = 0.031) and albumin (g/dL) (B = -0.26, p = 0.001) were negatively associated with ASMht in women. In men, albumin (g/dL) (B = -0.20, p = 0.046) and homocysteine (μmol/L) (B = -0.031, p = 0.045) were negatively associated with ASMht. Additionally, in men, there was a trend toward significance for HbA1c (%) (B = -0.093, p = 0.063) and creatinine (mg/dL) (B = 0.25, p = 0.057). No significant associations were observed between any micronutrient and SMM. **Conclusion:** Further analysis will determine whether these associations are altered following adjustment for physical activity and micronutrient supplementation, however, these preliminary findings suggest that specific clinical biomarkers may be associated with SMM and, therefore, may be useful for identifying individuals at risk of sarcopenia. **References:** 1. Ethgen O, Beaudart C, Buckinx F, Bruyere O, Reginster JY. The Future Prevalence of Sarcopenia in Europe: A Claim for Public Health Action. Calcif Tissue Int. Mar 2017;100(3):229-234. doi:10.1007/s00223-016-0220-9; 2. Cruz-Jentoft AJ, Bahat G, Bauer J, et al. Sarcopenia: revised European consensus on definition and diagnosis. Age Ageing. Jan 1 2019;48(1):16-31. doi:10.1093/ageing/afy169

OC41- RADIOMIC FEATURES OF SKELETAL MUSCLE DERIVED FROM CT SCANS ARE ASSOCIATED WITH PHYSICAL FUNCTION IN THE MROS STUDY.

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Background: Radiomic analysis of CT images provides biomarkers of muscle heterogeneity (variation in patterns and texture on images) which may improve prediction of physical function in older adults. "Radiomic" refers to multiple parameters derived from images. **Objective:** To determine if radiomic features of skeletal muscle derived from abdominal CT images are associated with leg power, grip strength, and gait speed, independent of muscle size and density, in 2644 men (mean age 74.0) in the MrOS Study. **Methods:** On CT images at L3 level, our fully-automated machine learning algorithm determined total abdominal skeletal muscle area (SMA), skeletal muscle density (SMD), and 75 radiomic features of muscle texture. Factor analysis was used to reduce the number of radiomic features into latent variables that explain the underlying data. Association of these factors with leg power, grip strength, and gait speed was determined using linear regression models adjusted for SMA, SMD, intermuscular adipose tissue area (IMAT), CT parameters (scanner model, slice thickness, tube current), participant age, height, diabetes status, self-reported health, and number of medications. **Results:** In fully adjusted models with standardized βs, 1 SD increment in SMA (β = 25.10; CI = 15.19, 35.01) was independently associated with greater leg power. 1 SD increment in radiomic factor 2 (β = -13.68, CI = -18.77, -8.58) and radiomic factor 4 (β = -12.64, CI = -19.68, -5.60) were independently associated with lower leg power. Each 1-SD increment in SMA (β = 2.03; CI = 0.55, 3.50) was independently associated with greater grip strength, but no radiomic factors or other CT-derived metrics were associated with grip strength. Each 1-SD increment in IMAT (β = -0.03, CI = -0.05, -0.01) was associated with slower gait speed; no other CT-derived metrics were significantly associated with gait speed. **Conclusion:** In older men, CT-derived radiomic features indicating higher muscle heterogeneity are associated with lower grip strength and leg power independent of skeletal muscle size and density.

OC42- CIRCULATING SENESCENT AND ANGIOGENIC T LYMPHOCYTES IN AGEING AND FRAILTY.

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Background: Though typically characterised by a loss of physical function, there is also an under-researched vascular dimension to frailty. There is a need to identify vascular and geroscience-relevant markers and mediators that can physiologically link ageing to vascular disease. There is evidence of specific T cell subsets, all influenced by age, that exert positive and negative effects on vascular health. CD31+, termed angiogenic T cells, have been linked to vascular repair whereas CD28NULL, termed senescent T cells, display pro-inflammatory and cytotoxic effector functions. CD31+CD28NULL, described as senescent angiogenic T cells, are associated with endothelial dysfunction in hypertension. **Objective:** This study sought to determine

the combined influence of increasing age and frailty status on these circulating CD31+ and CD28NULL T cell subsets. **Methods:** This cross-sectional study recruited four different cohorts of men and women; young (20-30 years, n=23), older (65-75 years, n=17), robust non-frail (76+ years, n=17), and frail (76+ years, n=15) adults. Frailty was determined using the Fried Frailty method. T cell subsets were determined by whole blood flow cytometry based on the expression of CD3, CD4, CD8, CD31 and CD28. **Results:** Whether expressed as circulating counts or as a % of total T cells, there was a progressive decrease ($p<0.05$) in CD31+ angiogenic T cells with increasing age but paradoxically higher values ($p<0.05$) in the frail compared to the robust non-frail groups, a trend particularly evident in the CD4+ fraction. CD28NULL senescent T cells were considerably higher ($p<0.05$) in the CD8+ compared to the CD4+ fraction. Specific CD28NULL subsets were higher in the combined older non-frail compared to the young participants and higher in the frail compared to the robust non-frail participants. Percentage CD28 negativity was higher in the CD4+ (4% vs 9%, $p<0.05$) and CD8+ (34% vs 53%, $p<0.05$) fractions in the frail compared to the robust non-frail group respectively. CD8+CD31+CD28NULL were also higher in the frail compared to the robust non-frail participants ($p<0.05$). **Conclusion:** CD8+CD28NULL T cells are considerably elevated in frailty and may serve as a useful target for intervention. In contrast, CD31+ T cells may have a more complex association with ageing and disease.

OC43- ONLINE REMOTE PHYSICAL ACTIVITY INTERVENTION TO PREVENT PHYSICAL PERFORMANCES IN COMMUNITY-DWELLING OLDER ADULTS DURING ISOLATION PERIODS: ONLY ONE RECIPE? Mylene Aubertin-Leheudre(1,2), Jordan Granet(1,2), Eva Peyrusqué(1,2), Fabien Ruiz(1,2), Fanny Buckinx(1,2), Benjamin Pageaux(2,3) *((1) UQAM, Faculté des sciences, Département des sciences de l'exercice, GRAPA, Montréal; Québec-Canada; (2) Centre de recherche de l'institut Universitaire de Gériatrie de Montréal (CRIUGM), Montréal; Québec-Canada; (3) U de Montréal, Faculté de Médecine; École de kinésiologie et des sciences de l'activité physique, Montréal; Québec-Canada)*

Background: Periods of involuntary isolation (such as lockdown; heat or cold waves) increase the risk of physical inactivity, which can contribute to physical decline among older adults. Online technology could be an innovative solution to promote physical activity habits in this context. However, the effects of these adapted remote web-based interventions (live or video or combined) remain unclear in older adults. **Objectives:** 1) To examine the acceptability, feasibility and potential benefits of 2 modalities of web-based PA interventions (study-1); 2) To explore which recorded-live sessions ratio leads to the best implementation and benefits (study-2). **Methods:** Non-physically active community-dwelling older adults (>60yrs) were recruited during the 2 first COVID-19 lockdowns and randomized by block period to a 12-week web-based PA intervention [study-1: Live Group (LG; n=38) vs. Recorded Group (RG; n=45) /study-2: Live-Recorded-Live group (LRL; n=22) vs. Recorded-Live-Recorded group (RLR; n=24)]. Acceptability, feasibility as well as physical performance [muscle endurance (30sec STS); muscle power (10 STS); SPPB] quality of life (EQ-5D) and PA level/motivation were assessed pre- and post-intervention. **Results:** 1st study: Fewer dropouts in LG than RG (LG:16% vs. RG:46%) were found. Adherence rate (LG:89%; RG:81%), level of satisfaction (LG:77%; RG:64%) and enjoyment (LG:68%; RG:62%) were similar across groups. Physical performance and quality of life improved significantly in both groups. Only LG showed significant improvements in perceived health and PA levels. Finally, LG showed greater physical performance and quality of life improvements than RG. 2d study: Dropout rate (LRL:14% vs. RLR: 29%) and adherence (>85%) were similar between groups. Both groups reported similar levels of satisfaction (>70%), enjoyment (>75%) and perceived exertion (>60%). Both groups increased physical performances with greater improvements in muscle power ($p=0.010$) and endurance ($p<0.001$) in the LRL group. **Conclusion:** Web-based PA interventions using a decisional tree to prescribed adapted levels are safe, feasible, acceptable and beneficial for improving physical performance during isolation periods. However, PA programs which included full or more interactive web and live sessions (LLL or LRL) appear to be more effective for maintaining or improving physical health. Further research is needed as well as longitudinal follow-up (in process).

OC44- SINGAPORE CLINICAL PRACTICE GUIDELINES FOR SARCOPENIA: PROCESS, RESULTS AND LESSONS LEARNT. WS Lim(1,2), CY Cheong(3), J.P. Lim(1), MMY Tan(4), JQ Chia(1), NA Malik(5), L Tay(6) *((1) Institute of Geriatrics and Active Ageing, Tan Tock Seng Hospital, Singapore; (2) Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore; (3) Khoo Teck Puat Hospital, Singapore; (4) Ng Teng Fong Hospital, Singapore; (5) St Mary's Hospital, Portsmouth, United Kingdom; (6) Sengkang General Hospital, Singapore)*

Background: Singapore recently published the first country-specific Clinical Practice Guidelines (CPG) for sarcopenia. Building upon the seminal ICFSR 2018 CPG for sarcopenia, facilitators included: national interest in sarcopenia as a major risk factor of public health concern for frailty; upsurge in clinical and research interest; strong support from the local professional bodies; and need for contextualized evidence-based recommendations that facilitate adoption of the Asian Working Group for Sarcopenia (AWGS) 2019 consensus into current practice in Singapore. **Objectives:** To present the final recommendations of the Singapore CPG for Sarcopenia, and to distil lessons learnt from the process. **Methods:** The workgroup drew upon three main sources of evidence: AWGS'2019 consensus; updated literature review of Singapore studies till 31 Dec 2020; and recent systematic reviews. From 40 local studies included for data extraction, we constructed evidence tables organized as: definition and epidemiology; diagnosis and

evaluation; and treatment and intervention. We developed 20 recommendations covering case-finding, diagnosis, treatment, prevention, and research, which were graded for strength and quality using the GRADE approach. Consensus from an expert panel was achieved after two rounds of the modified Delphi process. **Results:** We conditionally recommend a case-finding approach in at-risk older adults using validated case-finding tools. For diagnosis, we conditionally recommend using the AWGS'2019 algorithm, with dual-energy X-ray absorptiometry performed only when necessary to determine low lean mass for confirmatory diagnosis. For treatment, we strongly recommend resistance-based exercises and conditionally recommend a quality diet with adequate protein/caloric intake, with Vitamin D supplementation for insufficiency (<30 micrograms/L). We strongly recommend regular physical activity and resistance-based exercise for sarcopenia prevention. We encourage more research to address local evidence gaps. **Conclusion:** The Singapore CPG represents a major step in translation of sarcopenia into clinical practice. Key takeaways include: 1) alignment with national agenda of local health authorities; 2) support from major stakeholders and professional bodies; 3) adequate representation in the workgroup and expert panels; 4) operational efficiency by leveraging upon prior work (such as ICFSR 2018 CPG and existing consensus criteria); 5) harnessing local body of evidence; and 6) adopting Pasteur's quadrant lenses to develop recommendations which balance rigor with relevance.

OC45- PREBIOTIC SUPPLEMENTATION IMPROVES COGNITION VERSUS PLACEBO IN HEALTHY OLDER TWINS: THE PROMOTE STUDY. Mary Ni Lochlainn, Ruth C.E. Bowyer, Paul Seed, Kevin Whelan, Claire J Steves *(King's College London, London, United Kingdom)*

Background: There is a growing body of evidence linking the microbiota in the human gut, to the brain and specifically to cognition. Animal and human studies have shown that inducing changes in the microbiota can alter cognitive behaviour, suggestive of causative pathways. **Objectives:** The PROMOTe trial aimed to test whether the gut microbiome mediates anabolic resistance to protein in older adults. A secondary objective was to test whether modulation of the gut mi-crobiome using a pre-biotic food supplement, improved cognition versus placebo. **Methods:** This is a placebo controlled double blinded randomised controlled trial using twin pairs, re-curited from the TwinsUK cohort. We recruited those aged >=60, with low protein intake at baseline, and access to a computer to take part (due to remote trial delivery). Each twin pair was randomised as a pair, so one twin received protein supplementation plus placebo and the other twin received protein supplementation plus a gut microbiome modulator (prebiotic). Intervention period was 12 weeks, with participants advised to take 1 sachet of supplement daily, and all were advised to undertake regular resistance exercises. The primary outcome was muscle strength as measured using chair-rise time. Cognition, as measured by CANTAB cognitive batter was a secondary outcome. A factor analysis score was used to combine the results of the five cognitive tests carried out. Linear mixed effects regres-sion models were used to compare intervention groups (arm 1 vs arm 2; blinded) on their change in cognition score at 12 weeks. Twin clustering was considered as random effects, both family identifier and zygosity, and treatment group as fixed effect. **Results:** Target sample size was 70 individuals. We screened 626 and randomised 72 participants (36 pairs). More adverse events occurred in the prebiotic group (n=8 versus n=2 in placebo group; p=0.041), but compliance remained high in both groups (% adherence based on sachet count at study end >78% in each group; p=0.37). There was no significant difference between arms for the primary outcome of chair rise time (coefficient 0.184; 95% CI -0.569-0.938; p=0.631). The prebiotic intervention arm had an improved cognition factor score versus the placebo group (coefficient 0.482; 95% CI 0.823-0.141; p=0.014). **Conclusion:** Prebiotic food supplementation improves cognition versus placebo in a cohort of healthy older twins.

OC46- KNEE OSTEOARTHRITIS AND MUSCLE ADIPOSITY INDEPENDENTLY PREDICT AN ACCELERATED ACCUMULATION OF FRAILTY DEFICITS DIFFERENTIALLY MEDIATED BY PHYSICAL FUNCTION: THE 6-YEAR LONGITUDINAL AMBERS COHORT STUDY. Andy Kin On Wong(1,2), Courtney Kennedy(3,4), Kenneth Tam(1,6), Siwen Liu(1), Shannon Reitsma(5), Hana Gillick(5), Alexandra Papaioannou(3,4), Jonathan D. Adachi(5) *((1) Joint Department of Medical Imaging; Schroeder's Arthritis Institute, University Health Network, Canada; (2) Dalla Lana School of Public Health, University of Toronto, Canada; (3) GERAS Centre for Aging Research, Hamilton Health Sciences, Canada; (4) Division of Geriatrics, McMaster University, Canada; (5) Division of Rheumatology, McMaster University – all Ontario, Canada; (6) Department of Physiology, University of California Davis, San Francisco, CA, USA)*

Background: Muscle quantity and weakness are associated with frailty and knee osteoarthritis (KOA). It is unclear how fat distribution within muscles contribute to frailty acceleration in the context of KOA. **Objectives:** To determine how inter- and intramuscular fat (IMF) of the calf relates to frailty trajectories – either within the causal pathway from KOA to accelerated frailty, or independently of KOA. **Methods:** Women 60-85 were recruited to the Appendicular Muscle and Bone Extension Research Study (AMBERS) and completed baseline fast spin echo MRI and peripheral QCT mid-calf scans (66% site) along with 30-sec chair stand and timed 'up-and-go' tests. Comorbidities, health utilities and activities of daily living questionnaires were administered annually for 5 subsequent years to formulate the CaMos Frailty Index (CFI, cumulative deficits approach). Muscle and IMF were segmented from MR images using a fully-automated algorithm we designed in Python. CT muscle was separated from fat by density thresholds. Statistics: Group-based trajectory modeling classified individuals into frailty trajectories with classes and trajectory polynomials guided by AIC/BIC, parsimony

and scientific rationale. Logistic regression determined how presence of KOA, muscle quantity, density or IMF% each predicted high-accelerating versus medium-moderately-changing or low-unchanging CFI trajectory classes. Path analysis evaluated IMF% or physical function as mediators in the relationship between KOA and frailty trajectories. **Results:** Among 280 women (mean age: 75.2±5.9yrs, BMI: 29.4±5.6kg/m^2), 8.2%(23) had KOA and 22.2%(70) had IMF% in the highest quartile. Each of IMF% (OR: 1.47(1.05,2.05)) and muscle mass (adjusting for muscle area, 3.08(1.43,6.65)) predicted accelerated frailty independently of KOA. Muscle density was no longer a predictor (OR: 1.66(1.15,2.39)) after accounting for IMF% (OR: 1.42(0.88,2.27)). Having KOA showed a 3.68(1.11-12.21)-fold odds for accelerated frailty even adjusting for IMF% or physical function. Neither IMF% nor physical function were significant mediators to the KOA-CFI trajectory relationship. Physical function was a mediator (39.3-40.5% indirect effect) in the IMF%-CFI trajectory relationship but IMF%'s direct effect (59.5-60.7%) on accelerated frailty remained marginally significant (p=0.085-0.096). **Conclusion:** KOA is a major predictor of accelerated accumulation of frailty-related deficits that is not explained by fat within muscle or weaker physical function. Having leaner muscles prevents accelerated frailty independently of KOA.

OC47- ASSOCIATION OF CIRCULATING MIRNAS WITH SARCOPENIA: THE SARCOPHAGE STUDY. Marjorie Millet(1,2), Maxime Auroux(1,5), Charlotte Beaudart(3), Jean-Yves Reginster(3), Olivier Bruyère(3,4), Roland Chapurlat(1,2,5), Jean-Charles Rousseau(1,2) *((1) INSERM 1033; (2) PMO, Lyon, France; (3) Department of Public Health, Epidemiology and Health Economics, University of Liège, Belgium; (4) Department of Sports Sciences, University of Liège, Belgium; (5) Hôpital E. Herriot, Hospices Civils de Lyon, France; University of Lyon, France)*

Background: Sarcopenia, the age-related decline in skeletal muscle mass and function, is a major health issue in geriatric medicine. With aging, skeletal muscle gene expression is significantly dysregulated suggesting that epigenetic alterations may play a crucial role in the skeletal muscle aging process. The small non-coding microRNAs (miRs) are endogenous regulators of gene expression. They bind to complementary sequence on target messenger RNA transcripts resulting in translational repression or target degradation. The remarkable miR stability in biofluids suggests they could become non-invasive disease biomarkers. **Objectives:** The objective of our study is to identify a microRNA signature associated to sarcopenia compared to a non-sarcopenic control population. **Methods:** The study group included Belgian subjects belonging to the population-based cohort SarcoPhage. Expression levels of serum miR were measured in 92 healthy subjects without sarcopenia (74.2 ± 10 years) and in 92 subjects with sarcopenia (75.3 ± 6.8 years). Both groups were matched for age and sex. We selected 8 miRs to measure their serum expressions based on results from our previous NGS study (Next Generation Sequencing, ICFSR 2018) and according to the literature. **Results:** Serum has-miR-133a-3p and has-miR-200a-3p were significantly decreased in the sarcopenic group vs controls. Has-miR-744-3p and has-miR-151a-3p were decreased and increased in the sarcopenic group respectively, but this barely reached significance. **Conclusion:** In sarcopenic subjects, miR-133a-3p and 200a-3p expression was downregulated, consistent with their potential targets inhibiting muscle cells proliferation and differentiation. In contrast, the variations of miR-744a-3p and miR-151a-3p may reflect the adaptation of metabolic activity of muscle cells to lower muscle mass in order to maintain the steady state of muscle quality. These variations of miR-744a-3p and miR-151a-3p are possibly inadequate to compensate for the muscle loss leading to sarcopenia.

OC48- EFFECT OF SIRT6 AND PHYSICAL EXERCISE ON PHYSIOLOGICAL AND METABOLIC PROCESSES IN SKELETAL MUSCLE IN AGING. M. Gonen, A. Katz, Z. Schwart, G. Jacobson, N. Touitou, R. Nagar, B. Lerrer, H.Y. Cohen *(Bar Ilan University, Ramat Gan, Israel)*

Background: Unfortunately, the increase in human life expectancy of the last century, is not consistent with parallel increase in healthspan. Hence, aging is correlates with age-related diseases like: neurodegenerative diseases, cardiovascular diseases, cancer, diabetes, and musculoskeletal disorders that have a great impact on the life quality. One of the common diseases whose prevalence increases with aging and affects healthy lifestyle is sarcopenia. Sarcopenia is characterized by loss of skeletal muscle mass, function and immobility. Physical activity is one of the most important determinants of health, playing a role in the prevention of age-related processes. Physical exercise can improve respiratory and metabolic function, body composition and frailty. Moreover, physical exercise is known to prevent the loss of skeletal muscle mass, and improve muscle function. However, the mechanism underlying the positive effects of physical exercise on aging is poorly understood. SIRT6, an NAD+ dependent deacetylase, is known to extend lifespan, and healthspan. SIRT6 overexpression mice showed improved glucose homeostasis, lipid metabolism and energy production. **Objectives:** Here, we examined the interphase between physical activity and SIRT6 to understand the role of SIRT6 in the regulating physical exercise. Which allows us to deal with sarcopenia and age-related diseases and improve active and healthy life. **Methods:** We performed forced physical exercise in young and old, WT and SIRT6 overexpression mice and metabolic and physiological parameters were examined. Transcriptome analysis of the skeletal muscle was performed to explore the mechanism of SIRT6 and physical exercise in skeletal muscle. **Results:** In comparison to WT mice, young and old SIRT6 mice run longer time. SIRT6 mice under physical exercise exhibit improved body composition, which establishes in reducing fat mass and increasing muscle mass. Moreover, WT and SIRT6 old mice under forced exercise showed an increase mtDNA number in skeletal muscle. Transcriptome analysis of the gastrocnemius muscle showed that forced exercise in old WT enhances the expression of genes that are known to be

downregulated by aging and old SIRT6 mice under physical exercise implicated this effect. **Conclusion:** These results emphasize the potential role of SIRT6 and physical exercise as an intervention to delay sarcopenia and improve healthier life in old age.

POSTERS

FRAILTY IN CLINICAL PRACTICE AND PUBLIC HEALTH

P1/1- CHINESE TRANSLATION, CROSS-CULTURAL ADAPTATION AND VALIDATION OF THE PRISMA-7 QUESTIONNAIRE. Meredith Yeung, Yen Gan, Hui Xuan Leow, Kai Quan Lim, Shu Qi, Myriam Jbabdi, Michel Raiche, Mingxing Yang *(Singapore Institute of Technology Singapore, Singapore)*

Background: Frailty is a medical syndrome associated with adverse health outcomes and lower quality of life. The Program on Research for Integrating Services for the Maintenance of Autonomy (PRISMA)-7, a 7-item questionnaire, is a case-finding tool for frailty with good sensitivity and specificity. **Objectives:** This study aimed to translate, cross-culturally adapt and validate the PRISMA-7 questionnaire to Chinese. **Methods:** This cross-sectional and convenience sampling study recruited bilingual community-dwelling older adults aged 65 and above. The Functional Autonomy Measurement System (SMAF) was used as the gold standard comparison. The English PRISMA-7 questionnaire was culturally adapted to Chinese using forward and backward translation methods. Intra- and inter-rater reliability were determined using the intraclass correlation coefficient (ICC). Face, content, construct, and criterion validity were determined. The Receiver Operator characteristic (ROC) curve determined the optimal cut-off score. **Results:** One-hundred-twenty participants (55 females and 65 males) were recruited. The Chinese PRISMA-7 questionnaire had excellent intra-rater and inter-rater reliability (ICC = 1.000). The rigorous forward and backward translation established the face and content validity. The Chinese PRISMA-7 was strongly correlated to the original English PRISMA-7 questionnaire ($r = 0.944$; $p < 0.001$) and moderately correlated to the SMAF ($r = -0.653$; $p < 0.001$), established both the construct and criterion validity. An optimal cut-off score of three "Yes" responses was reported with 100% sensitivity and 85.3% specificity. **Conclusion:** This translation, cross-cultural adaptation, and validation study established the Chinese PRISMA-7 questionnaire. The preliminary results indicate sufficient diagnostic test accuracy for frailty screening within the Chinese-literate community. **Key words:** Aged, frailty, validity of case-finding tools, geriatric assessment, cross-cultural adaptation, chinese.

P1/2- SARCOPENIA AND FALLS IN AN ASIAN COHORT OF PATIENTS WITH PARKINSON'S DISEASE. Justina Angel Tan, Jeremy Teng, Gai Fui Kiew, Pauline Chong, Audrey Seow Saw Hoon, Shee Yin Lim, Juanne Sze Hwa Tan, Santhosh Kumar Seetharaman, Preetha Venugopalan Menon *(National University Hospital, Singapore, Singapore)*

Background: Sarcopenia is a multifaceted geriatric syndrome seen in various chronic diseases including Parkinson's Disease (PD). Sarcopenia is typified by a decrease in the quality and quantity of muscle mass. Present published research has demonstrated its association with several adverse health outcomes not limited to falls, hospitalisation, reduced quality of life and even death. Falls are a prominent cause of mortality in elderly especially those with PD. Sarcopenia may potentially be a modifiable risk factor for falls in this population. **Objectives:** To evaluate the prevalence of sarcopenia in an Asian cohort of patients with PD using SARC-F screening tool and dominant hand grip strength measurement and to determine its association with falls. **Methods:** A total of 50 patients were recruited from an integrated clinic for PD patients in Singapore. Frailty was determined by the Clinical Frailty Scale. SARC-F tool was used to screen the patients with a score ≥4 indicating possible sarcopenia. Probable sarcopenia was diagnosed using the EWGSOP (European Working Group on Sarcopenia in Older People) criteria with SARC-F and AWGS (Asian Working Group for Sarcopenia) recommended cut-offs for dominant hand grip strength in Asian populations. **Results:** The mean age of the cohort was 76.02 ± 12.42 and comprised of 54% (27) males and 46% (23) females. Prevalence of frailty was noted to be 80% (40) with 52% (26) being mildly frail, 20% (10) moderately frail and 8% (4) severely frail. 52% (26) of patients screened positive for sarcopenia. Probable sarcopenia was noted in 33.3% (9) males and 65.2% (15) females. 54% (27) of patients had at least one fall in the past one year. Probable sarcopenia and frailty were noted to be associated with falls in this population with an Odds ratio 7.28 (95% CI 2.03-26.10 $p<0.002$) and 3.5 (95% CI 0.78-15.58 $p<0.1$). Positive SARC-F was independently associated with falls with an Odds ratio 8.09 (95% CI 2.28-28.76 $p<0.001$). **Conclusion:** Sarcopenia is highly prevalent in patients with PD and has a significant association with falls in this population. Sarcopenic patients with PD are at least seven times more likely to fall as compared to non-sarcopenic patients with PD.

P1/4- MEASURING THE PREVALENCE OF FRAILTY AMONGST OLDER HOSPITALISED ADULTS IN NORTHERN TANZANIA: A MULTICENTRE CROSS-SECTIONAL STUDY. Sean L Davidson(1,2), Luke Emmence(1), Sara May Motraghi-Nobes(1), Emily Bickerstaff(1), George Rayers(1), Godrule Lyimo(3), Joseph Kilasara(4), Sarah Urasa(3), Emma Mitchell(5), Catherine L Dotchin(1,2), Richard W Walker(1,2) *((1) Newcastle University, United Kingdom; (2) Northumbria Healthcare NHS Foundation Trust, United Kingdom; (3) Kilimanjaro Christian Medical Centre, Tanzania; (4) Kilimanjaro Christian Medical University College, Tanzania; (5) North Bristol NHS Trust, United Kingdom)*

Background: Globally life expectancy is rising and healthcare systems in low- and middle-income countries (LMICs) now face a double-burden from non-communicable and infectious diseases. Frailty is a state of increased vulnerability related to ageing and, though common amongst inpatients in high-income countries, its prevalence in hospitals in LMICs has rarely been characterised. **Objective:** To establish the prevalence of frailty amongst older hospitalised adults in northern Tanzania using tools suitable for a low-resource setting. **Methods:** During a 6-month period from March to August 2022, adults aged ≥60 years admitted to medical wards in four hospitals in northern Tanzania were invited to participate. Sites were chosen to reflect the range of healthcare facilities available in Tanzania. Frailty status was assessed using the Frailty Phenotype (FP), Clinical Frailty Scale (CFS) and Brief Frailty Instrument for Tanzania (B-FIT). These methods were chosen for use in a low-resource setting because they are quick, require minimal equipment and do not need specialist geriatric input. **Results:** 540 adults aged ≥60 years were admitted during the study period, 308 were screened for frailty. The commonest reasons for non-participation were discharge (n=159) and death (n=34) before researcher attendance. The mean age was 74.9 years and 155 participants were female (50.1%). 67% of participants were frail according to the CFS, 71% according to the B-FIT and 77% according to the FP. Spearman's rank indicated strong correlations between the three measures ($p<0.001$). Clinical and sociodemographic characteristics of frail and non-frail participants were also contrasted. **Conclusion:** It was possible to estimate the prevalence of frailty using a range of simple methods in a low-resource setting, with advantages and disadvantages to each tool. The prevalence was very high, which is in keeping with the few other studies in sub-Saharan Africa that are available. The main limitation was the non-inclusion of individuals who were discharged, or died, early in their admission meaning the most, and the least, frail people may have been unintentionally missed. The next step is follow-up to establish clinical outcomes in relation to frailty status; identifying those at greatest risk will assist local efforts to better target resources.

P1/5- THE FRIED FRAILTY PHENOTYPE IN PATIENTS UNDERGOING CARDIAC SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS. Jaewon Chang(1), Minhtuan Nguyenhuy(2), Ruiwen Xu(3), Sohaib Virk(4), Akshat Saxena(5) *((1) The Royal Melbourne Hospital, Parkville, Melbourne, VIC, Australia; (2) Western Hospital, Footscray, Melbourne, VIC, Australia; (3) The University of Melbourne, Parkville, Melbourne, VIC, Australia; (4) Department of Cardiology, Concord Repatriation General Hospital, Concord West, NSW, Australia; (5) Department of Cardiothoracic Surgery and Transplantation, Fiona Stanley Hospital, Murdoch, WA, Australia)*

Background: Frailty is an increasingly recognized marker of poor surgical outcomes in cardiac surgery. Frailty first was described in the seminal «Fried» paper, which constitutes the longest-standing and most well-recognized definition. **Objective:** This study aimed to assess the impact of the Fried and modified Fried frailty classifications on patient outcomes following cardiac surgery. **Methods:** The PUBMED, MEDLINE, and EMBASE databases were searched from January 2000 until August 2021 for studies evaluating postoperative outcomes using the Fried or modified Fried frailty indexes in open cardiac surgical procedures. Primary outcomes were one-year survival and postoperative quality of life. Secondary outcomes included postoperative complications, intensive care unit (ICU) length of stay (LOS), total hospital LOS, and institutional discharge. **Results:** Eight eligible studies were identified. Meta-analysis identified that frailty was associated with an increased risk of one-year mortality (Risk Ratio [RR]:2.23;95% confidence interval [CI]1.17 -4.23), postoperative complications (RR 1.78;95% CI 1.27 - 2.50), ICU LOS (Mean difference [MD] 21.2 hours;95% CI 8.42 - 33.94), hospital LOS (MD 3.29 days; 95% CI 2.19 - 4.94), and institutional discharge (RR 3.29;95% CI 2.19 - 4.94). A narrative review of quality of life suggested an improvement following surgery, with frail patients demonstrating a greater improvement from baseline over non-frail patients. **Conclusion:** Frailty is associated with a higher degree of surgical morbidity, and frail patients are twice as likely to experience mortality within one-year post-operatively. Despite this, quality of life also improves dramatically in frail patients.

P1/6- SARCOPENIA IS ASSOCIATED WITH POORER OUTCOMES IN PATIENTS UNDERGOING CARDIAC PROCEDURES. Jaewon Chang(1), Minhtuan Nguyenhuy(2), Ruiwen Xu(3), Sohaib Virk(4), Akshat Saxena(5) *((1) The Royal Melbourne Hospital, Parkville, Melbourne, VIC, Australia; (2) Western Hospital, Footscray, Melbourne, VIC, Australia; (3) The University of Melbourne, Parkville, Melbourne, VIC, Australia; (4) Department of Cardiology, Concord Repatriation General Hospital, Concord West, NSW, Australia; (5) Department of Cardiothoracic Surgery and Transplantation, Fiona Stanley Hospital, Murdoch, WA, Australia)*

Background: Frailty is associated with increased mortality in cardiovascular diseases and after cardiac procedures. A key component of frailty is sarcopenia. Psoas muscle area is an emerging biomarker of sarcopenia and frailty. **Objectives:** Does psoas muscle area have any potential in predicting mortality after cardiac procedures? **Methods:** MEDLINE and Embase were systematically searched for studies that reported the impact of psoas muscle area on midterm mortality (minimum follow-up of one-year) after any cardiac procedures. Data were independently extracted by two reviewers. A systematic review and meta-analysis were performed to evaluate the prognostic potential of psoas muscle area on midterm mortality following cardiac interventions. **Results:** 15 studies fulfilled the inclusion criteria, with 13 reporting that psoas muscle area was independently predictive of midterm mortality risks following transcatheter aortic valve replacement and open-heart surgeries. A meta-analysis of the eight transcatheter studies demonstrated that a larger psoas muscle area was associated with a 30% reduction in the risk of midterm mortality. Subgroup analyses showed that defining low psoas muscle area as the lowest tertile was predictive of midterm mortality risks. **Conclusion:** Lower PMA is independently associated with increased midterm mortality and reduced midterm survival. This association was more common in women than men. The level of psoas muscle area measurement, the type of variable (binary, categorial or continuous) and the method of standardization seemed not to influence this association.

P1/7- PREOPERATIVE FRAILTY AND POSTOPERATIVE INFECTIOUS COMPLICATIONS IN DIGESTIVE SURGERY PATIENTS. Yuichi Kitagawa, Yasuji Kawabata, Ken Fujishiro, Yumi Suzuki *(Department of Digestive Surgery, National Center for Geriatrics and Gerontology, Obu Aichi Japan)*

Background: Progress of an aging society in the world, the number of surgical candidates with frailty is increasing. **Objective:** We investigated whether preoperative frailty is associated with the development of postoperative infectious complications (PIC). **Method:** This study was performed as part of "Study on the usefulness of preoperative assessment of sarcopenia in patients undergoing gastrointestinal cancer surgery (Project 20-34)" in the Research Funding for Longevity Sciences. Of the enrolled patients, 92 cases with clear preoperative frailty were investigated in this study. **Result:** Preoperative frailty was observed in 70 cases. Surgery was performed in 15 dementia cases and 77 non-dementia patients. The operations included 30 colon, 22 stomach, 19 rectum, 12 HPB, 3 esophagus surgeries. The age of patients was 76.9±6.1 years, in addition, 55 male and 37 female were included. 82 open surgeries and 10 laparoscopic surgeries were performed. The average operating time was 280.3±131.5 minutes. The average duration of antibiotic prophylaxis was 1.8±1.0 days. The average duration of fever of 37°C or higher immediately after surgery was 2.5±2.0 days. 24 patients developed some PIC. There were 15 cases of SSI and 11 cases of remote infection (including duplicates). 21 of the frailty cases developed PIC. Also, 3 of the Non-frailty cases developed PIC. The average postoperative hospital stay was 28.3±17.5 days overall, 48.1±17.0 in the group with PIC, and 21.3±11.2 in the group without PIC. The postoperative hospital stay was 24.2±16.2 days in the non-frailty group and 29.6±17.8 in the frailty group. **Conclusion:** We could not confirm the relationship between preoperative frailty and PIC. The postoperative hospital stay in patients with PIC was prolonged.

P1/8- TRAJECTORIES AND TRANSITIONS OF PHYSICAL FRAILTY IN CHRONIC NEPHROPATHY: A SCOPING REVIEW. Angela Benjumea(1), Gustavo Aroca-Martínez(2), Carlos G. Musso(2,3), Sebastián López Velásquez(1) *((1) Gerontology and Geriatrics Research Group, Universidad de Caldas, Manizales, Colombia; (2) Faculty of Health Sciences Universidad Simón Bolívar, Barranquilla, Colombia; (3) Research department. Hospital Italiano de Buenos Aires, Buenos Aires, Argentina)*

Background: Frailty is associated with increased vulnerability to a worse state of health. There is growing interest in understanding the associations between frailty and chronic nephropathy. The aim of this review is explore current knowledge about the trajectories and transitions of frailty in patients with chronic nephropathy. **Methods:** We conducted a search in different databases such as Pubmed, Web of Science, Oxford Academic, Redalyc.org, and the Cochrane library to identify articles addressing the topic, including those published from July 2015 to July 2022. Two independent researchers assessed the articles' eligibility following the PRISMA guidelines. The literature search yielded 38 articles of which 7 met the inclusion criteria and were analyzed in the review. **Results:** Frailty is a dynamic process in patients before and after kidney transplantation regardless of age. It initially worsens after the surgical procedure, to then improve significantly, likely in association with improvement in kidney function. **Conclusion:** Pre-transplant assessment and interventions such as rehabilitation can successfully increase the number of kidney transplant recipients whose frailty improves following transplantation. **Key words:** Chronic nephropathy, hemodialysis, kidney transplant, post-transplant, physical

frailty, trajectories of frailty, frailty transitions.

P1/9- SARCOPENIA- PREVENTION AND MANAGEMENT BEFORE IT HAPPENS. CREATING A SYSTEMATIC PATHWAY TO INTEGRATE PRIMARY AND SECONDARY CARE IN AVOIDING SARCOPENIA FOR AT RISK PATIENTS. Taik Pin Chuah *(Principal Resident Physician, Woodland Health, Singapore)*

Background: Muscle weakness and muscle bulk are known to decrease after prolonged period of illness and hospitalisation. This often has consequential socioeconomic impact further down the line. The proposed poster aim to highlight a systematic approach in Woodland Health, Singapore, between primary care physicians and secondary care specialists to reduce the incident of sarcopenia and all its related complications following period of hospitalisation and prolonged illness. **Objectives:** To organise a care pathway with coordinated approach between primary care physicians and hospital specialists that will established the necessary measures and care continuum with the aim to reduce the impact of prolonger immobility and subsequent onset of sarcopenia (and all its related complications) for patients who have suffered from an episode of prolonged illness requiring hospitalisation. **Methods:** At risk patients are identified. Those who are hospitalised for conditions that resulted in prolonged period of immobility, e.g. severe infection needing a significant period in Intensive Care or those who are admitted for fractured following falls with relatively minor impact will be transferred to our community hospital beds managed by primary care physicians and a multidisciplinary team early, as soon as their acute phase of illness is treated and clinically stable. Our multidisciplinary team will adopt a holistic approach of patient education, exercise, dietary modification and life style intervention etc. aimed at targeting the various factors that contribute to sarcopenia. **Results:** The aim of this program will be to encourage early mobilisation and reduce the average period of hospitalisation with early discharge to a home environment that is assessed to be safe and patients will continue to receive rehabilitation therapy in the community. **Conclusion:** The use of primary care physician with an uncomplicated follow up pathway and coordinated use of community resources is likely to have better continuity of care for the prevention of patients at risk of sarcopenia following a hospitalisation episode. This in turn will help reduce all the related complications like falls and fracture etc. that are likely to further consume valuable healthcare resources further down the line.

P1/10- ADINBERA: STUDY OF VULNERABILITY IN OLDER PEOPLE. Miriam Hernandez-Gonzalez(1), Uxue Lazcano(1,2), Kalliopi Vrostou(1,2,3), Maider Mateo Abad(1,2,3), Leonor Rico(1), Bakarne Aguirre(1), Ander Matheu(4), David Otaegui(5), Ian Holt(6), Adolfo López de Munain(7), Itziar Vergara Mitxeltorena(1,2,3) *((1) Grupo de Investigación en Atención Primaria y OSIs, Osakidetza-IIS Biodonostia (Gipuzkoa), Spain; (2) Red de investigación en Cronicidad, Atención primaria y promoción de la salud (RICAPPS), Spain; (3) Red de investigación en Servicios Sanitarios en Enfermedades Crónicos (REDISSEC), Spain; (4) Grupo de Investigación en Oncología Celular, Osakidetza-IIS Biodonostia (Gipuzkoa), Spain; (5) Grupo de Investigación en Esclerosis Múltiple, Osakidetza-IIS Biodonostia (Gipuzkoa), Spain; (6) Grupo de Investigación Mitochondria, Health & Longevity, Osakidetza-IIS Biodonostia (Gipuzkoa), Spain; (7) Grupo de Investigación en Enfermedades Neuromusculares, Osakidetza-IIS Biodonostia (Gipuzkoa), Spain)*

Background: The aging of the population is due to the prolongation of survival. It is associated with a series of physiological changes that lead to a progressive loss of adaptation and an increase of vulnerability. In this context, guaranteeing the well-being, the social participation and the provision of social and healthcare services of older people, constitutes a challenge for society. Vulnerability is defined not only by the health factors of the individuals, but also by a set of environmental variables and social determinants. **Objectives:** To create a population-based cohort that collects both clinical and environmental information, as well as social determinants of the participants, in order to elucidate the modifiable factors that define vulnerability in the elderly. **Methods:** Community dwelling individuals >65 years of age will be recruited. Baseline and a 12-month follow-up will be performed for all participants. Sociodemographic data, life habits, mobility and cognitive ability, anthropometric measurements, physical activity and sleep measurements as well as blood samples will be collected. Community context determinants will be assessed. Given the complexity and the need to obtain a deep understanding of the latter, this study will be carried out in one municipality. A trained nurse will perform most assessments by face-to-face interviews. Information on prescriptions, institutionalization and hospitalizations will be extracted from the Electronic Health Records (EHR). Focus groups will be additionally set-up for the community context assessments. It is estimated that 300 subjects per year will be recruited during this 3-year long study. **Results:** It is expected that the joint analysis of all the extracted data will allow us to identify patterns with common characteristics that will define the principal factors of vulnerability in older people. This will allow for a better definition of the needs of the population of interest. Which it turn, will set the basis for developing adequate community and public health interventions in response to these very needs. **Conclusion:** This study will demonstrate that vulnerability is a complex concept and that a more comprehensive approach, that takes into account multiple determinants, is necessary to

improve the lives of the older adults.

P1/11- ASSOCIATION OF FRAILTY WITH THE PROGRESSION OF CARDIOMETABOLIC MULTIMORBIDITY: RESULTS FROM A CHINESE LONGITUDINAL COHORT. Yang Li(1,2), Huixiao Yuan(1,2), Shasha Geng(1,2), Xin Chen(1,2), Yingqian Zhu(1,2), Hua Jiang (1,2) *((1) Department of Geriatrics, Shanghai East Hospital, Tongji University School of Medicine, Shanghai, China; (2) Department of General Practice, Shanghai East Hospital, Tongji University School of Medicine, Shanghai, China)*

Background: Cardiometabolic multimorbidity (CMM) has become the predominant multimorbidity pattern worldwide. Aging with CMM promotes the development of chronic low-grade inflammation, oxidative stress, and insulin resistance, leading to loss of muscle mass and frailty. However, there is not yet sufficient evidence as to whether frailty influences the progression of CMM inversely. **Objectives:** To explore whether frailty is associated with CMM progression over the 3-year follow-up period. **Methods:** A total of 2075 participants aged 45 years or older who were not diagnosed with CMM (more than two CMDs at the same time, hypertension, diabetes, dyslipidemia, heart disease, stroke) in 2015 were enrolled from the China Health and Retirement Longitudinal Study (2015-2018), excluding missing data such as physical measurements and disease diagnoses. Frailty was measured according to the frailty phenotype, which included five components: decreased grip strength, gait slowness, exhaustion, inactivity, and shrinking. The degree of frailty is determined by the number of criteria met. Participants were divided into robust and pre-frail/frail groups based on the results of the assessment. New CMD diagnoses as well as CMM status were collected in 2018. Statistical analysis was performed using STATA 17.0. **Results:** During the 3-year follow-up period, 331 (15.95%) participants progressed to CMM, 132 (13.97%) in the robust group, and 199(17.61%) in the pre-frailty/frailty group. Univariate analysis showed a higher risk of CMM in the frailty group (OR: 1.316 (1.036, 1.672), p=0.024); after adjusting for age, sex, residence, education, marital status, smoking, alcohol consumption, BMI, and baseline cardiometabolic disease, multivariate analysis found that frailty was still associated with a higher risk of CMM (OR: 1.334 (1.023, 1.737), p=0.033). The stratified analysis showed that frailty was associated with a higher risk of CMM among participants with less than lower secondary education (OR: 1.450 (1.101,1.910), p=0.008). **Conclusion:** The high prevalence of CMM in the pre-frailty/frailty group, despite the short follow-up period, suggests that early identification of frailty and interventions to prevent progression in the cardiovascular event chain are particularly important to avoid increased complexity in health management caused by CMM.

P1/12- TACKLING FRAILTY AT PRIMARY CARE: EVALUATION OF THE EFFECTIVENESS OF A MULTIFACTORIAL INTERVENTION THROUGH A RANDOMIZED CONTROL TRIAL. Uxue Lazcano (1,2), Miriam Hernandez-Gonzalez(1), Kalliopi Vrostou(1,2,3), Maider Mateo Abad(1,2,3), Leonor Rico(1), Bakarne Aguirre(1), Iván Antón(1), Irati Rodriguez(1), Miren Revuelta(1), Ana Diez(1), Carolina Güell(1), Itziar Vergara Mitxeltorena(1,2,3) *((1) Grupo de Investigación en Atención Primaria y OSIs, Osakidetza-IIS Biodonostia (Gipuzkoa), Spain; (2) Red de investigación en Cronicidad, Atención primaria y promoción de la salud (RICAPPS), Spain; (3) Red de investigación en Servicios Sanitarios en Enfermedades Crónicos (REDISSEC), Spain)*

Background: The relevance of frailty lies in the fact that, in addition to being an independent risk factor for the occurrence of adverse health events, it is potentially reversible. Therefore, addressing frailty is a key approach in the prevention of dependence. There is evidence that interventions based on muscle strengthening through exercise, dietary improvement or control of polypharmacy, among others, are effective in this direction. However, the approach to frailty is not systematically incorporated into the primary care (PC) network. **Objectives:** To evaluate the effectiveness of a multifactorial intervention in frail people, coordinated by PC professionals. **Methods:** A randomized-controlled trial with 6 and 12-month follow-up assessments is performed. Participants are frail, community living individuals >70 years of age. A prescription appropriateness evaluation, and nutritional care and exercise intervention are administered to the intervention group. The control group receives usual care. Data on functional and cognitive variables, anthropometric measurements and blood samples are collected. At each follow-up, information on prescriptions, institutionalization and hospitalizations will be extracted from the Electronic Health Records (EHR). The main outcomes are improvement of functional capacity and reduction of the incidence of frailty-related adverse events. Upon completing the intervention, a focus group will be carried out with the participating professionals. At least 6 semi-structured interviews will also be conducted with the professionals and participants of the intervention group. Each interview will undergo content analysis. **Results:** Up to this moment, a total of 6 centers and 22 medical professionals have participated. A total of 44 participants were evaluated, 19 in the control group and 25 in the intervention group. By March 2023 all baseline patient data will be available, as well as part of the follow-up data. A detailed description of the PC implemented interventions will be presented. **Conclusion:** It is expected that the current study will support the effectiveness of a multifactorial intervention in improving functional capacity, reducing the incidence of frailty-related adverse events. Its subsequent implementation at the Primary Care level will be an asset in delaying dependency, which will also have a great impact on other care levels.

P1/14- ADVERSE OUTCOMES AND HEALTH-ECOLOGICAL INFLUENCING FACTORS OF PREOPERATIVE FRAILTY AMONG ELDERLY PATIENTS WITH GASTRIC CANCER. Lingyu Ding(1), Qin Xu(2), Cui Yao(1) *((1) Department of Colorectal Surgery, the First Affiliated Hospital of Nanjing Medical, University, Nanjing, China; (2) School of Nursing, Nanjing Medical University, Nanjing, China)*

Background: Preoperative frailty is a severe negative state that reflects the reduction of overall physiological reserve and is highly prevalent in elderly patients with gastric cancer. **Purpose:** To explore the relationship between preoperative frailty and adverse outcomes, and systematically analyze the factors influencing frailty based on the health ecology model among elderly gastric cancer patients. **Methods:** A observational study was conducted to select 406 elderly patients who would undergo gastric cancer surgery at a tertiary hospital. The logistic regression model was used to examine the relationship between preoperative frailty and adverse outcomes, including total complications, prolonged length of stay (PLOS), and 90-day hospital readmission. Based on the health ecology model, the factors which may influence frailty were collected from four levels. Univariate and multivariate analysis were utilized to determine the factors influencing preoperative frailty. **Results:** Preoperative frailty was associated with total complications (odds ratio [OR]=2.776, 95% confidence interval [CI]:1.588–4.852), PLOS (OR=2.338, 95%CI:1.342–4.073), and 90-day hospital readmission (OR=2.640, 95%CI:1.275–5.469). Besides, nutritional risk (OR=4.759, 95%CI:2.409–9.403), anemia (OR=3.160, 95%CI:1.751–5.701), number of comorbidity ≥2 (OR=2.318, 95%CI:1.253–4.291), low physical activity level (OR=3.069, 95%CI:1.164–8.092), apathetic attachment (OR=2.656, 95%CI:1.457–4.839), personal monthly income ≤1000 yuan (OR=2.033, 95%CI:1.137–3.635) and anxiety (OR=2.574, 95%CI:1.311–5.053) were risk factors for frailty. High physical activity level (OR=0.413, 95%CI:0.208–0.820) and improved objective support (OR=0.818, 95%CI:0.683–0.978) were protective factors for frailty. **Conclusion:** Preoperative frailty was associated with multiple adverse outcomes and could be affected by factors of different dimensions from the health ecology perspective, including nutrition, anemia, comorbidity, physical activity, attachment style, objective support, anxiety, and income, which can guide the formation of a comprehensive prehabilitation for frailty among elderly gastric cancer patients.

P1/15- PERCEIVED INFLUENCING FACTORS OF PREOPERATIVE FRAILTY AMONG ELDERLY PATIENTS WITH GASTRIC CANCER FROM THE PERSPECTIVE OF HEALTH ECOLOGY: A QUALITATIVE STUDY. Lingyu Ding(1), Qin Xu(2), Cui Yao(1) *((1) Department of Colorectal Surgery, the First Affiliated Hospital of Nanjing Medical University, Nanjing, China; (2) School of Nursing, Nanjing Medical University, Nanjing, China)*

Background: Preoperative frailty is a severe negative state that reflects the reduction of overall physiological reserve and is highly prevalent in elderly patients with gastric cancer. Describing the perceived influencing factors of preoperative frailty can provide an important basis for developing individualized intervention plans. **Objective:** To describe the perceived influencing factors of preoperative frailty among elderly gastric cancer patients. **Methods:** A qualitative description was conducted based on health ecology theory. Purposive sampling method was used to select 29 frail elderly patients who would undergo gastric cancer surgery in a tertiary hospital in Jiangsu Province from February to June 2021 for semi-structured interview. Directed content analysis was used for data analysis. **Results:** Five themes and thirteen sub-themes were extracted: physiological traits, including accumulated aging-related losses, obvious gastrointestinal symptoms, and successive attacks of diseases; behavioral characteristics, including lack of exercise behavior and excessive physical activity exertion; interpersonal networks, including insufficient peer social interaction, lack of parent-child interaction, and lack of communication and self disclosure between couples; living and working conditions, including heavy individual financial burden, heavy unplanned family care tasks, insufficient resources for health and disease management information; macro factors, including limited level of medical services and medical insurance support. **Conclusion:** This study described the perceived effects of different dimensional factors on preoperative frailty among elderly gastric cancer patients from the perspective of health ecology. Medical staff should formulate and implement systematic prehabilitation programs based on the above factors to improve the patients' preoperative anti-stress ability and postoperative outcomes.

P1/16- AORTIC PULSE PRESSURE WAS ASSOCIATED WITH PRE-FRAILTY IN OLDER PATIENTS WITH TYPE 2 DIABETES MELLITUS. Kiat Sern Goh(1), Serena Low(1,2,3), Keven Ang(1), Su Chi Lim(2,3,4,5) *((1) Changi General Hospital, Singapore; (2) Khoo Teck Puat Hospital, Singapore; (3) Admiralty Medical Centre, Singapore; (4) Lee Kong Chian School of Medicine, Singapore; (5) Saw Swee Hock School of Public Health, Singapore)*

Background: Older patients with Diabetes Mellitus(DM) are susceptible to geriatric syndromes such as cognitive impairment and frailty. Cognitive impairment is one of the key mechanisms that triggers frailty. Interestingly, there is accumulating interest in the role of pulse pressure(PP) in cognitive impairment due to

pulsatile strain that disrupts blood flow in neuro-vasculature and generates oxidative stress interfering with blood-brain barrier. It is unknown if widening PP is associated with pre-frailty which presents opportunities for clinical improvement, and if cognitive function plays a role in mediating the association. **Objectives:** We aimed to study association between PP and pre-frailty, and mediation of the association by cognitive function in T2DM. **Methods:** This was a cross-sectional study on 628 T2DM patients aged 60 years without frailty. We used Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) to assess cognitive function. Aortic PP was calculated as difference between aortic systolic and diastolic blood pressures measured by applanation tonometry. The FRAIL scale, based on fatigue, resistance, ambulation, illness and weight loss, was used to categorise patients as robust(0 point) and pre-frail(1-2 points). Logistic regression was used to examine association between aortic PP and pre-frailty, adjusting for demographics, education and clinical covariates. Binary mediation analysis was performed to assess mediation of RBANS score in the association between aortic PP and pre-frailty. **Results:** The mean age of patients was 68.0±5.7 years. The mean aortic PP was 49.8±14.6 mmHg and mean RBANS total score was 99.6±9.5. 36.9% of the patients were pre-frail. Aortic PP was negatively correlated with RBANS total score (Pearson's correlation coefficient -0.148; p<0.001). The pre-frail patients had higher aortic PP than the robust patients (51.3±14.8 mmHg vs. 48.9±14.5 mmHg, p =0.052). Every 10 mmHg increase in aortic PP was associated with 29% increased odds of pre-frailty with odds ratio 1.29 (95%CI 1.03-1.60; p=0.025) in fully adjusted analysis. Binary mediation revealed that lower RBANS total score (indicative of lower cognitive function) accounted for 17.4% of the association between aortic PP and pre-frailty. **Conclusion:** Widening aortic PP was independently associated with pre-frailty with mediation by lower cognitive function. Aortic PP could serve as a potential indicator for monitoring of cognitive function and pre-frailty status.

P1/17- VISIT-TO-VISIT BLOOD PRESSURE VARIABILITY AND INTRINSIC CAPACITY IN OLDER ADULTS. Leonardo Bencivenga(1,2), Mathilde Strumia(2,3), Yves Rolland(2,3), Philippe Cestac(2,3), Sophie Guyonnet(2,3), Sandrine Andrieu(2,3), Bruno Vellas(2,3), Philipe De Souto Barreto(2,3), LaureRouch(2,3), for the MAPT/DSA Group *((1) Department of Translational Medical Sciences, University of Naples "Federico II", Italy; (2) Gérontopôle de Toulouse, Institut du Vieillissement, CHU de Toulouse, France; (3) UMR INSERM 1295, Université Toulouse III, Toulouse, France)*

Background: The effectiveness of the body physiological regulatory mechanisms that contribute to the maintenance of homeostasis declines in late life, and increased Blood Pressure Variability (BPV) may represent an alteration in neurocardiovascular homeostatic patterns. Most physiopathological mechanisms underlying BPV are implicated in vascular aging, which in turn might contribute to age-related disorders and the decline of global functions in older people. Intrinsic Capacity (IC) represents an innovative approach of geriatric medicine, proposed by the World Health Organization as a marker of healthy aging, based on individual's functional abilities and intended at preserving successful aging. The IC model reflects the trajectories of biological reserve of each person, through the assessment of key domains: locomotion, cognition, psychology, vitality and sensory. **Objective:** We aimed to investigate the impact of visit-to-visit systolic and diastolic BPV, assessed through six different parameters, on IC decline in a population of community-dwelling older adults. **Methods:** The study population consisted of over 1400 community-dwelling participants aged ≥70 years from the MAPT study evaluated up to 9 times during the 5-year follow-up. Systolic BPV (SBPV) and diastolic BPV (DBPV) were determined through several indicators including the coefficient of variation (CV%) and taking into account BP change over time, the order of measurements and formulas independent of mean BP levels. Cognition, psychology, locomotion and vitality constituted the four domains evaluated to obtain the outcome measures of IC. Total IC Z-score at each time point resulted from the sum of the four domains Z-scores divided by 4. **Results:** Higher SBPV was significantly associated with poorer IC Z-scores in all unadjusted and multivariable-adjusted linear mixed models [1-SD increase of CV%: β (SE)=–0.010 (0.001), p <0.01]. Similar results were observed when considering higher DBPV [1-SD increase of CV%: β (SE)=–0.003 (0.001), p=0.02], except ARV and SV that were not significantly associated with poorer capacities. **Conclusion:** Both greater systolic and diastolic BPV are associated with IC decline over time. Our findings support BP instability as presumable index of altered neurocardiovascular homeostatic mechanism, suggesting that BPV might be a potential marker of aging.

P1/18- RELATIONSHIP BETWEEN ORAL HEALTH AND FRAILTY IN A RURAL POPULATION, AUSTRALIA. Claudia Atala-Acevedo(1), Rodrigo Mariño(1), Kristen Glenister(2), Lisa Bourke(2), Mike Morgan(1), Roisin McGrath(1), Daniel Capurro(3,4), David Simmons(2,5) *((1) Melbourne Dental School, The University of Melbourne, Australia; (2) Department of Rural Health, The University of Melbourne, Australia; (3) School of Computing and Information Systems, Australia; (4) Centre for the Digital Transformation of Health, Australia; (5) Macarthur Clinical School, Western Sydney University, Australia)*

Background: Previous studies have suggested that poor oral health is associated with frailty in older people. However, the potential association between a person's perception of oral health (self-rated oral health) and frailty in rural Australian has not been previously investigated. It is important to recognise that good oral health is strongly linked to general health, including frailty, to optimise health and quality of life among older people. **Objective:** This study explores the association between oral conditions, self-rated oral health (SROH) and frailty in community-dwelling older adults in rural Victoria, Australia. **Method:** We conducted a secondary analysis of the data from a community-based cross-sectional study in rural

Victoria (Crossroads-II) of 376 adults aged 55 years and over. We combined 15 items from the existing dataset into a measure of frailty. An oral examination was conducted following the World Health Organization protocol. The clinical variables included were: the number of natural teeth, dental caries, and periodontal disease. The SROH questions were: 'Overall, how would you rate the health of your teeth and gums?' (1=poor to 5=excellent); and three items (Yes/No): 'Do you have bleeding gums?'; 'Do you have decayed teeth?': 'Do you often have painful aching in your mouth? Data were analysed using chi-square, ANOVA, and logistic regression analysis. **Results:** Overall, participants had a mean age of 68.4 years (s.d. 8.3), and 51.9% were female. The prevalence of frailty was found to be 39.4% of the sample. Dental caries was present in 56.1% of participants, 13% (n=49) were edentulous and 54.7% had signs of periodontal disease. Frailty was associated with increased numbers of decayed teeth (OR=1.21; 95% CI:1.02-1.42), fewer teeth (OR=0.94; 95% CI:0.92-0.97), and self-reported mouth pain (OR=2.69; 95% CI:1.38-5.23). This model explained 16.4% of the variance. **Conclusion:** These results suggest that having decayed teeth, the number of teeth and experience in painful mouth are associated with frailty. The strongest association was self-reported mouth pain, which could be linked with nutritional and general health status. Further studies need to confirm if SROH can be used as an indicator of frailty, particularly in rural populations with challenges accessing oral healthcare services.

P1/19- CO-OCCURRENCE OF FRAILTY AND SARCOPENIA IN ACUTELY ADMITTED OLDER MEDICAL PATIENTS: RESULTS FROM THE COPENHAGEN PROTECT STUDY. Hanne Nygaard(1,2,3), Rikke S Kamper(2,3), Anette Ekmann(2,3), Pernille Hansen(2,3), Sofie K Hansen(2,3), Martin Schultz(2,4), Finn E Nielsen(1), Jens Rasmussen(1), Eckart Pressel(2,3), Charlotte Suetta(2,3) *((1) Department of Emergency Medicine, Copenhagen University Hospital, Bispebjerg and Frederiksberg, Copenhagen, Denmark; (2) CopenAge, Copenhagen Center for Clinical Age Research, Faculty of Health, University of Copenhagen, Denmark; (3) Department of Geriatric & Palliative Medicine, Copenhagen University Hospital, Bispebjerg and Frederiksberg, Copenhagen, Denmark; (4) Geriatric Research Unit, Department of Medicine, Copenhagen University Hospital, Herlev and Gentofte, Herlev, Denmark)*

Background: Frailty is a common multidimensional clinical syndrome characterized by a decrease in biological reserve capacity and physical function. Sarcopenia is believed to play a role in the pathogenesis of frailty and functional impairment and is often used to describe the age-related loss of muscle mass and strength. **Objectives:** The aim was to investigate the prevalence and co-occurrence of frailty and sarcopenia in acutely admitted older medical patients. **Methods:** The study was based on data from the Copenhagen PROTECT study that included patients admitted to the acute medical ward at Copenhagen University Hospital, Bispebjerg, between November 2019 and November 2021. The Clinical Frailty Scale (CFS) was used as a measure of frailty. Sarcopenia was defined by low muscle strength and concurrent low skeletal muscle index (SMI) according to cut-offs from the European Working Group on Sarcopenia in Older People (EWGSOP). Handgrip strength (HGS) was investigated using a handheld dynamometer and the SMI using direct-segmental multifrequency bioelectrical impedance analyses (DSM-BIA, Inbody, S10). **Results:** In total, 638 (age 65-102 years, mean age: 78.2 ± 7.6, 55% women) patients with complete records of SMI, HGS, and CFS were included. Of these, 39.0% were frail, 39.0% had low HGS, 32.9% had a low SMI, and 19.7% had sarcopenia. In the frail patients, low HGS, low SMI, and sarcopenia co-occurred in 55.8%, 43.8% and 30.9%, respectively. **Conclusion:** Frailty and sarcopenia are common geriatric syndromes, and although sarcopenia is involved in the pathogenesis of frailty, the present data show that they do not necessarily co-occur within the older acutely admitted patient. Notably, low muscle strength alone appears to co-occur more frequently in the group of frail patients compared to SMI alone and sarcopenia in acutely admitted older patients.

P1/20- CULTURAL ADAPTATION AND VALIDATION OF SINHALA VERSION OF FRAIL NON-DISABLED TOOL (FIND). Shehan Silva(1), Udayangani Ramadasa(2), Sarita Perera(1), Gishani Ganhewa(1), Visith Dantanarayana(1), Sarath Lekamwasam(3) *((1) Department of Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Nugegoda, Sri Lanka; (2) Department of Medicine, Faculty of Medicine, Sabaragamuwa University of Sri Lanka. Ratnapura, Sri Lanka; (3) Department of Medicine, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka)*

Background: Frailty, a common geriatric syndrome of vulnerability, is associated with catastrophic declines in health and function. Most problematic expression of population ageing is associated with weakness, slowing, decreased energy, lower activity and when severe, unintended weight loss. Frailty is not consciously identified in clinical practice and is not widely studied in Sri Lanka. **Objectives:** A validated tool for screening frailty in a busy clinical setting is therefore much needed. This pilot study was done as a part of validating the Sinhala version of the Frail Non-Disabled (S-FiND) tool. **Method:** The FiND tool was translated from English to Sinhala by two translators, blinded to each other. The two translations were combined and translated back to the original language by two separate translators. After verifying the content validity, unambiguity and clarity of items in a focused group discussion, the pre-final version was piloted among 30 volunteers. After assessing the psychometric properties of the pre-final version, the final version was tested among 100 adults older than 65 years from the Colombo South Teaching Hospital. The tool was compared with Fried's frailty phenotype taken as a gold standard. **Results:** Data were analysed for the agreement with the reference standard, the Fried Phenotype. The mean (SD) age of subjects was 73.9 (7.76) years. The overall time taken to fill the questionnaire was 2 min. The agreement (Kappa)

between S-FiND questionnaire and Fried phenotype was 0.68 (P<001). The sensitivity and specificity of FiND in detecting frailty were 92.4% and 73.5%, respectively. The agreements (Kappa) between the individual items of S-FiND; involuntary loss of weight/ more than 4.5 kg over one year, feeling of effort/ not get going and level of physical activity, with the Fried phenotype were 0.28 (p=0.001), 0.06 (p=0.045) and 0.34 (p<0.001). respectively. When subjects were categorized frail and robust based on FiND, frail subjects reported higher incidence of falls (50%) during the previous 12 months, compared to those robust (13%) (p<0.001 for Chi stat). **Conclusion:** The S-FiND is a reliable, valid and well-received tool that can be used in detecting frailty of non-disabled Sinhala speaking older adults. **Key words:** Frailty, elderly, frailty non-disabled questionnaire, geriatrics, elderly care, Fried phenotype.

P1/21- PSOAS MUSCLE AREA AS A MEASURE FOR SARCOPENIA AND A PREDICTOR OF HEALTH OUTCOMES IN CHRONIC KIDNEY DISEASE. Song-Ah Chai, Sameena Iqbal, Khashayar Rafatzand, Celena Scheede-Bergdahl *(Kinesiology and Physical Education Department, McGill University, Montreal, QC, Canada; Medicine Department, McGill University, Montreal, QC, Canada; Medicine Department, McGill University, Montreal, QC, Canada; Kinesiology and Physical Education Department, McGill University, Montreal, QC, Canada)*

Background: Sarcopenia often presents in parallel with chronic kidney disease (CKD), associated with a deconditioned state, chronic inflammatory state and poor nutritional status. Psoas muscle area (PMA) measurements have been previously associated with mortality in CKD however, whether these measurements can be useful in predicting other clinical outcomes such as hospitalizations, infections and other health events are less established. **Objective:** The primary objective of this study is to report the association of PMA with hospitalizations, hemodialysis, mortality and infection in patients with CKD. **Methods:** A retrospective cohort study was conducted in a community nephrology clinic in Quebec, Canada that included laboratory, radiological, and demographic data collected from April 1, 2015 until June 30, 2022. PMA was measured by two independent readers using the DICOM RADiant Viewer Software. **Results:** 269 clinic charts were reviewed. Subjects had a median age of 74 years (IQR 31-92) with 58.3% reported as male (156/269). The prevalence of Grade 1 and 2, Grade 3, Grade 4 and Grade 5 CKD was 3%, 53%, 32%, and 10%. Median follow-up time was 1160 days (28-2516). Median measurement of PMA/height was 3.53 cm^2/m (0.5-8.73). Statistically significant concurrent relationships were documented between PMA and event-free time for dialysis and hospitalization. The adjusted HR for PMA < 2.66 cm^2/m are 0.39 (95% CI 0.16-0.94), p=0.0356. For hospital-free time, the adjusted HR for PMA quartiles showed a dose-dependent increase in effect size, with PMA about a 2-fold higher hazard risk ratio was seen for a longer hospital-free period, (p=0.0273). The Cox hazard proportional multivariate analyses documented the concurrently negative relationships between PMA and length of survival and infection-free time, reaching trend towards significance. For length of survival, PMA < 2.1 cm^2/m had an adjusted Hazard risk reduction of 82 % (HR 0.18 (95%CI 0.024-1.38)) and similarly for infection-free time until the first event, the adjusted HR for PMA < 2 cm^2/m are 0.38 (95% CI 0.17-1.0). **Conclusion:** Our study demonstrated an overall association between increased health complication rates with increased comorbidity and decreased psoas muscle area. Further prospective studies are needed to identify methods for muscle mass sustainability.

P1/23- CHRONOLOGY OF ORAL AGING. Lucie Rapp(1,2,3), Jean-Noel Vergnes(1,2,4), Sophie Guyonnet(2,5), Yves Rolland(2,5), Marie-Hélène Lacoste-Ferré(5) *((1) Dental Faculty and Hospital of Toulouse – Toulouse Institute of Oral Medicine and Science, CHU de Toulouse, France; (2) CERPOP, UMR1295 (Maintain Aging Research team), Université P. Sabatier, Toulouse, France; (3) Cancer Ageing and Rejuvenation (CARe) Graduate School, Toulouse, France; (4) Faculty of Dental Medicine and Oral Health Sciences, McGill University, Montreal, Quebec, Canada; (5) Department of Geriatric Medicine, CHU Toulouse Purpan, Toulouse, France)*

Background: The advancing age is also a concern for the field of dentistry. Although the concept of general frailty is well known, oral frailty is a new concept and the chronology of its appearance is still unknown. A better understanding of the onset of oral diseases allows better targeting of methods to prevent the decline of intrinsic abilities. **Objectives:** We propose a chronological description of oral diseases according to age categories from 20 years-old to no upper limit of age. **Methods:** This observational study included 1,000 subjects men and women, aged 20 years-old or over (no upper limit for age) from the INSPIRE-T cohort in Toulouse (France). We proceeded in multivariate polytomous analysis in several groups of age using the Oral Health Assessment Tool and clinical data. **Expected Results:** We will obtain a mapping of the oral diseases concerning lips, tongue, gums and mucous membranes, saliva, teeth, prosthesis, hygiene and pain for each age category. This will allow us to target the frail pivotal age on which we should focus prevention measures in order to promote successful oral aging.

P1/24- LIGHT-TOUCH FRAILTY PHENOTYPES. Xiaomeng Chen(1), Nadia M Chu(1,2), Valerie Thompson(1), Evelien Quint(3), Sami Alasfar(4), Qian-Li Xue(2,4), Daniel C. Brennan(4), Silas P. Norman(5), Bonnie E. Lonze(6), Jeremy D. Walston(4), Dorry L. Segev(1,6), Mara A. McAdams-DeMarco(1,6) *((1) Department of Surgery, Johns Hopkins University School of Medicine, Baltimore, MD, USA; (2) Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; (3) Division of Transplant Surgery, Department of Surgery, University Medical Center Groningen, Groningen, The Netherlands; (4) Department of Medicine, Johns Hopkins School of Medicine, Baltimore, MD, USA; (5) Department of Medicine, University of Michigan, Ann Arbor, MI, USA; (6) Department of Surgery, NYU Grossman School of Medicine and NYU Langone Health, New York, NY, USA)*

Background: Frailty is associated with poor outcomes in kidney transplant (KT) patients. The most commonly used frailty assessment, physical frailty phenotype (PFP), takes about 20 minutes to complete in clinical settings, which limits its clinical utility during transplant evaluation. **Objectives:** To develop a light-touch frailty phenotype for clinical use at evaluation. **Methods:** The light-touch frailty phenotype was developed by simplifying the 5 PFP components in a two-center prospective cohort of 3,220 ESKD patients evaluated for KT and tested for efficiency (time to completion) in 20 candidates at KT evaluation. Among the 3,220 ESKD patients with measured PFP at KT evaluation (1/2009-3/2020), we examined area under curve (AUC) and Cohen's kappa agreement to compare the light-touch assessment with the PFP. We compared waitlist mortality risk (competing risks models) by frailty using the PFP and light-touch assessment, respectively. Model discrimination was assessed using Harrell's C-statistic. **Result:** Among 20 patients at KT evaluation, light-touch assessment took 5-7 minutes to complete. In the cohort of 3,220 ESKD patients, the PFP and light-touch assessment identified 23.8% and 27.4% candidates as frail, respectively. The light-touch frailty phenotype had substantial agreement (kappa=0.69, 95%CI:0.66-0.71) and excellent discrimination (AUC=0.861). The PFP and light-touch assessment had similar associations with waitlist mortality (subdistribution hazard ratio [SHR]=1.62, 95%CI:1.26-2.08 vs. SHR=1.70, 95%CI:1.33-2.16) and comparable mortality discrimination (p=0.51). **Conclusion:** The light-touch assessment is an efficient and valid way to identify frailty. It predicts waitlist mortality among KT candidates without sacrificing discrimination. Transplant centers should consider utilizing the light-touch assessment to evaluate frailty in KT patients when time is limited.

P1/25- EPIDEMIOLOGY OF FRAILTY IN A RURAL LOW SOCIOECONOMIC AREA IN DENMARK. Mathilde Glud Christensen(1), Katja Kemp Jacobsen(2), Charlotte Suetta(3), Ellen Holms(4) *((1) Medical Department, Køge Hospital, Research center Copenage, Copenhagen University, Denmark; (2) Department of Technology, Faculty of Health and Technology, University College Copenhagen, Copenhagen, Denmark; (3) Geriatric Research Unit, Geriatric Department, Bispebjerg/Frederiksberg & Herlev/Gentofte Hospitals, Institute of Clinical Medicine, Research center Copenage, University of Copenhagen; (4) Department of Internal Medicine, University Hospital Zealand, Køge, Denmark. Department of Clinical Medicine, Research center Copenage, University of Copenhagen, Copenhagen, Denmark)*

Background: Frailty is a major geriatric syndrome that predicts increased vulnerability to minor stress events and adverse outcomes, such as falls, fractures, hospitalization, disability, less mobility, less independence and death. **Objectives:** The purpose of this study was to examine prevalence of frailty as well as associated socioeconomic and health factors among community-dwelling older adults from the regions of Lolland-Falster, which is one of the most socio-economically disadvantaged areas of Denmark. **Design & methods:** Registry-based cross-sectional population study from the regions of Lolland-Falster, Denmark. Data were collected between February 2016 and February 2020 and were combined with data from national registries. **Results:** The study included 10,154 participants above 50 years, hereof 52.4% women. Prevalence of prefrailty and frailty in the age group of 50-64 years were 50.5% and 4.7% respectively. In the age group of 65 years and above, prevalence of prefrailty and frailty were 53.1% and 8.7% respectively. Frailty was associated with high age, female gender, low education level, low income, smoking, living alone, seeing ones children seldom, and no possibility of getting help when needed. There was an overlap between frailty and multimorbidity (≥2 chronic diseases). The majority (493 out of 681 =72.4%) of those with frailty also had multimorbidity but only a small fraction (493 out of 3,235 = 15.2%) of those with multimorbidity had frailty. There were significantly increasing plasma levels of CRP and Hba1c and decreasing levels of sodium and albumin over the spectrum from non-frail to frail. The differences between metabolic age and factual age in frail, pre-frail and non-frail participants were +1.0, -1.16 and -5.4 respectively. **Conclusion:** Although a vast majority of frail persons have multimorbidity, frailty is not an inevitable consequence of multimorbidity. The present study clearly shows that frailty is a multidimensional complex consisting of not only physiological and medical issues but also education, lifestyle and factors as living alone, living in poverty and how you evaluate your own health. This makes the syndrome difficult to comprehend and underlines the necessity of further studies.

P1/26- IDENTIFYING OLDER PATIENTS UNDERGOING AORTIC ANEURYSM REPAIR AT RISK FOR POSTOPERATIVE COMPLICATIONS USING PREOPERATIVE HANDGRIP STRENGTH. Barbara C. van Munster, Barbara L. van Leeuwen, Monika Trzpis, Clark J. Zeebregts, Robert A. Pol *(University Medical Center Groningen, Utrecht, the Netherlands)*

Introduction: To estimate if the benefits of surgical aortic aneurysm repair will outweigh the risks in older patients, determining and diminishing individual risks is essential. A comprehensive geriatric assessment (CGA) determines a patients' domains of functioning and enables a treatment plan. It would be helpful if patients that may benefit from a CGA could be identified at the outpatient clinic with the help of a quick screening tool. **Objectives:** The aim of this study was to compare the association of various screening tools with postoperative complications in older patients undergoing aortic aneurysm repair. **Methods:** In this prospective cohort study, 98 patients undergoing aortic aneurysm repair aged ≥65 years were included between 2019-2022. Preoperatively, four functional assessment tools were administered: the Montreal Cognitive Assessment (MOCA), the 4-Meter Walk Test (4-MWT), the Jamar Hydraulic Hand Dynamometer and the Groningen Frailty Indicator (GFI). Our outcome was the association between these tests and 30-day postoperative complications. **Results:** In total, 33.7% of the patients developed one or more post-operative complications. After adjusting for confounders, the OR for cognitive impairment was 1.39 (95% CI 0.450;3.157; P=0.723), for slow gait speed 0.63 (95% CI 0.242;1.650; P=0.348) and for frailty 1.82 (95% CI 0.783;4.323, P=0.162). A weak handgrip strength was significantly associated with 30-day postoperative complication (OR 4.78, 95% CI 1.338;17.096, P=0.016). **Conclusion:** A weak handgrip strength was significantly associated with the development of postoperative complications in older aortic aneurysm patients. By implementing a quick screening tool like handgrip strength in the outpatient clinic patients that may benefit from a CGA are identified in an early stage. A preoperative CGA enables the possibility to enhance the domains of functioning with individual tailored interventions during for example the waiting time prior to surgery, eventually leading to better outcomes for this patient group.

P1/27- LONELINESS AS AN INDEPENDENT PREDICTIVE FACTOR FOR FRAILTY. Nuria Parra-Macias(1), Ana Lozano-Minana(2), Mauricio Molina-Ibarra(2), Cinthya L Machado-Perez(2), Montserrat Cantero-Cano(2), M Rosa Coll-Colell(3) *((1) Health Promotion Unit, University Hospital Sagrat Cor, Barcelona, Spain; (2) Frailty Unit, University Hospital Sagrat Cor, Barcelona, Spain; (3) Internal Medicine Department, University Hospital Sagrat Cor, Barcelona, Spain)*

Background: Loneliness has been found to be a significant predictor of metabolic, cardiovascular disease and emotional disturbs. Frailty also increases the risk of adverse health outcomes in the elderly. Discerning whether loneliness causes frailty or it's just a consequence of being frail remains still unclear. **Objectives:** We aimed to evaluate the relationship between loneliness and frailty within geriatric inpatients admitted to a Frailty Unit. **Methods:** An observational study of cases and controls on 70 geriatric inpatients admitted to the Frailty Unit of our University Hospital during the year 2022 has been undertaken. At admission, information on clinical variables was collected. Baseline-measurements included data about functional, emotional, cognitive, socio-economic status and quality of life through an accorded protocol for complete geriatric assessment. Likewise, the presence of loneliness was screened by means of the UCLA scale. Those patients meeting the FRAIL criteria were considered cases and the rest, as controls. Bivariate measurements of association were performed. Logistic regression was used as a multivariate analysis. p-value was fixed as 0.05. **Results:** Out of 70 patients (51.4% female, 37.1% living alone, mean age 81.8 [SD 7.3] years old), 61.4% was classified as frail patients. Following mean measurements (SD) were reported: Barthel Index 83.0 (19.0), Charlson Index 1.6 (1.4), Fototest 28.9 (5.9), Barber questionnaire 2.2 (1.8), EuroQoL-5D index 0.8 (0.1), VAS of quality of life 57.3 (22.0), Yesavage scale 3.8 (2.5), Gijon scale 6.9 (3.7) and UCLA scale 27.1 (5.8). Loneliness was reported by 75.7% of patients. Out of them, 28 (52.8%) were frail patients. Significative bivariate associations between frailty and complete geriatric assessment were found with Fototest (p= 0.01), Yesavage scale (p=0.045), Barthel Index (p<0.01) and UCLA (p=0.02). When considering these explanatory variables as predicting factors for frailty, UCLA [exp(b)=1.16 (CI95%1.03–1.30), (p=0.01)] was the only one identified by logistic regression equation. **Conclusion:** Loneliness should be considered as an independent predictive factor for frailty within old patients. Nevertheless, further research is needed to elucidate the impact of frailty on loneliness.

P1/28- IDENTIFICATION OF THE PREDICTORS OF ADVERSE HEALTH OUTCOMES ACROSS A GERIATRIC REHABILITATION PROGRAM IN PATIENTS ADMITTED FOR TRAUMATOLOGICAL PROCESSES. Jon Irazusta(1,2), Ana Rodriguez-Larrad(1,2), Itxaso Múgica-Errazquin(3), Ismene Arrinda(4), Ander Espín(1,2), Miriam Urquiza(1,2) *((1) Department of Physiology, Faculty of Medicine and Nursing, University of the Basque Country (UPV/EHU), Leioa, Bizkaia, Spain; (2) Clinical Nursing and Community Health Research Group; BioCruces Bizkaia Health Research Institute, Barakaldo, Bizkaia, Spain; (3) Department of Nursing, Faculty of Medicine and Nursing, University of the Basque Country (UPV/EHU), Donostia, Gipuzkoa, Spain (4) Geriatric Department, Igurco Servicios Socio Sanitarios, Grupo IMQ, Bilbao, Spain)*

Background: Most frequent conditions requiring geriatric rehabilitation after an acute hospitalization are traumatological processes. Among those patients, some present adverse health outcomes during rehabilitation, such as hospital readmissions,

institutionalization at discharge, or death. **Objectives:** To determine the predictive factors of adverse health outcomes across a geriatric rehabilitation program in patients admitted for traumatological processes. **Methods:** This was a retrospective cohort study of 290 patients admitted to a geriatric rehabilitation ward (IMQ-Igurco-Orue, Spain) for traumatological processes. Data collected at admission included age, gender, social resources (Older Americans Resources and Services), age-adjusted-Charlson-Comorbidity Index, and cognitive (Mini-Mental-State-Examination, MMSE), nutritional (Mini Nutritional-Assessment-short-form, MNA-SF), functional (Barthel-Index) and physical measurements (Short Physical Performance Battery, Tinetti, and Functional Ambulation Classification tests). The following adverse health outcomes were also collected: hospital readmissions, institutionalization at discharge, and mortality. A univariate analysis was conducted to determine differences at admission between patients with and without adverse health outcomes. Variables with $p<0.05$ in the univariate analysis were considered for a multiple logistic regression model aiming to identify factors independently associated with adverse health outcomes. **Results:** The mean age of the sample was 83.7±6.9 years. During the rehabilitation process, 11% of patients were rehospitalized, 20.6% were institutionalized, and 9.7% died. In the multiple logistic regression model, a lower MMSE at admission was associated with a higher risk of institutionalization (OR: 0.863; 95%CI: 0.799-0.932; $p<0.001$) and mortality (OR: 0.922; 95%CI: 0.859-0.989; $p=0.022$). In addition, lower MNA-SF at admission was related to a higher risk of institutionalization (OR: 0.653; 95%CI: 0.487-0.876; $p=0.004$). Finally, a lower Barthel index at admission was associated with higher odds of death (OR: 0.959; 95%CI: 0.924-0.996; $p=0.029$). None of the measured variables was related to hospital readmissions during geriatric rehabilitation. **Conclusion:** Our study showed that lower cognitive and nutritional status at admission predicted institutionalization at discharge in patients with traumatological processes attending geriatric rehabilitation. Additionally, lower cognitive and functional status at admission were associated with higher mortality. These results highlight the relevance of assessing nutritional status and paying special attention to patients with cognitive impairment to decrease negative outcomes across geriatric rehabilitation for traumatological reasons.

P1/29- ASSOCIATIONS BETWEEN FRAILTY AND CAUSE OF DEATH IN PATIENTS WITH PERIPHERAL ARTERY DISEASE. Stacey Telianidis, Sarah Aitken *(University of Sydney, Australia)*

Background: Peripheral artery disease (PAD) carries significant morbidity and mortality, with older patients at particular risk. Frailty independently predicts adverse outcomes and mortality after intervention for PAD. The Hospital Frailty Risk Score (HFRS) stratifies patients according to risk of mortality and adverse outcomes. PAD treatment focuses on cardiovascular risk prevention, hence understanding how frailty influences cardiovascular and other causes of mortality in important. **Objective:** To compare the causes of death in frail and non-frail patients who died within three years of lower limb vascular surgery for PAD in New South Wales (NSW), Australia. **Methods:** This population-based cohort study analysed routinely-collected hospital data probabilistically linked to state-wide mortality registries. All patients who received lower limb peripheral arterial surgery between 2010-2012 were included. The HFRS categorised patients according to low, moderate and high risk of frailty. Certified causes of death were grouped by ICD-10-AM codes. Multivariable analysis identified the prognostic significance of frailty, presented as hazard ratios adjusted for age and sex (aHR). **Results:** By three years, 4587 of the 17565 patients died (26.1%). Of those who died, 1196 (26.1%) had low, 1593 (34.7%) moderate and 1798 (39.2%; $p<.001$) high risk of frailty. For the cohort with lowest and moderate HFRS scores, cardiovascular (20.5%, 21.4% respectively) and malignancy deaths (14.1% and 10.1%) were most common. In those with high frailty, whilst cardiovascular mortality (22.8%) was most prevalent, death from complications of diabetes (9.5%) was more common than malignancy(8.1%). After adjusting for age and sex the likelihood of all-cause mortality at three years increased with frailty score (moderate aHR 2.61; 95%CI 2.42-2.81, high aHR 4.99; 4.6-5.38). Frailty score increased likelihood of cardiovascular death (aHR 1.24; 1.05-1.46 for high vs low frail). Patients of moderate frailty risk had the highest likelihood of cancer death (aHR 1.38; 1.11-1.72). **Conclusion:** Whilst cardiovascular and cancer deaths are the most common cause of death in patients with PAD, patients with higher HFRS scores had a lower rate of death from cancer, more likely to die from acute complications with comorbid illness. This emphasises the need for holistic approaches to PAD management, especially in frail older patients.

P1/30- INFLUENCE OF FRAILTY DEGREE ON WISHES OF TERMINATION OF LIFE. Nuria Parra-Macias(1), Ana Lozano-Minana(2), Mauricio Molina-Ibarra(2), Cinthya L Machado-Perez(2), Montserrat Cantero-Cano(2), M Rosa Coll-Colell(3) *((1) Health Promotion Unit, University Hospital Sagrat Cor, Barcelona, Spain; (2) Frailty Unit, University Hospital Sagrat Cor, Barcelona, Spain; (3) Internal Medicine Department, University Hospital Sagrat Cor, Barcelona, Spain)*

Background: In March 2021, the Spanish Congress approved the law regulating euthanasia and physician-assisted suicide. Frailty increases the risk of adverse health outcomes and mortality in the elderly. Data concerning frailty and termination of life on request in Spanish population are scarce. **Objectives:** We aimed to evaluate the relationship between frailty degree and wishes of termination of life, on request or not. **Methods:** An observational nested cross-sectional study on a cohort of 70 geriatric inpatients included in a prognosis study concerning frailty and loneliness, has been undertaken. We considered 37 patients admitted to the Frailty Unit of our University Hospital during the year 2022. Participants were classified based on their Frail-VIG score. At admission, information on clinical variables was collected. Baseline-

measurements included data about functional, emotional, cognitive, socio-economic status and quality of life through an accorded protocol for complete geriatric assessment. Likewise, the presence of loneliness was screened by means of the UCLA scale. Information about living will and wishes of termination of life was also inquired. Bivariate measurements of association were performed (p-value=0.05). **Results:** Out of 37 patients (54.1% female, 35.1% living alone, mean age 83.1 [SD 7.2] years old), 54.1% was classified as initial frailty and 45.9% as intermedium degree. Loneliness was reported by 70.3% of patients. Following mean measurements (SD) were collected: Barthel Index 82.6 (19.4), Charlson Index 1.4 (1.4), Fototest 29.4 (6.0), Barber questionnaire 2.2 (1.8), VAS of quality of life 58.1 (20.5), Yesavage scale 3.6 (2.5) and Gijon scale 7.0 (1.4). Only 10.8% of patients had a living will and 18.9% thought that being alive was a wonderful experience. Euthanasia would be considered by 43.2% and committing self-suicide by 43.2% too. Nevertheless, self-suicide ideas were significatively more frequent within those with intermediate frailty degree than within initial frailty patients (93.8% vs 6.3%, p<0,01). No significative association was found between euthanasia considerations and frailty degree, but euthanasia ideas were considered by 68.8% of initial frailty patients vs 31.3% of intermediate frailty ones. **Conclusion:** Self-suicide ideas seem to be significatively more frequent within higher frailty degrees, whereas euthanasia would be considered at initial frailty degree.

P1/31- CO-OCCURRENCE OF DYSPHAGIA AND FRAILTY IN OLDER ADULTS PRESENTING WITH COMMUNITY-ACQUIRED PNEUMONIA IS ASSOCIATED WITH NEGATIVE HEALTH OUTCOMES. Raele Robison(1,2), Rebecca Schwei(3), Sara Gustafson(1), Charles Broghammer(3), Rachelle Herrin(3), Nicole Rogus-Pulia(1,2,4), Michael Pulia(3) *((1) Department of Medicine, University of Wisconsin-Madison, USA; (2) Center for Health Disparities Research, University of Wisconsin-Madison, USA; (3) Department of Emergency Medicine, University of Wisconsin-Madison, USA; (4) Geriatric Research Education and Clinical Center, William S. Middleton Memorial Veterans Hospital, USA)*

Background: Swallowing impairments (dysphagia) and declines in physical function (frailty) in older adults with community-acquired pneumonia are each independently associated with negative health outcomes such as re-hospitalization and higher 1-year mortality (1, 2). However, the potential synergistic effects of co-occurring dysphagia and frailty on health outcomes in patients with CAP have not been thoroughly investigated. **Objectives:** 1) Characterize frailty and dysphagia profiles in a cohort of older adults with CAP; and 2) Determine whether health outcomes differ based on these profiles. **Methods:** Older adults (≥65) meeting diagnostic criteria for CAP were included as participants. During the index encounter, the 3-ounce water swallow test (3) (fail=dysphagia) and a modified frailty screener using questions from the FSQ (4) and SARC-F (5) (≥3 = frailty) were administered. Health outcomes were documented at thirty days (standardized clinical severity scale to document CAP severity (mild (ambulatory management); moderate-severe (hospitalization)) and 6 months (re-hospitalizations, Emergency Department (ED) visits, death) post-enrollment. Statistical analyses included descriptives and cross tabulations. **Results:** To date, we have enrolled 46 participants with a mean age of 73 years (SD: 8.3). Dysphagia and frailty data are complete for all participants and health outcomes are available for 18 (39.1%) participants. Twenty-six (56.5%) and 25 (54.3%) participants screened positive for dysphagia and frailty, respectively. Combined profiles included: no frailty or dysphagia (26.1%), frailty and no dysphagia (17.4%), no frailty but dysphagia (19.6%), frailty and dysphagia (37.0%). For those with follow-up data, participants who screened positive for both dysphagia and frailty experienced worse health outcomes at 30-days (46% moderate-severe CAP and 60% rehospitalization) and 6 months (62.5% subsequent ED visits) compared to the other profile groups. The one participant who died within 6 months screened positive for dysphagia at the time of study enrollment. **Conclusion:** Dysphagia and frailty both were common and frequently co-occurred in this cohort of older patients with CAP. Furthermore, these underlying impairments in swallowing and physical function may negatively impact disease trajectory and outcomes following CAP. As such, implementation of ED-based standardized dysphagia and frailty screening protocols in older patients with CAP should be considered to support referrals for in-depth evaluations of swallowing and physical function. **References:** 1. Luo J, Tang W, Sun Y, Jiang C. Impact of frailty on 30-day and 1-year mortality in hospitalised elderly patients with community-acquired pneumonia: a prospective observational study. BMJ Open. 2020;10:e038370. 2. Melgaard D, Baandrup U, Bøgsted M, Bendtsen MD, Hansen T. Rehospitalisation and mortality after hospitalisation for orapharyngeal dysphagia and community-acquired pneumonia: A 1-year follow-up study. Cogent Med. 2017;4:1417668. 3. Suiter DM, Leder SB. Clinical utility of the 3-ounce water swallow test. Dysphagia. 2008;23:244–250. 4. Liu H, Shang N, Chhetri JK, Liu L, Guo W, Li P, Guo S, Ma L. A Frailty Screening Questionnaire (FSQ) to Rapidly Predict Negative Health Outcomes of Older Adults in Emergency Care Settings. J Nutr Health Aging. 2020;24:627–633. 5. Malmstrom TK, Morley JE. SARC-F: a simple questionnaire to rapidly diagnose sarcopenia. J. Am. Med. Dir. Assoc. . 2013;14:531–532.

P1/32- IDENTIFICATION OF THE PREDICTORS CONDUCTING TO ADVERSE HEALTH OUTCOMES ACROSS A GERIATRIC REHABILITATION PROGRAM IN A SAMPLE OF PATIENTS WITH HOSPITAL ASSOCIATED DECONDITIONING. Ana Rodriguez Larrad(1,2), Jon Irazusta(1,2), Naiara Fernandez(3), Julia García-García(1,2), Aida Ruiz(1), Miriam Urquiza(1,2) *((1) Department of Physiology, Faculty of Medicine and Nursing, University of the Basque Country (UPV/EHU), Leioa, Bizkaia, Spain; (2) Clinical Nursing and Community Health Research Group; BioCruces Health Research Institute, Barakaldo, Bizkaia, Spain; (3) Geriatric Department, Igurco Servicios Socio Sanitarios, Grupo IMQ, Bilbao, Spain)*

Background: During hospitalization, some older adults decline functionally in the absence of newly disabling diagnoses, in a process known as hospital associated deconditioning (HAD). Consequently, some patients are temporally admitted to geriatric rehabilitation wards to recover their functional and physical status. During rehabilitation, some patients present adverse health outcomes, such as hospital-readmissions, institutionalization, or exitus. **Objectives:** To determine the predictive factors of adverse health outcomes in patients with HAD across the geriatric rehabilitation. **Methods:** This was a retrospective cohort study of 122 patients with HAD admitted to a geriatric rehabilitation ward (IMQ-Igurco-Orue, Spain). Data collected at admission included age, gender, social resources (Older Americans Resources and Services, OARS), age-adjusted-Charlson-Comorbidity Index (ACCI), and cognitive (Mini-Mental-State-Examination), nutritional (Mini Nutritional-Assessment-short-form), functional (Barthel-Index) and physical measurements (Short Physical Performance Battery (SPPB), Tinetti test and Functional Ambulation Classification). Following adverse health outcomes were collected: hospital-readmissions, institutionalization and mortality. A univariate analysis was conducted to determine differences at admission between patients developing or not adverse outcomes. Variables with $p<0.05$ in univariate analysis were considered for a multiple logistic regression model aiming to identify factors independently associated with those adverse outcomes. **Results:** The mean age of the sample was 80.34±7.14 years. During the rehabilitation process 19.7% of patients were re-hospitalized, 31.1% of patients were institutionalized, and 15.6% of patients died. In the multiple logistic regression model higher ACCI increased the risk for hospital-readmissions (OR: 1.421; 95%CI: 1.077-1.875; p=0.013) and mortality (OR: 2.054; 95%CI: 1.394-3.024; p<0.001), whereas lower SPPB scores predicted institutionalization (OR: 0.766; 95%CI: 0.587-1.000; p=0.050) and mortality (OR: 0.677; 95%CI: 0.469-0.977; p=0.037). Finally, lower social resources were related to a higher risk of institutionalization (OR: 1.668; 95%CI: 1.167-2.385; p=0.005). **Conclusion:** Our study showed that in patients with HAD attending to geriatric rehabilitation, higher comorbidity predicted hospital readmissions and mortality, and lower physical performance predicted institutionalization and mortality. Besides, poorer social resources were related to a higher risk of institutionalization. Therefore, these results highlight the relevance of mentioned parameters when planning geriatric rehabilitation and open a window to explore interventions during hospitalization aiming at maintaining physical performance in patients at risk of HAD.

P1/33- FALL-RELATED PERCEPTION AND BEHAVIORAL INTENTION OF FALL PREVENTION AMONG HOSPITALIZED OLDER PATIENTS. Young Ju Kim, Su Hyun Kim *(College of Nursing, The Research Institute of Nursing Science, Kyungpook National University, Daegu, South Korea)*

Background: It is essential to identify older patients' fall-related perceptions to provide successful education about fall prevention, but little is known about the status and the influence of fall-related perceptions on behavioral intention of fall prevention. **Objectives:** This study aimed 1) to identify hospitalized older patients' fall-related perceptions, including subjective fall risk assessment, confidence of performing fall risk behavior, fear of falling, and recognition of fall consequences, and behavioral intention of fall prevention, and 2) to investigate influence of fall-related perceptions on behavioral intention of fall prevention. **Methods:** A cross-sectional survey was conducted on 150 hospitalized older patients admitted in a large general hospital. A structured questionnaire was administered from October 1, 2020 to January 31, 2021. Cohen's kappa and multiple linear regression analysis were utilized to analyze the data. **Results:** The average scores of the respondents were 1.43±0.65 of the subjective fall risk assessment, 4.08±0.44 of the confidence of performing fall risk behavior, and 2.04±0.61 of behavioral intention of fall prevention out of 1-5 scale, with higher scores indicating higher levels of the attributes. They had the average of 1.48±0.56 of the fear of falling and 2.43±0.35 of the recognition of fall consequences out of 1-4 scale. A low agreement was found between subjective fall risk assessment by hospitalized elderly patients and objective fall risk assessment using Morse Fall Scale by nurses. The hospitalized elderly patients' subjective fall risk assessment, confidence of performing fall risk behavior, and fear of falling were the significant factors influencing behavioral intention of fall prevention. **Conclusion:** The approach to prevent falls among hospitalized older patients should include assessment of fall-related perceptions and provide education to correct inappropriate perceptions about falls.

P1/34- HYPERLIPIDEMIA AND STATIN USE LIKELY INCREASE THE RISK FOR FRAILTY. Yu Na Kim(1,2), Saleena Arif(2) *((1) Boston University School of Medicine, Boston, MA, USA; (2) DotHouse Health, Boston, MA, USA)*

Aim: Frailty has been associated with an increased risk of all-cause mortality and cardiovascular (CV) events. Hyperlipidemia (HLD) is one of the risk factors for CV events, and statin plays a significant role in decreasing cholesterol and

subsequently preventing CV events. We sought to evaluate the relationship between frailty, HLD, and statin use in community-dwelling patients with multi-ethnicity. **Method:** We recruited patients aged ≥ 50 with HTN and/or diabetes into a frailty clinic in a community health center. One hundred fifty-four patients (average age 73, men 81, women 73) were seen 12/1/2021 – 4/7/2022. The study protocol included sociodemographic data, frailty screening according to the internationally validated FRAIL (fatigue, resistance, ambulation, illnesses, and loss of weight) scale, comorbidities, physical activity, cognitive status, and activities of daily living. In this study, we defined uncontrolled HLD as LDL >100. **Results:** 46 and 84 patients met the criteria for frailty and prefrailty. Twenty-four patients were found robust. Most of them had HLD. 36.96% and 41.67% of the patients with frailty and prefrailty had uncontrolled HLD. 33.33% of the robust patients were found to have uncontrolled HLD. 84.79% and 88.10% of those with frailty and prefrailty took a statin. 66.67% of those with robust took it. **Conclusion:** The persons with uncontrolled HLD were about 4% likely to develop frailty or prefrailty (RR 1.0444, P=0.5279). The patients taking statins were at a 29% increased risk for developing frailty or prefrailty (RR 1.2882, P = 0.0728). It was unclear whether statin use itself increased the risk for frailty or whether the persons on statin likely had higher LDL levels, which subsequently increased the risk for frailty. Further studies are needed to investigate this more. **Reference:** Frailty is Associated With Increased Cardiovascular Mortality in 2,837,152 United States Veterans Aged 65 and Older 2020https://doi.org/10.1161/circ.142.suppl_3.14496Circulation. 2020;142:A14496; Role of Statin Therapy in Primary Prevention of Cardiovascular Disease in Elderly Patients Current Atherosclerosis Reports volume 21, Article number: 28 (2019)

P1/35- ARE ALL PEOPLE WITH HIGH SOCIAL ISOLATION AT HIGH RISK OF PHYSICAL FRAILTY? RELATIONSHIP WITH SUBJECTIVE WELLBEING.
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Background: The relationship between social isolation and physical frailty has attracted in recent years. Davies et al. (2021) found that high social isolation was associated with a higher risk of physical frailty compared to low social isolation. Steptoe et al. (2015) showed subjective wellbeing might reduce the risk of chronic physical illness. Both social isolation and subjective wellbeing should be considered in the analysis of physical frailty, but which was not clarified in Davies et al. (2021). **Objectives:** In this study, we examine whether the risk of physical frailty is the same for people with social isolation according to high and low subjective wellbeing. **Methods**: This study used the data that were a combination of questionnaire data and long-term care insurance data of the community-dwelling Japanese and analyzed 1,953 samples. Physical frailty state was assessed with a modified version of Fried's phenotype criteria. We used Probabilistic Latent Semantic Analysis to classify participants according to social isolation indicators. Then, we focused on groups with high social isolation and further classified them according to whether subjective wellbeing was high or low. Finally, we used survival time analysis to analyze the relationship between subject wellbeing and physical frailty in groups with high social isolation. **Results:** Among a total of 1,953 samples, 996 were male (51.0%), and the average age was 69.8 years old. We adopted four classes. They were classified by two classes with low social isolation, one class with normal social isolation, and one class with high social isolation. People with high social isolation and high subjective wellbeing showed statistically significantly lower rates of physical frailty than people with high social isolation and low subjective wellbeing. Especially, at age 65, people with high social isolation and high subjective wellbeing were more than 20.0% significantly low probability of physical frailty than people with high social isolation and low subjective wellbeing by survival time analysis. **Conclusion:** Not all people with high social isolation were at high risk of physical frailty. People with high social isolation and high subjective wellbeing showed a lower risk of physical frailty than people with high social isolation and low subjective wellbeing.

P1/36- EFFECT OF EXERCISE PROGRAMS ON PHYSICAL FRAILTY IN LOCAL GOVERNMENT.
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Background: The preventive and ameliorative effects of exercise interventions on vulnerability have been discussed using, for example, randomized controlled trials (Rossi et al. 2021). However, few studies have clarified the frailty preventive effect of exercise programs actually implemented in local governments. **Objectives:** We aimed to analyze the impact of the exercise programs on the prevention of physical frailty from data owned by local government. **Methods:** This study used the data obtained from medical checkups, receipts, and original questionnaires between 2012 and 2017, and analyzed 2444 samples of community-dwelling Japanese. Frailty status was assessed with a modified version of Fried's phenotype criteria; participants were classified as frailty if they satisfied three or more of the five criteria, pre-frailty if they satisfied one or two of them were classified,

non-frailty if they satisfied none of them. Propensity score matching was performed using covariates such as gender, age, and frailty status. After matching, standardized mean differences of covariates were compared to confirm balance. Finally, we compared changes in frailty status and frailty score one year after the intervention between the participating and non-participating groups. When they improved their frailty status or maintained their health status, we defined it good status. **Results:** After the propensity score matching (319 samples in each group), the average age of participating group was 67.1 years and non-participating group was 67.2 years. The rate of physical frailty of participating group was 3.4% and non-participating group was 4.1% at baseline. And the rate of pre-frailty was 51.1% in both groups at baseline. The participating group had higher ratio of good status than the control group ($P < 0.05$): 170 (53.3%) participants in the good status, whereas 138 (43.3%) participants in the control group were the good status. In addition, participating group were shown to improve by 0.22points on the 5-point scale used to judge frailty. **Conclusion:** It was shown that the exercise programs implemented by local governments are effective in improving and preventing frailty. By showing the effect measurement method, it suggests the possibility of contributing to the promotion of physical exercise programs as public health.

P1/37- DIFFERENCES IN THE IMPACT ON PHYSICAL FRAILTY BETWEEN URBAN AND RURAL AREAS WITHIN A MUNICIPALITY. Atsushi S hirakawa(1), S hujiro u Imaeda(2), Nanako Sasaki(1), Yukihiko Okada(3,4), Kai Tanabe(5,6), Akira Ando(2), Akiko Tsukao(6), Shinya Kuno(7) *((1) Master's Program in Service Engineering, Univ. of Tsukuba, Japan; (2) Nikken Sekkei Research Institute, Japan; (3) Faculty of Engineering, Information and Systems, Univ. of Tsukuba, Japan; (4) Center for Artificial Intelligence Research, Univ. of Tsukuba, Japan; (5) Faculty of Health and Sport Sciences, Univ. of Tsukuba, Japan; (6) R&D Center for Smart Wellness City Policies , Univ. of Tsukuba, Japan; (7) Tsukuba Wellness Research Co. Ltd. Japan)*

Background: Recent studies have shown that neighborhood environmental attributes are associated with physical frailty. However, most previous studies have examined only the direct association between environmental factors and physical frailty and have not discussed the indirect impact of environmental characteristics on physical frailty through individual factors. Also, while some studies have compared differences in environmental factors on physical frailty between urban and rural areas at the national level (Seo et al., 2021), no studies have examined differences within the municipality. **Objectives:** This study aims to determine whether differences in neighborhood environmental characteristics affect the association between individual factors and physical frailty in a Japanese local city. **Methods:** Data from 1,478 residents aged 45 years or older in a local city in Japan were used. Physical frailty was assessed using a modified version of Fried Frailty phenotype criteria. Building density, bus stop density, intersection density, and park area were considered as environmental characteristics. Furthermore, socioeconomic characteristics (age, gender, etc.), lifestyle (alcohol consumption, smoking), and social activities (employment, volunteer work, sports activities) were considered to be individual factors. Using multilevel logistic regression analysis, whether environmental characteristics influence the association between individual factors and physical frailty was analyzed by focusing on cross-level interactions. **Results:** Participants' mean age was 70.9 years, and the prevalence of physical frailty was 20.4%. Multilevel analysis showed statistically significant negative associations for five interactions: "building density and employment", "bus stop density and employment", "intersection density and employment", "building density and social activity at least once a month", and "intersection density and social activity at least once a month". These indicate that social activities are more important for physical frailty in rural areas. **Conclusion:** The importance of social participation activities for physical frailty may vary depending on neighborhood environmental characteristics within a municipality. Municipalities are expected to implement measures to encourage social participation activities, especially for rural residents, to support the health of their residents.

P1/38- PRE-HABILITATION REDUCES POST-OPERATIVE MORBIDITY IN SARCOPENIC PATIENTS: A STUDY OF THE INCIDENCE AND POST-OPERATIVE IMPACT OF SARCOPENIA IN ASIAN COLORECTAL CANCER PATIENTS, AND THE ROLE THAT PRE-HABILITATION CAN PLAY. Hoh Wan Ling, Dilys, Winson Tan Jianhong, Jason MW Chua, Xi-Xiao Huang,, Jasmine Ladlad, Nathanelle Khoo, Jia-lin Ng, Leonard ML Ho, Sharmini S Sivarajah, Darius Aw Kang Lie, Cheryl Chong Xi Zi, Fung-Joon Foo, Frederick Hong-Xiang Koh *(Department of General Surgery, Sengkang General Hospital, Singapore)*

Purpose: Sarcopenia has been gaining interest in the field of surgery as it is not only a poor predictor of perioperative outcomes, but also negatively impacts oncological outcomes. There is great potential for preoperative prehabilitation to reduce post-operative morbidity and improve outcomes especially for sarcopenic patients. The prevalence of sarcopenia in an Asian cohort going for curative colorectal resection has not been widely reported yet. **Objective:** We review the incidence of sarcopenia in an Asian cohort of colorectal cancer patients based on the Asian Workgroup for Sarcopenia (AWGS) 2019 guidelines and sought to understand how sarcopenia impacts post-operative outcomes. **Methods:** This retrospective review was performed on a prospectively collected colorectal cancer database at Sengkang General Hospital, Singapore between September 2021 to March 2022. Patients were grouped into normal (N) and sarcopenia (S) groups based on the AWGS diagnostic criteria [1]. A further subgroup analysis was performed for the sarcopenic cohort. Sarcopenic patients were stratified into pre-habilitation (PH group) and without pre-habilitation (NPH group). The main outcome was the time to flatus and/or stools, length of stay

and 30-day morbidity. **Results:** The incidence of sarcopenia in our cohort was 35.4% (46 of a 130 patients). Those who were sarcopenic have a higher mean age (71.5 vs 63.9 years old, $p < 0.001$) and a higher ASA score (41.3% had an ASA score 3 and above vs 21.4%, $p = 0.016$). There was no significant difference in terms of time to gastrointestinal recovery and 30-day complications between the normal and sarcopenic cohorts. Multivariate analysis revealed that prehabilitation played a significant role in reducing surgical complication rates particularly for sarcopenic patients (OR: 0.56, 95% CI = 0.53 – 0.58, $p <0.001$). **Conclusion:** Sarcopenia is prevalent within Asian colorectal cancer patients going for major colonic resections, and prehabilitation can play a key role in reducing post-operative complications. Reference: 1. Chen, L. K., Liu, L. K., Woo, J., Assantachai, P., Auyeung, T. W., Bahyah, K. S., & Arai, H. (2014). Sarcopenia in Asia: consensus report of the Asian Working Group for Sarcopenia. Journal of the American Medical Directors Association, 15(2), 95-101.

P1/39- FIGHTING COVID-19 AND FRAILTY IN NURSING HOMES. T Delespierre, P Clot-Faybesse *(Direction médicale, Korian SA, Paris, France)*

Background: Korian® group is specialized in care and support for fragile people. Its data warehouse manages 304 French nursing homes (NH). Clinical narratives (CN), daily-fed by caregivers in the transmissions' table, contain key textual data about residents' care and health. In winter 2021, after almost one year of COVID-19 on the ground, medical staff were relieved to be able to vaccinate their residents, but at the same time, anxious to give the right remedy to the COVID-19 survivors and those still unharmed alike. Indeed, being frail placed some residents at increased risk of adverse outcomes. **Objectives:** By building a COVID-19 vaccination cohort, following all the residents' health events, COVID-19 included, adding pathologies, risk factors and CN labelled as 'exhaustion_frailty_end_of_life', we can improve residents' outcome prediction. **Methods:** First, we selected all residents with at least one transmission, from December 21, to January 11, just before the COVID vaccination start, from 34 NH chosen for their variety of size and geographic location. We followed them for seventeen weeks starting January 4, 2021. We selected residents' age, sex, autonomy level, comorbidities, risks and then, vaccinations (0, 1 or 2), hospitalizations and deaths events. Age-dependent deterioration as well as health deficits being heterogeneous among people, can nevertheless, be graded by frailty index scores. Therefore, we built a frailty indicator, based on eight criteria: sex (female), age (older than ninety), losing autonomy, losing weight, being underweight according to HAS (High Health Authority), falling down frequently, main pathologies (cardiovascular diseases and mental disorders) and risk factors (dehydration, denutrition and dementia as well as pressure ulcers). **Results:** We built a 2,000 residents cohort with 295 (14.8%) vaccinated once and 1,336 (66.8%) twice. Vaccination rates were greater among those with comorbidities and risks as medical staff tried to prioritize these residents. Still, 258 (12.9%) caught COVID-19 and 469 (23.5%) got COVID-19 symptoms. Our frailty indicator range was [zero – 9.5]. Only seven residents had a zero score. The median was four. We found 558 (27.9%) residents labelled 'exhaustion_frailty_end_of_life' with 2.6 times more hospitalized and 4 times more deceased. **Conclusion:** Adding CN labelled health information deepened our residents' profile understanding. **Key words:** COVID, Standard Query Language, resident-centred.

P1/40- UNDERSTANDING THE LINK BETWEEN INTRINSIC CAPACITY AND FRAILTY IN SINGAPORE'S PRIMARY CARE POPULATION WITH MULTIMORBIDITY. SZ Sim(1), X Ng(1), SY Tan(1), GTY Ding(1), ES Lee(1,2) *((1) National Healthcare Group Polyclinics, Singapore; (2) Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore)*

Background: Declines in intrinsic capacity (DIC), frailty, and multimorbidity are prevalent in older adults, and are associated with dependence in activities of daily living and mortality. Screening for DIC and frailty has been recommended in the community and primary care. However, little is known about IC in older adults with multimorbidity and how it overlaps with frailty in this population. **Objectives:** We aimed to determine the level of IC in older adults with multimorbidity in a primary care population, and the proportion of individuals with declines in each IC domain. Additionally, we aimed to establish the extent of overlap of frailty with DIC. **Methods:** A cross-sectional survey was conducted in three primary care centres in Singapore from August to October 2022. Participants were aged 60 to 100 years who could walk independently and had at least the most common multimorbidity triad in Singapore- hypertension, hyperlipidaemia, and diabetes mellitus. Data collected included socio-demographic variables, lifestyle risk factors, level of multimorbidity, IC (WHO Integrated Care for Older People (ICOPE) Screening Tool), and frailty (modified Fried). Descriptive statistics were used to identify the most commonly affected IC domains, the percentage of participants with DIC and their frailty classification. **Results:** The study included 412 participants (mean age 69.9 ± 6.0 years). Majority of robust participants (97.5%) had DIC ranging one to three domains (1.5 ± 0.71), 97.1% of pre-frail participants had DIC ranging one to four domains (1.9 ± 0.84), while all frail participants had DIC ranging one to five domains (2.4 ± 1.01). The most commonly affected IC domains in descending order were sensory (90% total, 84% hearing and 46% visual), locomotor (50.7%), cognitive (31.6%), vitality (10.9%) and psychological (10.9%). There was significant overlap between frailty and DIC. **Conclusion:** Frailty was associated with higher DIC in older adults with multimorbidity in the primary care population. However, even robust and pre-frail participants had DIC, with the sensory domain most commonly affected. Further studies are required to determine how frailty and IC can complement each other to further risk-stratify those at risk of adverse outcomes for timely interventions.

P1/41- ASSOCIATION OF INTRINSIC CAPACITY MEASURES AND FRAILTY: FINDINGS FROM COGFRAIL STUDY. Luana Caroline de Assunção Cortez Correa(1), Emmanuel Gonzalez-Bautista(2), Rafaella Silva dos Santos Aguiar Gonçalves(1), Álvaro Campos Cavalcanti Maciel(1), Ricardo Oliveira Guerra(1), Philipe de Souto Barreto(2) *((1) Department of Physical Therapy, Federal University of Rio Grande do Norte, Natal, Brazil; (2) Institut du Vieillissement, Université Paul Sabatier Toulouse III et Gérontopôle, Toulouse, France)*

Background: Frailty is a dynamic syndrome characterized by a decline in physiological reserves and it has been reported as an independent predictor to adverse health outcomes in older ages. Intrinsic capacity (IC) is the sum of physical and mental capacities made up during life. Understanding the links between IC and frail in older people is needed to implement early preventive and rehabilitative actions. **Objectives:** To describe the prevalence of positive screening in IC domains in the COGFRAIL cohort, as well as evaluate the association between the severity of frailty and IC assessed with the ICOPE step 1 context. **Methods:** Data were derived from baseline evaluation of the COGFRAIL, which is a multicenter prospective cohort study with older adults (>= 70 years), with >=1 Fried criteria and cognitive impairment. IC was evaluated with the WHO definition encompassing six domains: locomotion, cognition, psychology, vitality, vision and hearing. Frailty was determined based on the five Fried's phenotype criteria: weight loss (self-reported), exhaustion (self-reported), low physical activity (Saltin–Grimby Physical Activity Level Scale), slowness (gait speed) and weakness (hand grip strength). Participants were dichotomized as frail (>=3) and pre-frail (≤2). Logistic regression was used to determine the association between frailty and IC domains. **Results:** Among 317 participants (mean age 82.2; SD=5.2), 205 (64.3%) were female and 108 (32.1%) completed elementary school. Regarding IC domains, 32.9% screened positive for limited mobility, 84.5% for cognitive decline, 51.2% for depressive symptoms, 25.6% for malnutrition, 23.7% for visual impairment and 41.6% for hearing loss. The prevalence of frailty was 45.7% (n=145). The model adjusted for sociodemographic variables, IC domains demonstrated that those participants who screened positive for mobility limitation (OR 9.14; 95% CI: 3.1, 26.9; p<0.001) and malnutrition (OR 8.35; 95% CI: 2.4, 28.9; p= 0.001) had higher odds of been frail compare to frail participants. **Conclusion:** Among older adults with cognitive impairment, locomotion and vitality were IC domains significantly associated with frailty. The screening of these components should be prioritized and may facilitate timely care and personalized intervention in this population.

P1/42- DIFFERENT FRAILTY ASSESSMENT TOOLS IDENTIFY DISPARATE FRAIL GROUPS AMONG THORACIC SURGERY PATIENTS. Johnathan R. Kent(1), David Fenton(2), Ally Wang(3), Savanna Kerstiens(1), Daniel Rubin(4), Lauren J. Gleason(5), Andrea Landi(5), Megan Huisingh-Scheetz(5), Darren Bryan(1), Mark K. Ferguson(1), Jessica Donington(1), Maria Lucia Madariaga(1) *((1) Department of Surgery, University of Chicago, Chicago, USA; (2) Pritzker School of Medicine, University of Chicago, Chicago, USA; (3) University of Chicago, Chicago, USA; (4) Department of Anesthesia and Critical Care, University of Chicago, Chicago, USA; (5) Department of Medicine, Section of Geriatric & Palliative Medicine, University of Chicago, Chicago, USA)*

Background: Surgical society guidelines now recommend measuring frailty to help assess perioperative risk. However, there is significant heterogeneity in available frailty assessment tools, ranging from prospective measures of physical performance and questionnaires regarding symptoms to retrospective analyses of comorbid conditions. **Objectives:** This study evaluated whether frailty assessments of thoracic surgery patients by three commonly used tools (Fried's frailty phenotype (FFP) score, the five item modified frailty index (mFI-5), and the risk analysis index (RAI)) identified similar patient cohorts. **Methods:** All new patients age 50 or older in a general thoracic surgery clinic at a single academic center were screened for frailty from 1/2021 to 8/2022. FFP was assessed prospectively with phenotypic measurements and surveys with points given for frail (3-5), pre-frail (1-2) or not frail (0) status. mFI-5 and RAI were evaluated retrospectively via assessment of patients' comorbidities, symptoms, and performance status, with mFI-5 score ≥3 and RAI score ≥35 indicating frailty. Association of ordinal variables was assessed with Spearman's rank correlation and Mann-Whitney U tests, while categorical variables were assessed with Chi-square tests. **Results:** Of 372 patients evaluated, 79 (21.3%) patients were frail by FFP, 40 (10.8%) by mFI-5 and 132 (35.7%) by RAI. Overall, 183 patients (49.5%) were identified as frail by one of the three measures but only 7 (1.9%) were identified as frail by all three. Only half of patients identified as frail by the FFP were frail by RAI (37/79, 46.8%) and less than a quarter by mFI-5 (16/79, 20.3%). . FFP weakly positively correlated with mFI-5 (Spearman's rho = 0.23, p < 0.001) and RAI (Spearman's rho = 0.22, p < 0.001); RAI and mFI-5 were also weakly positively correlated (Spearman's rho =0.31, p<0.001). **Conclusion:** FFP, mFI-5 and RAI are weakly positively correlated and have significant variability in the patients that they identify as frail. This indicates that inferences made based on the results of one frailty assessment may not be generalizable to patients identified by another. **Funding statement:** Supported by Healthcare Delivery Science and Innovation Grant from the University of Chicago. The REDCap project at the University of Chicago is hosted and managed by the Center for Research Informatics and funded by the Biological Sciences Division

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P1/43- STRAIGHT TO TEST AND THE IDENTIFICATION OF PREVALENT ELDERLY MEDICAL CONDITIONS. Angelica Maria Orozco Herrera, Christopher Peake, Clarence Chikusu *(St Peters Hospital, Chertsey, United Kingdom)*

Background: The Straight To Test (STT) pathway exists to undertake an investigation which is crucial for the diagnosis and formulation of the best management plan. The test is performed prior to clinical appointment at a single centre in order to reduce time of diagnosis, unnecessary clinical appointments and earlier reassurance. This pathway is used in some hospitals across the UK for detection of cancerous pathologies. Some conditions that can benefit from STT include falls, postural hypotension and urinary incontinence. **Objectives:** We aim to study the usefulness of the STT pathway to identify non cancerous conditions in the elderly in St. Peters Hospital, Chertsey, SAMS. **Methods:** A retrospective data collection and analysis at St Peter's hospital from 2019 was conducted. A total of 4765 patients were in non-STT path and 966 in STT pathway. We recorded the timeframe from triage to the test and appointment with specialists in both groups. Also Code 5 (priority reports deemed as urgent to be read and acted upon) cases were counted. **Results:** We found an average of 23 days in the STT group and 111 days in the non-STT pathway from time of referral to MRI scan. An average of 81 days post triage and date of appointment in STT in comparison to 122 days for non-STT pathway. STT pathway detected 2.9% code5 priorities needing urgent speciality input versus 1% in non-STT pathway. Further analysis of code 5 patients determined that STT pathway patients were seen earlier (70 days) than in non - STT pathway (96 days). **Conclusion:** The SST is a fast track pathway and an excellent tool for criteria-based investigations and managing patients timely and appropiately. It helps to identify the group of patients with no red flags to warrant a hospital admission or a two weeks wait pathway. Further economic analysis should be conducted to determine the cost effectiveness of STT pathway and possibly extend its benefits to other speciality conditions.

P1/45- AGE-STRATIFIED INCIDENCE OF FRAILTY AND ALL-CAUSE MORTALITY IN URBAN SITES OF LATIN AMERICA AND CHINA: EVIDENCE FROM THE 10/66 COHORT STUDY. Miao Jiang (1), Juan J. Llibre Rodriguez(2), Daisy Acosta(3), Mariella Guerra(4), Yueqin Huang(5), Ivonne Z. Jimenez-Velasquez(6), Aquiles Salas(7), Ana Luisa Sosa(8), Zhaorui Liu(5), Jorge J. Llibre-Guerra(9,10), Isaac Acosta(8), Adolfo Valvuerdi(11), Martin J. Prince(12), Emiliano Albanese(1,13) *((1) Institute of Public Health, Universitá della Svizzera italiana, Lugano, Switzerland; (2) Dementia Research Unit, Universidad de Ciencias Médicas (de La Habana, Havana, Cuba; (3) Universidad Nacional Pedro Henriquez Ureña (UNPHU), Internal Medicine Department, Geriatric Section, Santo Domingo, Dominican Republic; (4) Instituto de la Memoria Depresion y Enfermedades de Riesgo IMEDER, Lima, Perú; (5) Peking University Sixth Hospital, Peking University Hospital of Mental Health, NHC Key Laboratory of Mental Health (Peking University), National Clinical Research Center for Mental Disorders (Peking University Sixth Hospital), Beijing, China; (6) Internal Medicine Department, Geriatrics Program, School of Medicine, Medical Sciences Campus, University of Puerto Rico, San Juan, Puerto Rico; (7) Medicine Department, Caracas University Hospital, Faculty of Medicine, Universidad Central de Venezuela, Caracas, Venezuela; (8) Laboratory of the Dementias, National Institute of Neurology and Neurosurgery of Mexico, National Autonomous University of Mexico, Mexico City, Mexico; (9) Department of Neurology, Washington University School of Medicine in St. Louis, USA; (10) Department of Neurology, National Institute of Neurology and Neurosurgery, La Habana, Cuba; (11) Medical University of Matanzas, Matanzas, Cuba; (12) Health Service and Population Research Department, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, United Kingdom; (13) Division of Public Mental Health and Aging, Institute of Global Health, University of Geneva, Geneva, Switzerland)*

Background: The latest systematic review by Ofori-Asenso et al. showed that the global incidence of frailty was 43.4 per 1000 person-years. However, they could not estimate the pooled age-stratified incidence of frailty because of insufficient evidence. **Objectives:** We aimed to 1) estimate the pooled effect of frailty on all-cause mortality; 2) meta-analyzing the age-stratified incidence of frailty in urban areas of China and six Latin American countries and regions. **Methods:** 10/66 study is a population-based cohort study. The first wave was conducted in 2003-2006, and the incidence wave in 2007-2010. All participants were ≥65 years old. Due to the absence of hand grip strength, we defined frailty as the presence of two or more of the following criteria: exhaustion, unintentional weight loss, slow walking speed, and low physical activity. For the mortality analysis, we included participants from the urban sites, we excluded those with missing data at baseline and those who lost to follow-up. We performed age and sex-adjusted Cox regression to explore the effect of frailty on mortality.

We further excluded frail participants at baseline and deceased participants to estimate the age-stratified incidence. Person-years were calculated as the mid-point of the interval between baseline and follow-up. We estimated the overall effects using a fixed-effect meta-analysis. We considered an I2 of 25%, 50%, and 75% to be low, moderate, and high heterogeneity, respectively. **Results:** Out of 9,695 urban participants, 18.7% died before the follow-up and 20.2% were frail at baseline. The average follow-up duration was 4.2 years with a mean age of 74.6 years old. Compared to non-frail participants, frail participants showed an 87% higher risk of mortality (HR=1.87, 95% CI=1.10-2.58, test for heterogeneity: p=0.002, Higgins I2=71%). The pooled estimates of the incidence of frailty for the age groups 65-69, 70-74, 75-79, and ≥80 years old were 15.4, 42.2, 59.2, and 103.9 per 1,000 person-years, respectively. High heterogeneity was found in the analysis (p=0.000, Higgins I2 >75%). **Conclusion:** Our modified frailty phenotype predicts mortality independent of age and sex in urban Latin America and China. The incidence of frailty increases with a 5-year increment of chronological age.

P1/46- DEVELOPMENT OF A FRAILTY AND SARCOPENIA SCREENING AND INTERVENTION PROGRAMME FOR OLDER PEOPLE FROM A CULTURALLY DIVERSE POPULATION. David Hewson(1), Nicky Poulain(2), Gurch Randhawa(1) *((1) Institute for Health Research, University of Bedfordshire, Luton, Bedfordshire, UK; (2) Bedfordshire, Luton and Milton Keynes Integrated Care System, Luton, Bedfordshire, UK)*

Background: The Bedfordshire, Luton and Milton Keynes Integrated Care System (BLMK ICS) was established in the UK in July 2022 to meet the health and care needs of the local community, which is ethnically diverse and has many health inequalities. The BLMK ICS has partnered with the University of Bedfordshire to create a Research and Innovation Hub to focus on improving health and social care inequalities. One of the priorities of the BLMK ICS is ageing well, which includes offering proactive interventions to enable older people to stay healthy and independent for as long as possible. Two age-related conditions that are a particular target for this population are frailty and sarcopenia. Current NHS policy requires all GP practices to screen for frailty using the electronic Frailty Index (eFI). However, at present, the NHS does not screen for sarcopenia, nor offer any intervention for the condition. **Objectives:** This project will develop screening methods that can identify people at risk of frailty and sarcopenia within the local area using a culturally competent approach for the multi-ethnic older population. **Methods:** Barriers and facilitators for older people to take part in physical activity will be identified using focus groups from different communities within the BLMK area. These interviews will also be used to determine potential physical activity interventions. Participants for a subsequent intervention will be identified by a combination of the eFI and community-based identification for people that are hard to reach. Participants will then be screened for physical frailty and sarcopenia, according to the revised consensus of the European Working Group on Sarcopenia in Older People (EWGSOP). Participants will choose an intervention from the range provided. Pre- and post-testing will be used, along with information from electronic health records to track adverse outcomes including falls, hospitalisation, institutionalisation, and mortality for participants in the programme, compared to non-participants. **Conclusion:** Changing demographics within the UK population highlight the need to develop a frailty and sarcopenia screening and intervention programme for older people from culturally diverse populations. We share some insights into how this process has been undertaken in the BLMK ICS Research and Innovation Hub.

P1/47- THYROID FUNCTION AND FRAILTY IN HOSPITALIZED OLDER ADULTS. Fabio Malacarne(1), Daniela Brischetto(1), Giuliana Ciancio(1), Antonino Catalano(1), Francesco Corica(1), Giorgio Basile(1,2) *((1) Unit and School of Geriatrics, Department of Clinical and Experimental Medicine, University of Messina, Messina, Italy; (2) Department of Biomedical and Dental Sciences and Morphofunctional Imaging, University of Messina, Messina, Italy)*

Background: In the context of inflammatory pathways during acute or chronic diseases, the hospitalized older adults could show the Non-thyroidal illness syndrome (NTIS). The age-related alterations of the thyroid function cause pathophysiological events that can be involved in the determinism of frailty; it is a condition characterized by a reduction of the homeostasis and an increased vulnerability to stressors. **Objectives:** The aim of this study was to evaluate thyroid function and its impact on frailty in a group of hospitalized older adults. **Methods:** 112 older patients were enrolled. Routine laboratory tests were performed, including dosages of TSH, fT3, fT4 and creatininemia. Glomerular Filtration Rate (eGFR) was estimated using the CKD-EPI formula. Frailty was assessed by calculating the Rockwood Frailty Index (FI) based on 46 items. Patients with FI ≥ 0.25 were considered as frail. The statistical analysis included Pearson's correlation and univariate and multivariate logistic regression analysis. Values of $p < 0.05$ were considered statistically significant. **Results:** Mean FI values were 0.3 ± 0.12 with an overall prevalence of frailty of about 60%. TSH values were 3.45 ± 1.35 mU/L, fT3 2.12 ± 0.73 pg/ml, fT4 16.83 ± 4.8 pmol/L. Negative correlations were found between fT3 values and age (p=0.034), lenght of stay (p=0.002), frailty (p<0.001), CKD-EPI (p=0.023), PCR (0.001). Positive correlation were found between fT3 values and handgrip (p=0.001), arm and calf circumferences (p=0.042, p=0.004 respectively), systolic blood pressure (p=0.021), albuminemia (p<0.001). Significant associations between Frailty and age (B=0.005 p=0.002), fT3 (B=-0.061 p<0.005), creatinine (B=0.021 p=0.029) and CKD-EPI (B=-0.001 p=0.015) were found at univariate logistic regression analysis. Multivariate regression analysis confirmed only age (B=0.005 p=0.017) and fT3 (B=-0.057 p=0.005) as predictors of frailty. **Conclusion:** We confirmed that age, low eGFR

and lower levels of fT3 have a negative impact on frailty. Low fT3 values, in absence of TSH alterations and in clinical conditions of euthyroidism, support the hypothesis that NTIS may play a role in the pathophysiological mechanism of frailty or to be the expression of the homeostasis impairment due to multimorbidity. Therefore, the evaluation of fT3 values may also represent a potential marker of screening for frailty in hospitalized older adults.

P1/48- EFFECT OF A MULTICOMPONENT EXERCISE PROGRAM AND COGNITIVE STIMULATION (VIVIFRAIL-COGN) ON FALLS IN FRAIL COMMUNITY OLDER PEOPLE WITH HIGH RISK OF FALLS, A RANDOMIZED MULTICENTER CONTROL TRIAL. Marín-Epelde Itxaso(1), Sánchez-Sánchez Juan Luis(2,3,4), Sánchez-Latorre Marina(1), Moral-Cuesta Débora(1), Ramón-Espinoza Fernanda(1), Esbrí-Victor Mariano(5), Udina Cristina6, Hornillos Mercedes(7), Gámez Carla(7), Casas-Herrero Álvaro(1) *((1) Geriatrics Department, Hospital Universitario de Navarra (HUN), Pamplona, Spain; (2) MOVE-IT Research Group, Department of Physical Education, Faculty of Education Sciences, University of Cadiz, Spain; (3) Health Sciences Department, Universidad Pública de Navarra (UPNA), Pamplona, Spain; (4) Insitut de Viellissement, CHU Toulouse, Gerontopole de Toulouse, France; (5) Geriatrics Department, Complejo Hospitalario Universitario de Albacete (CHUA), Albacete, Spain; (6) Parc Sanitari Pere Virgili, Barcelona, Spain; (7) Geriatrics Department, Hospital Universitario de Guadalajara (HUG), Guadalajara, Mexico)*

Background: In older adults, falls can be a warning sign that can cause functional limitations, intrinsic capacity loss and reduced quality of life. Furthermore, frail older adults are especially vulnerable to said adverse outcome. Thus, reducing the risk of falls seems to be essential, but, despite both exercise and cognitive training-based interventions having shown effectiveness in reducing falls, the evidence on combined interventions remains poor. **Objectives:** The main aim of this study is to explore the effectiveness of combining an individualized multicomponent exercise program and an executive function based cognitive training program (VIVIFRAIL-COGN) compared to the Otago program in the prevention of falls and fall-related outcomes. **Methods:** We are conducting a four-center randomized clinical trial with a 12-week intervention period and an additional 1-year follow-up in Spain. We will recruit 320 frail or pre-frail older adults (≥ 1 criteria of the Frailty Phenotype, ≥ 75 years) with a high risk of falls (defined by fall history and gait performance). The participants are being randomized to the intervention group (IG) or the control group (CG). The IG will participate in an at-home-based intervention combining the individualized Vivifrail multicomponent exercise program and a personalized executive function-based cognitive training (VIVIFRAIL-COGN). The CG group will receive usual care delivered in the Falls Units and the Otago Exercise Program. The primary outcome will be the incidence of falls as self-reported by the participants during three clinic-visits (at baseline, at 6 weeks and at 12 weeks) and three telephone-based contacts (at 6, 9 and 12 months). In addition, effects on measures of physical and cognitive function, quality of life, nutritional status, muscle quality and psychological status will be evaluated. **Results:** To this day, we have recruited 58 patients (75% women), 22 of which have completed the 12-week training period. The mean age is 84.68±4.86 years and the mean Barthel index is 87.87±10.20. Mean SPPB is 6.26±2.68 and mean MoCA score is 17.13±4.68. **Discussion:** We expect this trial to provide new evidence about the effectiveness of an individualized multidomain intervention by studying the effect of additive effects of cognitive training and physical exercise to prevent falls in older frail patients with a high risk of falling.

P1/49- SARCOPENIA KNOWLEDGE, BARRIERS AND ENABLERS TO CLINICAL IMPLEMENTATION IN GERIATRIC REHABILITATION: EMPOWER-GR. Laure M.G. Verstraeten(1), Amir Mashni(1), Janneke P. van Wijngaarden(2), Carel G.M. Meskers(3), Andrea B. Maier(1,4,5,6) *((1) Department of Human Movement Sciences, @AgeAmsterdam, Vrije Universiteit Amsterdam, Amsterdam Movement Sciences, Amsterdam, The Netherlands; (2) Danone Nutricia Research, Utrecht, The Netherlands; (3) Department of Rehabilitation Medicine, Amsterdam University Medical Center, Amsterdam Movement Sciences, Amsterdam, The Netherlands; (4) Department of Medicine and Aged Care, @AgeMelbourne, The Royal Melbourne Hospital, The University of Melbourne, Parkville, Victoria, Australia; (5) Healthy Longevity Translational Research Program, Yo ng Loo Lin School of Medicine, National University of Singapore, Singapore; (6) Center for Healthy Longevity, @ AgeSingapore, National University Health System, Singapore)*

Background: Despite being associated with serious adverse outcomes, such as mortality, sarcopenia remains largely undiagnosed and untreated in older individuals. **Objectives:** To assess sarcopenia knowledge and perceived barriers and enablers to diagnosis and treatment of geriatric rehabilitation inpatients and healthcare professionals. **Methods:** Knowledge of sarcopenia, willingness and perceived barriers to treatment were assessed with a survey amongst inpatients included in EMPOWER-GR, an observational cohort of geriatric rehabilitation inpatients in Amsterdam, The Netherlands. Another survey was conducted in geriatric rehabilitation healthcare professionals working in the Netherlands. Professionals were recruited via a geriatric rehabilitation care provider, healthcare professional associations, professional networks of the research team and social media. Descriptive statistics were used. **Results:** Inpatients' (n=157, 60% female) mean age was 80.5 years (SD 7.3). Sarcopenia prevalence was 22% (EWSGOP2). Five inpatients (3%) had heard of sarcopenia. After explanation of treatment options, 67% was willing to start resistance exercise training (RET), 61% a high protein diet, and 56% oral nutritional supplements (ONS). Most reported barriers to treatment were ONS dislike (17%), too many other health issues (14%), doubts about treatment

effectiveness/importance (13%) and RET intensity/difficulty (10%). Of healthcare professionals (n=501) (12% physician, 23% physical/occupational therapist, 30% dietitian, 20% nurse, 11% healthcare assistant), 84% were familiar with the concept of sarcopenia. Although 26% of the professionals reported screening and 19% diagnosing sarcopenia in their current practice, only 3% adequately used the (revised) definition of the European Working Group on Sarcopenia in Older People. When sarcopenia has been diagnosed, 65% reported initiating treatment (79% RET, 85% food fortification/high energy or protein diet and 70% ONS). Most important barriers to diagnosis and treatment were lack of knowledge, access to tools and equipment and time, while enablers were protocol implementation, access to training and clear responsibilities. **Conclusion:** Knowledge of sarcopenia is very low in geriatric rehabilitation inpatients, but high in healthcare professionals. While inpatients are willing to start treatment, adequate screening and diagnosis is almost non-existent in current clinical practice. Increased knowledge, clear responsibilities among healthcare professionals, and better access to tools and protocols are needed for clinical implementation of sarcopenia.

P1/52- SARCOPENIA IS ASSOCIATED WITH POORER OUTCOMES IN PATIENTS UNDERGOING CARDIAC PROCEDURES. Jaewon Chang *(St George Hospital, department of cardiothoracic surgery, Sydney, NSW, Australia)*

Background: Frailty is associated with increased mortality in cardiovascular diseases and after cardiac procedures. A key component of frailty is sarcopenia. Psoas muscle area is an emerging biomarker of sarcopenia and frailty. **Objectives:** Does psoas muscle area have any potential in predicting mortality after cardiac procedures? **Methods:** MEDLINE and Embase were systematically searched for studies that reported the impact of psoas muscle area on midterm mortality (minimum follow-up of one-year) after any cardiac procedures. Data were independently extracted by two reviewers. A systematic review and meta-analysis were performed to evaluate the prognostic potential of psoas muscle area on midterm mortality following cardiac interventions. **Results:** 15 studies fulfilled the inclusion criteria, with 13 reporting that psoas muscle area was independently predictive of midterm mortality risks following transcatheter aortic valve replacement and open-heart surgeries. A meta-analysis of the eight transcatheter studies demonstrated that a larger psoas muscle area was associated with a 30% reduction in the risk of midterm mortality. Subgroup analyses showed that defining low psoas muscle area as the lowest tertile was predictive of midterm mortality risks. **Conclusion:** Lower PMA is independently associated with increased midterm mortality and reduced midterm survival. This association was more common in women than men. The level of psoas muscle area measurement, the type of variable (binary, categorial or continuous) and the method of standardization seemed not to influence this association.

P1/53- PERCEIVED INFLUENCING FACTORS OF PREOPERATIVE FRAILTY AMONG ELDERLY PATIENTS WITH GASTRIC CANCER FROM THE PERSPECTIVE OF HEALTH ECOLOGY: A QUALITATIVE STUDY. Lingyu Ding(1), Qin Xu(2) Cui Yao(1) *((1) Department of Colorectal Surgery, the First Affiliated Hospital of Nanjing Medical University, Nanjing, China; (2) School of Nursing, Nanjing Medical University, Nanjing, China)*

Background: Preoperative frailty is a severe negative state that reflects the reduction of overall physiological reserve and is highly prevalent in elderly patients with gastric cancer. Describing the perceived influencing factors of preoperative frailty can provide an important basis for developing individualized intervention plans. **Objective:** To describe the perceived influencing factors of preoperative frailty among elderly gastric cancer patients. **Methods:** A qualitative description was conducted based on health ecology theory. Purposive sampling method was used to select 29 frail elderly patients who would undergo gastric cancer surgery in a tertiary hospital in Jiangsu Province from February to June 2021 for semi-structured interview. Directed content analysis was used for data analysis. **Results:** Five themes and thirteen sub-themes were extracted: physiological traits, including accumulated aging-related losses, obvious gastrointestinal symptoms, and successive attacks of diseases; behavioral characteristics, including lack of exercise behavior and excessive physical activity exertion; interpersonal networks, including insufficient peer social interaction, lack of parent-child interaction, and lack of communication and self disclosure between couples; living and working conditions, including heavy individual financial burden, heavy unplanned family care tasks, insufficient resources for health and disease management information; macro factors, including limited level of medical services and medical insurance support. **Conclusion:** This study described the perceived effects of different dimensional factors on preoperative frailty among elderly gastric cancer patients from the perspective of health ecology. Medical staff should formulate and implement systematic prehabilitation programs based on the above factors to improve the patients' preoperative anti-stress ability and postoperative outcomes.

P1/54- ADVERSE OUTCOMES AND HEALTH-ECOLOGICAL INFLUENCING FACTORS OF PREOPERATIVE FRAILTY AMONG ELDERLY PATIENTS WITH GASTRIC CANCER. Lingyu Ding(1), Qin Xu(2) Cui Yao(1) *((1) Department of Colorectal Surgery, the First Affiliated Hospital of Nanjing Medical University, Nanjing, China; (2) School of Nursing, Nanjing Medical University, Nanjing, China)*

Background: Preoperative frailty is a severe negative state that reflects the reduction of overall physiological reserve and is highly prevalent in elderly patients with gastric cancer. **Purpose:** We aimed to explore the relationship between

preoperative frailty and adverse outcomes, and systematically analyze the factors influencing frailty based on the health ecology model among elderly gastric cancer patients. **Methods:** A observational study was conducted to select 406 elderly patients who would undergo gastric cancer surgery at a tertiary hospital. The logistic regression model was used to examine the relationship between preoperative frailty and adverse outcomes, including total complications, prolonged length of stay (PLOS), and 90-day hospital readmission. Based on the health ecology model, the factors which may influence frailty were collected from four levels. Univariate and multivariate analysis were utilized to determine the factors influencing preoperative frailty. **Results:** Preoperative frailty was associated with total complications (odds ratio [OR]=2.776, 95% confidence interval [CI]:1.588–4.852), PLOS (OR=2.338, 95%CI:1.342–4.073), and 90-day hospital readmission (OR=2.640, 95%CI:1.275–5.469). Besides, nutritional risk (OR=4.759, 95%CI:2.409–9.403), anemia (OR=3.160, 95%CI:1.751–5.701), number of comorbidity ≥2 (OR=2.318, 95%CI:1.253–4.291), low physical activity level (OR=3.069, 95%CI:1.164–8.092), apathetic attachment (OR=2.656, 95%CI:1.457–4.839), personal monthly income ≤1000 yuan (OR=2.033, 95%CI:1.137–3.635) and anxiety (OR=2.574, 95%CI:1.311–5.053) were independent risk factors for frailty. High physical activity level (OR=0.413, 95%CI:0.208–0.820) and improved objective support (OR=0.818, 95%CI:0.683–0.978) were independent protective factors for frailty. **Conclusion:** Preoperative frailty was associated with multiple adverse outcomes and could be affected by factors of different dimensions from the health ecology perspective, including nutrition, anemia, comorbidity, physical activity, attachment style, objective support, anxiety, and income, which can guide the formation of a comprehensive prehabilitation for frailty among elderly gastric cancer patients. **Key words:** Preoperative frailty, surgery, gastric cancer, health ecology model, adverse outcome.

P1/55- RELATIONSHIP BETWEEN SPPB AND SOF INDEX IN THE EXPLORATION OF FRAILTY IN A SUBSAHARAN POPULATION. Salvatore Metanmo(1), Antoine Gbessemehlan(2), Nadine Simo-Tabue(3), Fabiola Metanmo(4), Moustapha Dramé(5), Maturin Tabue-Teguo(5) *((1) Inserm U1094, IRD U270, Univ. Limoges, CHU Limoges, EpiMaCT - Epidemiology of chronic diseases in tropical zone, Institute of Epidemiology and Tropical Neurology, Omega Health, Limoges, France; (2) Inserm U1219 Bordeaux Population Health Center, Université de Bordeaux, Bordeaux, France; (3) CHU de Guadeloupe, Equipe LAMIA, Université des Antilles, Fouillole, Guadeloupe; (4) Division of Geriatrics, Limoges Hospital Center, Limoges, France; (5) Department of Clinical Research and Innovation, University Hospital of Martinique, Fort-de-France, Martinique, France)*

Background: The Short Physical Performance Battery (SPPB) is a frequently used test in clinical practice to assess physical performance in the elderly. After assessing the diagnostic qualities of the SPPB in screening for frailty, we investigated the relationship between the SPPB and the Study of Osteoporotic Fractures (SOF) index, a screening instrument for physical frailty. We then looked for the component of the SPPB most associated with the SOF index. **Methods:** The data are from a cross-sectional survey conducted in Cameroon. The SOF index (scored from 0 to 3) was assessed by 3 criteria (involuntary weight loss, inability to do five chair lifts, low energy level) and the SPPB (scored from 0 to 12) was assessed by 3 subtests (balance test, chair lift test and walking speed test). Frailty was defined for an SOF index > 0. Pearson's correlation coefficient, Kappa coefficient, ROC curve were used to study the relationship between these two tests. The sensitivity and specificity of the SPPB were also investigated. A principal component analysis (PCA) was performed to assess the contribution of each subtest of the SPPB to the relationship with the SOF. **Results:** Of the 403 people included (49.6% women) with an average age of 67.1 years (±6.2), 35.7% were frail according to SOF. The correlation coefficient between SPPB and SOF was -0.71 ($p<0.001$) while the kappa concordance coefficient was 0.60 [CI95%: 0.51 - 0.66], $p<0.001$. With the best SPPB threshold (threshold = 9, Se = 88.9%, Sp = 74.9%), 47.9% were frail according to the SPPB. The area on the ROC curve between SPPB and SOF was 0.82. The first dimension of the PCA between SOF and the SPPB subtests explained 55.8% of the variability in the data and the variables that were best represented were SOF and the 5-chair lift test (Cos2 = 0.763 and 0.683 respectively). The SPPB (supplementary variable) was almost confounded on the first dimension (Cos2 = 0.931). Among the subtests of the SPPB, the 5-chair lift test was the component most associated with the SOF index. **Conclusion:** The SPPB could be a valid tool for the identification of frailty in the older people in SSA. Despite the over-lapping between SOF and SPPB, our results suggest that a negative chair lift test alone would be sufficient to suspect physical frailty.

P1/59- FRAILTY SCREENING TO PREDICT COMPLICATIONS OF ELECTIVE HIP REPLACEMENT: RESULTS OF GERAS-1, A RETROSPECTIVE COHORT STUDY. Hassiba Chebbihi(1,2), Guy Lacombe(1,2), Alexandre Beaulac(3), Jade Labrie(4), Mandy Malick(1), Nancy Presse(1) *((1) Researcher, Sherbrooke research center on aging, Canada; (2) Geriatrician CIUSSS de L'Estrie-CHUS, Canada; (3) R3 Core program internal medicine, Canada; (4) R5 geriatric medicine)*

Background: Frailty is a predictor of the risk of post-operative complications. Screening frail patients would allow them to be offered targeted interventions prior surgery. In hip replacement (PTH), modified Frailty Index (mFI) 5 and 11 are the most widely used tools. Their predictive value remains unknown though. **Objectives:** We thus aimed to determine the predictive value of these 2 tools for complications following an elective THP. **Method:** Retrospective cohort study of patients who received a PTH, at the Sherbrooke University Centre between 2017 and 2020. 478 files were analyzed. Complications was classified using Clavien Dindo Score. Frailty items were idenfied using the preoperative assessment data. Other characteristics were extracted from the medical

charts. Multivariate logistic regressions, Stepwise regression analyses were conducted, with the use of OCR curves. **Results:** Results: mFI-5 and 11 are not good predictors of postoperative complications (sensitivity at 62.7%, specificity at 64.1%, PPV at 26.8%, VPN at 89.1%, LR+ at 1.75, LR- at 0.58 and AUC 66.5 (CI 60.7 to 72.2)). The addition of 3 clinical variables: history of atherosclerotic coronary artery disease, cardiac arrhythmia and sleep apnea and 2 biological variables (blood hemoglobin, and renal clearance) would be a better predictor of complications (sensitivity at 67.1%, specificity at 76.5%, PPV at 37.4%, VPN at 91.7% and AUC at 75.6% (CI 69.1 to 82). **Conclusion:** The frailty scales alone did not predict evolutions but adding elements did. A new score based on these models would make it possible to better select fragile patients. Further prospective studies are needed to confirm theses finding.

P1/60- THE ROLE OF OSTEOPATHIC CARE IN THE TREATMENT AND PREVENTION OF SARCOPENIA: A SURVEY IN A SWISS COHORT. Raphael Banz(1), Laetitia Jordan(2), Maïlis Gonthier(2), Katia Iglesias(2) *((1) Omanda Medical Nutrition, Zug , Switzerland; (2) University of applied sciences, health science, Fribourg, Switzerland)*

Background: People over 65 years of age represent 9% of the osteopathic patient population. This population is increasing and generates a growing demand for specific care. Sarcopenia is a disease defined by the loss of muscle mass, strength and function. It affects 20% of the population over the age of 65. Physical activity and nutrition, after all protein requirements, have been shown to be a first-line treatment. **Objectives:** Define the osteopathic care of the patients over 65 in relation to sarcopenia and independent of sarcopenia. This study also investigates osteopath's knowledge about sarcopenia and evaluates their prescription of physical exercises and nutritional complementation during osteopathic consultation. **Methods:** A quantitative study was carried out in French-speaking osteopaths in Switzerland who are treating patients over 65 years of age. **Results:** 84 surveys have been analyzed. 28.4% of the osteopaths reported having more than 20% of patients with an age over 65 years. 69.3% reported having 0-20% of those patients affected by muscle weakness. 81.4% of the osteopaths recommended specific physical exercises in relation to the reason for consultation and 54.7% independently of the reason for consultation. Mobility/stretching and training exercises were the most recommended. 55.8% gave nutritional recommendations in relation to the reason for consultation and 46.5% independently. The most common recommendation was increased vitamin D intake. 11% of the osteopaths know the diagnostic methods to detect sarcopenia. 55% of the osteopaths do not give specific advice to prevent sarcopenia. 84.9% of the osteopaths think they play an important role in the prevention and treatment of sarcopenia. After reading a short informative text about sarcopenia, 91.9% of the osteopaths taking part to the study would recommend a specific exercise program and 59.3% would recommend protein supplementation as a complement. **Conclusion:** In order to prevent the adverse consequences and socio-economic impacts of sarcopenia, osteopaths need to be trained in the appropriate management of the elderly at risk of sarcopenia. Future research is needed to understand at what level of education and in what form this training would be most appropriate.

P1/61- DIAGNOSTIC PERFORMANCE OF THE FRAIL SCALE AMONG COMMUNITY-DWELLING OLDER ADULTS WITH DIABETES. Ling-Na Kong(1), Lin Zeng(2), Wen-Xin Wang(1) *((1) School of Nursing, Chongqing Medical University, Chongqing, China; (2) Department of Cardiology, The first Affiliated Hospital of Chongqing Medical University, Chongqing, China)*

Background: Early identification of frailty is crucial for the management of frailty among community-dwelling older adults with diabetes. There is no agree-upon instrument for assessing frailty. The FRAIL scale was developed for rapid frailty screening. However, there is little knowledge of its diagnostic performance among older adults with diabetes in community settings. **Objectives:** This study aimed to validate the diagnostic performance of the FRAIL scale among community-dwelling older adults with diabetes using the Fried frailty phenotype as the reference standard. **Methods:** A cross-sectional study was conducted between May to November 2022. A convenience sample of 489 older adults with diabetes were recruited from five community healthcare centers in Chongqing City, China. The FRAIL Scale and the Fried Frailty Phenotype were used to assess their frailty status. The area under the curve (AUC) of summary receiver operating characteristics was estimated. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and Youden Index (YI) of the FRAIL scale for different cut-offs were also calculated. **Results:** The FRAIL scale showed a good diagnostic accuracy for frailty screening (AUC=0.929). The optimal cut-off point of the FRAIL scale among older adults with diabetes was 2 points (sensitivity: 89.81%; specificity: 87.93%; PPV: 67.83%; NPV: 96.82%; YI: 77.74%). The consistency between the FRAIL scale and the Fried frailty phenotype was strong (k=0.697). The FRAIL scale classified more participants into frailty (29.24%) than the Fried frailty phenotype (22.09%). **Conclusion:** This study revealed that the FRAIL Scale presented a satisfactory diagnostic performance and a high level of agreement with the Fried frailty phenotype among community-dwelling older adults with diabetes. The FRAIL scale can be used as a routine screening tool for older adults with diabetes in community settings.

P1/62- A RETROSPECTIVE ANALYSIS OF THE RELATIONSHIP BETWEEN METFORMIN AND PHYSICAL FRAILTY IN DIABETIC PATIENTS. Pan Liu, Yiming Pan, Yu Song, Yaru Zhou, Wanshu Zhang, Xiaojun Li, Jiatong Li, Yun Li, Lina Ma *(Department of Geriatrics, Xuanwu Hospital Capital Medical University, National Clinical Research Center for Geriatric Diseases, Beijing, China)*

Background: Diabetes and frailty often co-exist and can contribute to adverse health outcomes. Metformin as a

strongly recommended first-line drug for diabetes treatment has potential anti-aging effects. A few studies have investigated the relationship between metformin and frailty. However, the beneficial effects of metformin on frailty and frailty-related diseases remain controversial. Although previous studies have shown that metformin improves multiple aging phenotypes, whether it has a similar effect on age-related frailty requires further investigation. **Objectives:** To explore the association between metformin use and frailty in patients with diabetes. **Methods:** This retrospective study evaluated 422 patients aged 40 years or older with confirmed type 2 diabetes admitted to Xuanwu Hospital Capital Medical University. The first participant was collected in January 2018. Frailty was defined as the presence of three or more of Fried phenotype. The median follow-up time was 21.0 months (95% CI: 19.3–22.7) for participants in the study. The primary outcome was the combined endpoint of cardiovascular events, cerebrovascular events, readmission, and death. Logistic regression analysis and survival analysis were used to analyze the association of metformin with frailty and adverse outcomes. **Results:** The mean age was 70.35 (±10.71) years, and 64.0% (n=270) were men. Metformin exposure was negatively associated with frailty (OR=0.564; 95% CI: 0.321–0.991) after adjusting for mixed variables, independently of other risk factors for frailty. Further longitudinal analysis showed that the median survival time with and without metformin was 46.0 months (95% CI: 30.52–61.48) and 24.0 months (95% CI: 15.08–32.92), respectively. Metformin was associated with a decreased risk of combined primary outcomes in total patients and non-frail patients after adjustment for age and sex. However, the protective effect of metformin on adverse outcomes was not found in frail participants with diabetes. **Conclusion:** Metformin use is associated with a low risk of frailty in patients with diabetes. Metformin had an independent protective effect on adverse events, whereas frailty may weaken the long-term protective effects of metformin. **Key words:** Metformin, Frailty, Diabetes, Adverse outcomes.

P1/63- RELATIONSHIP BETWEEN SARCOPENIA, STRENGTH, AND MUSCLE QUALITY IN COMMUNITY-DWELLING OLDER PEOPLE. Sandra Pais(1,2,3), Marta Botelho(3,4), Rafaela Moreira(4), Carla Guerreiro(3,4) *((1) Universidade do Algarve, Faculdade de Medicina e Ciências Biomédicas, Faro, Portugal; (2) Comprehensive Health Research Centre (CHRC), Nova Medical School, Lisbon, Portugal; (3) ABC-RI, Algarve Biomedical Center Research Institute, Health, Ageing and Kinetic Lab, Faro, Portugal; (4) ABC- Algarve Biomedical Center, Sandra Pais Laboratory, Faro, Portugal)*

Background: The progressive loss of skeletal muscle mass and strength with age is associated with a number of adverse health outcomes. An early identification of individuals with low muscle mass may promote desirable patient outcomes over the long-term. Muscle quality (MQ) is a key determinant of muscle function in later life that declines with age. **Objectives:** Determine the relationship between Skeletal Muscle Index (SMI), strength, and MQ in community-dwelling older people with and without sarcopenia. **Methods:** An exploratory pilot study was done with participants over 60 years old. SMI was evaluated according to the European Working Group on Sarcopenia in Older People (EWGSOP). Tensiomyography was performed using the TMG device in Vastus Lateralis-VL and Biceps Femoris-BF of the dominant (Dom) leg. Handgrip Strength (HGS) and Power (P) of knee flexors and extensors were assessed using the Lafayette Handgrip and Isokinetic Humac Norm, respectively. **Results:** 21 participants were included. 76.2% were female (23.8% male), with a mean age in years of 69.4±6.3. Participants were divided into two groups according to SMI: Sarcopenia (n=15, 71.4%) and Non-Sarcopenia (n=6). No significant differences were found between groups in strength and MQ. The groups demonstrated statistically significant differences in age (Sarc: 71.3±5.7; Non-Sarc: 64.6±5.8; p=0.027). In the Non-Sarc group, no correlations were found between SMI, P, Contraction Time (Tc) and Maximal Displacement (Dm) of the assessed knee flexor and extensor muscles of the Dom limb. A moderate correlation was observed in the Sarc group between SMI and P of the flexor muscles (r=0.582; p=0.029) and between Tc of the BF in the Dom limb (r=-0.648; p=0.009). A strong correlation between the SMI and the HGS of the Dom hand (r=0.819; p<0.001) was also observed. Additionally, the Dom limb BF Tc demonstrated a moderate correlation with HGS (r=-0.668; p=0.007). There were no correlations with the VL. **Conclusion:** From this pilot study in older people with sarcopenia, and in line with previous studies, our results suggest that P and HGS are dependent factors for sarcopenia, as demonstrated in Tc of BF. Furthermore, factors such as strength and muscle quality may also have an important role in the management of people with sarcopenia.

P1/64- APPENDICULAR LEAN MASS, GRIP STRENGTH, AND THE INCIDENCE OF DEMENTIA AMONG OLDER ADULTS IN THE HEALTH ABC STUDY. James S Andrews(1), Laura S Gold(2), May J Reed(1), Catherine L Hough(3), Jose M Garcia(1,4), Robyn L McClelland(5), Annette L Fitzpatrick(6), Ken E Covinsky(7), Paul K Crane(1), Kristine Yaffe(8), Peggy M Cawthon(9) *((1) Department of Medicine, University of Washington, Seattle, WA, USA; (2) Department of Radiology, University of Washington, Seattle, WA, USA; (3) Department of Medicine, Oregon Health & Science University, Portland, OR, USA; (4) GRECC, VA Puget Sound Health Care System, Seattle WA, USA; (5) Department of Biostatistics, University of Washington, Seattle, WA, USA; (6) Departments Family Medicine, Epidemiology, and Global Health, University of Washington, Seattle, WA, USA; (7) Department of Medicine, University of California San Francisco, San Francisco, CA, USA; (8) Departments of Psychiatry, Neurology, and Epidemiology and Biostatistics, University of California San Francisco, San Francisco, CA, USA; (9) California Pacific Medical Center Research Institute, and University of California San Francisco, San Francisco, CA, USA)*

Background: Identification of novel risk factors for

dementia in older adults could facilitate development of methods to identify patients most at risk and improve their cognitive outcomes. Body composition changes with age, and differences in body composition may be associated with cognitive function in older adults. **Objective:** We aimed to determine whether lower appendicular lean mass (ALM), assessed by dual x-ray absorptiometry (DXA), and lower grip strength are associated with a greater likelihood of incident dementia among older adults in the Health Aging and Body Composition Study (Health ABC). **Methods:** Health ABC data from 1997-2008 were analyzed (n=2,704). Baseline ALM to body mass index (BMI) ratio (ALM/BMI) was assessed by DXA. Baseline grip strength was assessed by hand-held dynamometry. Incident dementia diagnosis was defined as either 1) dementia-related hospitalization plus a Modified Mini-mental Status Exam (3MS) score of < 90; or 2) record of prescription for anti-dementia medication; or 3) decline of at least 1.5 standard deviations on the 3MS score compared to baseline. Cox proportional hazard models estimated associations of ALM/BMI and grip strength with incident dementia over follow-up with and without adjusting for covariates, stratified by sex. **Results:** Among older men, each standard deviation decrement in ALM/BMI (adjusted HR (aHR): 1.22; 95% CI: 1.02, 1.46) or grip strength (aHR 1.22; 95% CI: 1.06, 1.41) was associated with increased likelihood of incident dementia. Among women, none of the associations tested between ALMBMI or grip strength measures and incident dementia reached statistical significance. We observed statistically significant interactions of sex with ALMBMI and grip strength measures' association with incident dementia (p values<0.1). **Conclusion:** Lower appendicular lean mass and lower grip strength at baseline were each associated with an increased likelihood of incident dementia over follow-up among older men, but not women. Thus, lower appendicular lean mass and grip strength may be important risk factors for the development of dementia among older men. Future studies, including diverse population-based prospective cohorts where skeletal muscle mass and strength are rigorously evaluated should further examine the potential contribution of lower appendicular lean mass and grip strength to dementia risk in older adults.

COGNITIVE FRAILTY

P2/1- CHRONIC CONDITIONS AND DEMOGRAPHICS ARE ASSOCIATED WITH COGNITIVE FRAILTY IN SAUDI COMMUNITY-DWELLING OLDER ADULTS. Aqeel Alenazi, Bader Alqahtani *(Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia)*

Background: Cognitive frailty, which is a combination of physical frailty and cognitive impairment, has been associated to functional deterioration in the elderly. However, there is no data on the prevalence of cognitive frailty and the associated risk factors. **Objectives:** To assess the prevalence of cognitive frailty (CF), and its associated factors in Saudi community-dwelling older adults. **Methods:** This cross-sectional study included community-dwelling elderly adults aged 60 years and over living in the Riyadh region. This study took place from August 2019 to June 2020. CF was defined as the co-existence of physical frailty and mild cognitive impairment (MCI) without dementia. Main outcome measures were Fried's frailty phenotype index and the Mini-Mental State Examination. Cognitive frailty was characterized as having a physical frailty score of >= 3 and an MMSE score of 18 to 24 without dementia. Association between sociodemographic and clinical factors and cognitive frailty was estimated by Odds Ratio and confidence intervals (OR, IC 95%) using a multivariable binary logistic regression. **Results:** This study included a total of 421 community-dwelling older adults (63% male, mean [SD] age 70 [7.1] years). The overall prevalence of cognitive frailty was 9.5%. The following factors were associated with being cognitively frail: age (OR: 6.39; 95% CI 2.2-18.6); being single (OR = 1.6, 95 % CI 1.1-2.56); and had two or more chronic conditions (OR: 4.1; 95% CI 1.1-15.1). **Conclusion:** This study indicated the high prevalence of CF among Saudi community-dwelling older individuals compared to other populations. Screening for early diagnosis should be incorporated during examination for older adults.

P2/2- AGE-RELATED PERFORMANCE OF HEALTHY ADULTS IN THE USE OF A FULLY-IMMERSIVE AND AUTOMATED VIRTUAL REALITY SYSTEM TO ASSESS THEIR COGNITION. Jie En Lim(1), Nivedita Nadkarni(1), Wei Teen Wong(2,3,4), Joanne Hui Min Quah (1,2,3), Ngiap Chuan Tan(1,2,3) *((1) Head Office, SingHealth Polyclinics, Singapore, Singapore; (2) Duke-NUS Medical School, Singapore, Singapore; (3) SingHealth Duke-NUS Family Medicine Academic Clinical Programme, Duke-NUS Medical School, Singapore, Singapore; (4) SingHealth Polyclinics-Outram, SingHealth Polyclinics, Singapore, Singapore)*

Background: Assessing aging adults to identify cognitive frailty risk is challenging. Their decline in cognitive function may involve one or more of the six cognitive domains: perceptual-motor function, executive function, complex attention, social cognition, learning and memory, and language. Traditional paper-and-pencil screening tools for cognitive impairment are limited in assessing all six domains. We have developed a fully-immersive and automated Virtual Reality (VR) system (CAVIRE: Cognitive Assessment by VIrtual REality) to assess cognitive function across the six domains. **Objectives:** This study aimed to evaluate the age-related performance of cognitively-healthy individuals who underwent the VR assessment based on the CAVIRE scores and completion time. **Methods:** At a primary care clinic in Singapore, 110 multi-ethnic Asian adults were recruited into two age groups: Younger (45-64 years old, n=50); Older (65-84 years old, n=60). All participants achieved a Montreal Cognitive Assessment (MoCA) score of 26 or higher, indicating a cognitively-healthy status. Next, they completed various VR tasks simulating daily activities through 13 urban-based scenarios. Each participant's VR scores and completion

time were automatically computed by CAVIRE. **Results:** For VR scores, the participants in the Younger age group achieved significantly higher mean Total Score (1942.0 vs 1706.0, p<0.001) and individual Cognitive Domain Scores compared to the Older age group: perceptual-motor function (360.0 vs 330.2, p<0.001); executive function (330.0 vs 292.2, p<0.001); complex attention (267.5 vs 217.1, p<0.001); social cognition (312.5 vs 271.1, p<0.001); learning and memory (322.0 vs 278.9, p<0.001); and language (350.5 vs 312.5, p<0.001). For VR completion time, the participants in the Younger age group achieved significantly shorter mean Total Time (433.0s vs 517.3s, p<0.001) and individual Cognitive Domain Time compared to the Older age group: perceptual-motor function (137.0s vs 168.5s, p<0.001); executive function (156.0s vs 199.0s, p<0.001); complex attention (100.4s vs 125.5s, p<0.001); social cognition (70.5s vs 92.1s, p<0.001); learning and memory (65.5s vs 80.9s, p<0.001); and language (156.9s vs 182.2s, p<0.001). **Conclusion:** The VR scores and completion time differed significantly when cognitively-healthy Asian adults of different age groups used CAVIRE for cognition assessment. These CAVIRE performance indices provide baseline data for comparison with cognitively impaired adults of similar age groups.

P2/3- A NOVEL, FULLY-IMMERSIVE AND AUTOMATED VIRTUAL REALITY SYSTEM TO ASSESS THE SIX COGNITIVE DOMAINS OF OLDER ADULTS: A VALIDATION STUDY. Ngiap Chuan Tan(1,2,3), Jie En Lim(1), Rehena Sultana(4), Wei Teen Wong(2,3,5), Joanne Hui Min Quah(1,2,3) *((1) Head Office, SingHealth Polyclinics, Singapore, Singapore; (2) Duke-NUS Medical School, Singapore, Singapore; (3) SingHealth Duke-NUS Family Medicine Academic Clinical Programme, Duke-NUS Medical School, Singapore, Singapore; (4) Centre for Quantitative Medicine, Duke-NUS Medical School, Singapore, Singapore; (5) SingHealth Polyclinics-Outram, SingHealth Polyclinics, Singapore, Singapore)*

Background: Cognitive impairment exacerbates frailty in older adults. Early identification of cognitive impairment allows introduction of interventions to retard further decline in cognitive frailty. However, existing paper-and-pencil-based cognitive tests may not comprehensively assess the entire six cognitive domains (perceptual-motor function, executive function, complex attention, social cognition, learning and memory, and language) of older adults in their local real-life settings. A fully-immersive and automated Virtual Reality (VR) system (CAVIRE: Cognitive Assessment by VIrtual REality) has been developed to screen for deficits in the six cognitive domains. **Objectives:** This study aims to validate the CAVIRE system in differentiating older adults who are cognitively-healthy and those with suspected cognitive impairment across six cognitive domains based on their VR performance scores. **Methods:** In this proof-of-concept case-control study, 109 multi-ethnic Asian adults aged between 65 to 84 years old were recruited at a primary care clinic in Singapore. Using the Montreal Cognitive Assessment (MoCA), the participants were grouped as either Cognitively-Healthy (MoCA≥26, n=60) or Cognitively-Impaired (MoCA<26, n=49). Next, they donned a VR headset to complete virtual tasks embedded in 13 scenarios simulating daily activities in urbanized setting within a duration of up to 15 minutes. The pre-set VR scores for each scenario (maximum score=2400) were automatically computed by the CAVIRE system. Each cognitive domain is assessed using the aggregated scores of four different virtual scenarios based on a matrix. **Results:** Overall, the Cognitively-Healthy participants attained significantly higher median total (1725.0 vs 1325.0, p<0.001) and individual domain performance scores compared to the Cognitively-Impaired group: perceptual-motor function (337.5 vs 300.0, p=0.002); executive function (275.0 vs 225.0, p<0.001); complex attention (225.0 vs 125.0, p<0.001); social cognition (275.0 vs 200.0, p<0.001); learning and memory (300.0 vs 225.0, p<0.001); and language (312.5 vs 250.0, p<0.001). The Receiver Operating Characteristic curve (ROC) analysis showed an area under the curve (AUC) of 0.73 (95%CI=0.65-0.81) with an optimal cutoff score of 1600 (Sensitivity=83.67%, 95%CI=70.34-92.68; Specificity=61.67%, 95%CI=48.21-73.93). The VR performance scores showed moderately-strong correlation with the MoCA score (r=0.63, p<0.001). **Conclusion:** The significant differential performances of older Asian adults using the CAVIRE show its potential as a screening tool in assessing six cognitive domains.

P2/4- COGNITIVE FRAILTY (CF) IN OLDER ADULTS WITH SUBJECTIVE MEMORY COMPLAINTS: A COMPARISON OF PREVALENCE, NEUROPSYCHOLOGICAL CHARACTERISTICS AND ASSOCIATIONS WITH PHYSICAL PERFORMANCE AND QUALITY-OF-LIFE ACROSS FOUR DIFFERENT CF DEFINITIONS. Justin Chew(1,2), Chin Hong Tan(3,4), Pamela Chew(5), Melissa Ong(2), Roslyn Raymond Prakash(2), Noorhazlina Ali(1), Wee Shiong Lim(1,2) *((1) Department of Geriatric Medicine, Tan Tock Seng Hospital, Singapore; (2) Institute of Geriatrics and Active Ageing, Tan Tock Seng Hospital, Singapore; (3) Department of Psychology, Nanyang Technological University, Singapore; (4) Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore; (5) Department of Psychological Services, Tan Tock Seng Hospital, Singapore)*

Background: Cognitive frailty (CF) and its related constructs, motoric cognitive risk syndrome (MCRS) and physio-cognitive decline syndrome (PCDS) confer greater risks of dementia and other adverse health outcomes. While early detection of subjective memory complaints (SMC) is a promising upstream focus for interventions, the prevalence, clinical characteristics and impact of different CF definitions in individuals with SMC are less well-studied. **Objectives:** To compare four definitions of CF in terms of prevalence, neuropsychological characteristics and associations with physical performance and quality-of-life in individuals with SMC. **Methods:** Cross-sectional study of 124 community-dwelling, functionally-independent older adults with SMC (AD8≥1, no dementia). We defined CF using (1) SMC/Fried

Frailty Phenotype (FFP, robust/prefrail/frail); (2) PCDS (any mCMMSE domain ≥1.5SD below the mean, with slowness and/or weakness); (3) MCRS (SMC/slow gait) and (4) SMC/weak handgrip strength only. Cognitive tests included Chinese Frontal Assessment Battery (CFAB), neuropsychological tests included processing speed, memory (free and cued selective reminders test, FCSRT), visuospatial and executive function domains, Short Physical Performance Battery(SPPB) and quality-of-life using Short Form(SF)-12v2. Scores were compared between CF and non-CF groups for each definition using independent samples t-tests and ANOVA, and multiple linear regression with SPPB and SF-12v2 as outcomes. **Results:** CF prevalence estimates using SMC/FFP was 58% and 26% for SMC/prefrail and SMC/frail respectively, compared to PCDS(79%), MCRS(61%) and SMC/weak handgrip(32%). CFAB scores were poorer for CF defined by SMC/FFP, MCRS and PCDS (P<0.05) but not with SMC/weak handgrip (P=0.072). Significant differences on the FCSRT was observed using MCRS definition only. Processing speed and visuospatial performance did not differ between CF and non-CF individuals using SMC/weak handgrip. In regression analyses, CF was associated with decreased SPPB scores for SMC/FFP frail (β=-2.38,P=0.014), MCRS (β=-1.43,P<0.001) and PCDS (β=-1.00,P=0.008) but not SMC/weak handgrip(P=0.20). Significant associations between SF-12v2 mental component scores with MCRS (β=-4.65,P=0.011) and PCDS (β=-4.84,P=0.030) were observed, but not SMC/FFP(P=0.69) and SMC/weak handgrip(P=0.53). **Conclusion:** High prevalence of CF is observed in individuals with SMC, with heterogeneity across different CF definitions. Our results suggest that the optimal measures to detect CF in the clinical setting are still unclear, and further studies are required to accurately characterise the CF construct.

P2/5- THE DEVELOPMENT OF A CENTER-BASED LEISURE COGNITIVE STIMULATION PROGRAM FOR PERSONS WITH HIGH RISK OF COGNITIVE DECLINE. Yi-Chen Chiu, Chia Ling Tsai, Chen-Ya Wang, Wen-Chuin Hsu *(Chang Gung University, Taoyuan City, Taiwan)*

Introduction: Persons with high risk of cognitive Impairment (PWHRCI), including those with pre-frailty, frailty, subjective cognitive decline and mild cognitive impairment, are highly subjective to dementia in later life. These target populations are the window of opportunity for cognitive stimulation leisure activity interventions. Therefore, the purpose of this study was to develop and examine the efficacy of a community-based cognitive stimulation leisure activity program for PWHRCI on cognitive function, physical frailty and depression. **Methods:** This study was divided into three stages: preparation, pilot testing and main study. The preparation was to develop the content of the program based on need-driven dementia compromised behavioral model and literature review. Pilot study (n=20) was a one-group with a pre-and post-test comparison in a day care center located in a city area (Taoyuan, Taiwan). It was a 12-week program-based cognitive stimulation leisure activity intervention. PWHRCD engaged in a 2-hour/week activity section led by 3 trained nursing professionals. The outcomes of the pilot study included improved cognition, depression and activity engagement. Then we conducted the formal study (n=28) which was a quasi-experimental design with one group, using pre-and post-test comparison, and conducted at a community center in a rural area of Taoyuan, Taiwan. The research instruments included the demographic sheet, activities of daily life instrument (IADL), the Mini-Mental State Examination (MMSE), 6-meter walk test, and the Geriatric Depression Scale-Short form (GDS-S). Generalized Estimating Equation (GEE) was used to analyze the efficacy of the intervention. **Results:** The results showed that: (1) MMSE scores significantly increased by 0.571 points (p<.000), (2) walking time on the 6-meter walk significantly decreased by 0.893 seconds (p<.000), and (3) GDS-S significantly decreased by 0.571 points (p<.002). The results of this study indicated that the cognitive stimulation leisure activity program had significant effects on cognitive function, physical frailty and depression among the PWHRCI. **Conclusion:** The intervention can improve physical and mental health of PWHRCI but needs further investigation with a larger sample size using randomized control trail. **Key words:** frailty, subjective cognitive decline, mild cognitive impairment, cognitive stimulation, leisure activities.

P2/6- NEUROPSYCHOLOGICAL DISORDERS AND ASSOCIATED FACTORS IN OLDER PEOPLE IN GUINEA. Thierno Mamadou Millimono(1,2), Alioune Camara(2), David Cherif(2), Gustave Mabiama(3), Pierre-Marie Preux(1), Jean Claude Desport(1), Pierre Jésus(1,4,5) *((1) Inserm U1094, IRD U270, Univ. Limoges, CHU Limoges, EpiMaCT - Epidemiology of chronic diseases in tropical zone, Institute of Epidemiology and Tropical Neurology, OmegaHealth, Limoges, France; (2) Gamal Abdel Nasser University of Conakry, Guinea; (3) Department of Family and Home Economics, Advanced Teachers Training College for Technical Education (ATTCTE), University of Douala, Cameroon; (4) Resource Centre for Nutrition Nouvelle Aquitaine Region (CERENUT), Isle, France; (5) Nutrition Unit, University Hospital, Limoges, France)*

Background: Neuropsychological disorders in the elderly represent a major societal concern, characterized by cognitive deterioration accompanying cerebral ageing or neurodegenerative or vascular neurological pathologies. **Objective:** The main objective of our study was to contribute to a better understanding of neuropsychological disorders in people aged 60 and over in Guinea. **Methods:** The evaluation of neuropsychological disorders was carried out through the determination of depressive symptomatology and the Mini Mental State Examination. For the statistical analyses, we used logistic regression to identify factors associated with neuropsychological disorders. **Results:** A sample of 1,698 elderly people living at home was included; the most representative age group was 70-115 years with a frequency of 51.8%. However, neuropsychological disorders were observed

in 65.8% of the cases, including 37.4% at risk of depression and 57.3% at risk of developing cognitive disorders. Factors independently associated with these neuropsychological disorders were mainly age, marital status, activity, area of residence and income, among which people in the 60-69 age group were more likely to have depressive symptoms, older people living in urban areas were more likely to have depressive symptoms than those living in rural areas. Older people with no activities were likely to develop both cognitive impairment and depressive symptoms and older people with low incomes were more likely to have depressive symptoms than older people with higher incomes. **Conclusion:** This is the first study describing the high prevalence of neuropsychological disorders and depressive symptoms in the elderly and the associated factors. disorders were mainly age, marital status, activity, area of residence and income. It is therefore necessary to consider a screening plan in order to facilitate the management of these disorders which weaken the lives of our elderly. **Key words:** disorders, neuropsychological, elderly, Guinea.

COVID 19 & FRAILTY & SARCOPENIA

P3/1- FRAILTY AS A RISK FACTOR FOR DEVELOPING POST-ACUTE SEQUELAE OF SARS COV-2 INFECTION (PASC). Dominique Tosi(1,2), Fei Tang(1), Armando Sarasua(2), Jorge G. Ruiz(1,2), Iriana Hammel(1,2) *((1) Geriatric Research, Education, and Clinical Center (GRECC), Miami VA, Miami, FL, USA; (2) University of Miami, Miller School of Medicine, Miami, FL, USA)*

Background: Older populations have suffered the highest rates of SARS-CoV-2 infection and disease-related complications. For survivors, Post-Acute Sequelae of SARS CoV-2 Infection (PASC) represents another complication. The US Centers for Disease Control defines PASC as symptoms following COVID-19 infection for more than 4 weeks. As frailty is a common geriatric syndrome in older adults, it often coexists with COVID 19 infection. The vulnerability to stressors caused by multisystemic dysfunction that characterizes frailty -immunosenescence and inflammaging- may predispose older adults to the development of PASC. **Objectives:** Evaluate the association between baseline frailty and PASC onset. **Methods:** Retrospective cohort study using the VA COVID-19 Shared Data Resource to identify US Veterans testing positive for SARS-CoV-2 from 01/01/21 to 02/01/22, without prior positive tests who were alive 30 days after infection. Participants were followed from the date of a positive test until documentation of PASC or 09/22/22. Frailty was determined by a 31-item VA Frailty Index (VA-FI) generated from electronic health records as a proportion of morbidity, function, sensory loss, cognition/mood, and other variables. We categorized Veterans into non-frail (FI<0.21) and frail (FI≥0.21). We performed a multivariate logistic regression assessing the association between frailty and PASC after controlling for age, gender, race, ethnicity, BMI, smoking status, active VA patient in the past 12 months, rurality, vaccination status, and period of infection (Delta/Omicron variants). **Results:** We identified 245,857 COVID-19 positive Veterans, mean age 56.7 years (SD=16.3), 213,070 (86.7%) male, 166,406 (67.7%) white. 55,929 (22.7%) frail, 69,689 (28.3%) pre-frail, and 120,239 (48.9%) robust. Compared with the robust, frailty and pre-frailty were associated with a 50% (adjusted OR:1.50; 95%CI:1.45-1.56) and 25% (adjusted OR:1.25; 95%CI:1.21-1.29) increase respectively in the odds of developing PASC. Patients older than 65 had similar results, adjusted OR of 1.50 (95%CI:1.41-1.58) and 1.22 (95% CI:1.15-1.29) for frail and pre-frail respectively. **Conclusion:** Frailty was associated with the development of PASC in Veterans with COVID-19 infection. Early recognition of frailty in patients with COVID-19 infection may assist clinicians in the early identification and management of PASC.

P3/2- PROGRESSION OF MUSCLE STRENGTH, MASS AND PERFORMANCE ON OLDER ASIANS: A LONGITUDINAL STUDY. Ding Xuan Ng(1), Eileen Koh(1), Ngiap Chuan Tan(1,2) *((1) SingHealth Polyclinics, Singapore; (2) SingHealth-Duke NUS Family Medicine Academic Clinical Programme, Singapore)*

Background: Sarcopenia is associated with aging. Its progression over time and determinants are postulated to vary across ethnicity in older adults. **Objective:** This study aims to determine the rate of change of the muscle strength, muscle mass and gait speed among older Asians without type-2 diabetes mellitus and to identify determinants of their progression of sarcopenia. **Methods:** A longitudinal study was conducted on older community-dwelling multi-ethnic Asian adults who were managed in a public primary care clinic in Eastern Singapore. 318 patients were recruited from October 2017 to July 2018, and their muscle mass, handgrip strength and gait speed were measured and computed to classify their sarcopenia status based on the Asian Working Group for Sarcopenia 2014 guidelines. 267 of them had repeat measurements of their muscle health parameters and anthropometry and their mean rate of change computed over an observation period of between 9 to 36 months post-enrolment. Information of their clinical and socioeconomic status, physical activity levels and quality of life were assessed at both baseline and follow up using questionnaires, including Physical Activity Scale for the Elderly (PASE), International Physical Activity Questionnaire (IPAQ), World Health Organization Quality of Life (WHOQoL) respectively. Bivariate analysis and multivariable logistic regression were used to identify determinants associated with sarcopenia. **Results:** The study population had mean age of 67.6 years and were mostly females (53.2%), Chinese (82.4%) and married (75.5%). Their prevalence of sarcopenia increased from 29.6% to 33.7% over the observation period. Those with sarcopenia showed an average monthly decline in their muscle mass, handgrip strength and gait speed of 0.066kg/m^2, 0.027kg and 0.003m/s respectively. Using bivariate analysis, age, gender, marital status, education and employment status, health financial support, length of follow-up, BMI and physical health

domain score (WHOQoL) were associated with sarcopenia. PASE and IPAQ scores were not associated with sarcopenia. Low education (OR=2.96, 95%CI=1.4-6.27, p=0.005) and physical health (OR=0.83, 95%CI=0.7-0.98, p=0.026) were associated with sarcopenia after conducting multivariable logistic regression accounting for confounders. **Conclusion:** Periodical sarcopenia screening seems necessary due to its prevalence and observed deterioration in muscle strength, mass and performance, especially among those with low education level and poor physical health.

P3/3- DIAGNOSTIC INDICES FOR SARCOPENIA BASED ON SERUM CREATININE AND CYSTATIN C IN ADULTS: A SYSTEMATIC REVIEW AND META-ANALYSIS. Taiping Lin, Tingting Jiang, Xiaotao Huang, Jirong Yue *(Department of Geriatrics and National Clinical Research Center for Geriatrics, West China Hospital of Sichuan University, Chengdu, Sichuan, China; Department of Gastroenterology, Jiangyou 903 Hospital, Mianyang, Sichuan, China)*

Background: Sarcopenia is an important prognostic factor in people, but the identification of patients at risk remains challenging. Some new diagnostic indices for sarcopenia based on serum creatinine (Cr) and cystatin C (CysC), such as sarcopenia index [SI, serum creatinine × cystatin C-based glomerular filtration rate (GFR)], serum creatinine/cystatin C ratio (CCR) and other rare indices, are novel screening tools for sarcopenia. **Objectives:** To explore the diagnostic accuracy of the indices based on Cr and CysC for sarcopenia detection in adults in all available care settings. **Methods:** We searched MEDLINE, EMBASE, SCIE, and SCOPUS and selected relevant articles based on the predefined inclusion criteria from inception to 04 August 2022. Sensitivity, specificity, and their 95% confidence intervals (CIs) were pooled. Diagnostic accuracy was analyzed through summary receiver operating characteristic (SROC) curves. Subgroup analysis was performed on sex and different combination indicators (SI, CCR, and other indices) to explore the heterogeneity. A Deeks funnel plot was used to evaluate publication bias. **Results:** A total of 5235 observations (including cancer patients, hip fracture patients, type 2 diabetes patients, chronic kidney disease patients, and community-dwelling older people) from 16 studies were included in the analysis. The pooled estimates of sensitivity and specificity of the diagnostic indices based on serum Cr and CysC were 77.0% (95% CI: 68.0% - 84.0%) and 67.0% (95% CI: 59.0% - 74.0%), respectively. In addition, the area under the summary receiver operating characteristic curve (AUC) was 78.0% (95% CI: 74.0% - 81.0%). No obvious publication bias was found using the Deeks funnel plot (P = 0.41). The serum Cr and CysC achieved sensitivities and specificities of 77.0% and 74.0% in men and 79.0% and 63.0% in women, respectively. Subgroup analysis of SI, CCR, and other indices achieved sensitivities and specificities of 75.0% and 68.0%, 71.0% and 74.0%, 91.0% and 47.0%, respectively. **Conclusion:** The indices based on serum Cr and CysC showed good diagnostic accuracy for sarcopenia in the 16 available studies. These findings support its use in routine clinical practice in sarcopenia detection. **Key words:** Sarcopenia,serum creatinine, cystatin C, diagnostic, ssystematic review.

P3/4- PROFILING PHYSICAL ACTIVITY AND SARCOPENIA AMONG OLDER ADULTS ATTENDING A PHYSIOTHERAPY SERVICE DURING THE COVID-19 PANDEMIC: A MIXED METHODS STUDY. Avril Mc Tague(1,2), Louise Keating(2) *((1) Primary Care Physiotherapy Service, Community Healthcare Organisation (CHO), Dublin North City and County (DNCC), Health Service Executive (HSE), Dublin, Ireland; (2) School of Physiotherapy, Royal College of Surgeons in Ireland (RCSI) University of Medicine and Health Sciences, Dublin, Ireland)*

Background: During the COVID-19 pandemic, 26% of Irish people over 70 were inactive (1). Little is known about the impact of the pandemic on physical activity (PA) and sarcopenia levels among community-dwelling older adults attending a primary care physiotherapy service in Ireland. **Objectives:** This mixed-methods study aimed to profile PA and sarcopenia levels among older adults attending a primary care physiotherapy service during the pandemic and to explore their experiences of PA. **Methods:** Adults over 70 years of age attending a primary care physiotherapy service were invited to participate between September 2021 - January 2022. PA and levels of sarcopenia were captured using the International Physical Activity Questionnaire Short Form (IPAQ-SF) and the SARC-F. One-to-one semi-structured telephone interviews were conducted with a sample of the group and analysed using reflexive thematic analysis. The Irish College of General Practitioners granted ethical approval. **Results:** 59 participants (35 females) participated in the cross-sectional study (median age 79.3, IQR 12years). Ninety-one percent of participants (n=54) followed cocooning restrictions. Fifty-six percent (n=33) of participants had low PA levels (95%CI 43-69%), and 56% (n=33) scored 4 or more on the SARC-F (95%CI 43-69%), which is predictive of sarcopenia. There was a strong negative correlation between the SARC-F and the IPAQ-SF total PA (r(Rho)= -0.616, n=59, p<0.001). Ten participants (7 females) completed an interview (median age 75.4, IQR 5years). Four themes emerged; 1) a sudden change in PA levels, 2) the impact of cocooning measures on PA levels, 3) barriers to PA and 4) enablers of PA during the pandemic. Barriers to PA included reduced fitness and a lack of awareness of PA resources while family support and reducing COVID-19 restrictions were identified as enablers of PA. **Conclusion:** Low PA levels and high levels of sarcopenia were identified among older adults attending a primary care physiotherapy service. Participants were uncertain if they would return to their pre-pandemic PA levels due to slowness of movement and fear of COVID-19, presenting a public health challenge. **Reference:** 1. DeLooze, C. and McDowell, C. (2021) Chapter 6 physical activity, sedentary behaviour and mental health, Ireland: The Irish Longitudinal Study on Ageing.

P3/5- PREVENTIVE BEHAVIORS AGAINST A DECLINE IN PHYSICAL FITNESS DURING THE COVID-19 PANDEMIC: A QUALITATIVE STUDY OF COMMUNITY-DWELLING OLDER ADULTS IN JAPAN. Yumi Kimura(1), Hiroshi Akasaka(2), Toshihito Takahashi(3), Saori Yasumoto(1) *((1) Graduate School of Human Sciences, Osaka University, Suita, Osaka, Japan; (2) Department of Geriatric and General Medicine, Graduate School of Medicine, Osaka University, Suita, Osaka, Japan; (3) Department of Prosthodontics, Gerodontology, and Oral Rehabilitation, Graduate School of Dentistry, Osaka University, Suita, Osaka, Japan)*

Background: The benefits of physical exercise for preventing or improving frailty and sarcopenia in older adults had been studied, however, older adults faced the concern of declined in physical fitness due to an inactive lifestyle during the coronavirus disease 2019 (COVID-19) pandemic. **Objectives:** This study aimed to reveal the preventive behaviors taken by older adults who perceived a decline in physical fitness during COVID-19 and analyze the background factors which promoted such behaviors using a qualitative study design in 2020. **Methods:** The participants were recruited through the longitudinal cohort study of community-dwelling older adults in Japan (the SONIC study) who were aged 79–81 and had not been diagnosed with "major sarcopenia" in the previous survey of 2019 (n = 252). Among them, 94 participants perceived declined physical fitness during the pandemic and were randomly selected for a telephonic interview. In total, 21 participants were interviewed; however, 2 were excluded from the analysis due to the insufficient length of the interview. Finally, a sample of 19 participants (7 men and 12 women) were analyzed inductively by the three researchers carefully reviewed and confirmed the classification to ensure intercoder reliability. **Results:** The participants engaged in five types of preventive behaviors to counter declining physical fitness: "walking", "exercising at home", "improving daily diet", "maintaining a daily routine", and "taking a good rest". Four themes were extracted pertaining to backgrounds of such preventive behaviors: "feeling anxiety and mental pressure", "available networks with family and neighbors", "prior experiences of behaviors", and "access to information". Anxiety due to lifestyle changes during the pandemic was the primary reason for the behaviors. **Conclusion:** This study employed qualitative interviews to highlight the actual situation of health behaviors among the community-dwelling older adults during COVID-19. The result can be a useful guide for undertaking possible measures to prevent frailty during future pandemics.

P3/6- RISK FACTORS FOR PHYSICAL FRAILTY DURING ONE YEAR FOLLOWING HOSPITALISATION FOR COVID-19. Hamish J C McAuley(1), Rachael A Evans(1), Charlotte E Bolton(2), Christopher E Brightling(1), Paul L Greenhaff(2), William D-C Man(3), Sally J Singh(1), Louise V Wain(1), Janet Lord(4), Neil J Greening(1) *((1) The Institute of Lung Health, NIHR Biomedical Research Centre, University of Leicester, UK; (2) University of Nottingham, UK; (3) National Heart and Lung Institute, Imperial College London, UK; (4) University of Birmingham, UK)*

Background: Frailty is both a known risk factor for and a sequelae of acute hospitalisation. Given the scale of COVID-19 hospitalisations and the burden of prolonged symptoms in some survivors an understanding of the role of frailty may help to identify treatments and individuals who may benefit most from interventions. **Objectives:** We aim to describe the burden of Physical Frailty at five months and one year following discharge from hospital in a cohort of COVID-19 survivors as well as risk factors for persistent or new frailty during this period. **Methods:** The PHOSP-COVID Study if a prospective cohort study recruiting hospitalised COVID-19 survivors from 83 UK hospitals. Physical Frailty was assessed objectively using Fried's Frailty Phenotype (FFP) during research visits conducted at five months and one year following hospitalisation. Baseline demographics including age, sex, ethnicity, severity of acute illness (using WHO COVID-9 Progression Scale) and index of multiple deprivation were modelled using an ordinal regression analysis for an individual being robust, pre-frail or frail. **Results:** A total of 1,785 participants with paired five month and one-year FFP outcome measures were included. Mean (SD) age of participants was 58.8 (12.1) years, 1092 (61.2%) were male and 979 (54.8%) had 2 or more comorbidities. At one year 123 (6.9%) of participants were frail (3 or more FFP criteria) with 1046 (58.6%) being pre-frail (one or two FFP criteria) and 616 (34.5%) being robust (no FFP criteria), compared to 240 (13.4%), 1138 (63.8%) and 407 (22.8%) who were frail, pre-frail or robust respectively at five months. Risk factors for the presence of frailty or pre-frailty at both follow up time points were older age, female sex, a requirement for intubation or mechanical ventilation during acute hospitalisation and higher levels of multiple deprivation. **Conclusion:** A significant burden of frailty and pre-frailty persists to one year following hospitalisation for COVID-19 with improvement seen during this period. Our risk factor modelling suggests both the presence of pre-existing frailty as well as newly acquired frailty within this cohort.

P3/7- EFFECT OF SARCOPENIA, MALNUTRITION, AND FRAILTY ON THE NEED OF MECHANICAL VENTILATION IN OLDER INPATIENTS WITH COVID-19: A FEASIBILITY STUDY IN THE AGEBRU COHORT. Marie Claessens(1), Dorien De Meester(2), Florence Benoit(1), Murielle Surquin(1,*), Dolores Sanchez-Rodriguez(1,3,4,5,*) *((1) Geriatrics Department, Brugmann University Hospital, Université Libre de Bruxelles, Brussels, Belgium; (2) Geriatrics Department, Onze-Lieve-Vrouw ziekenhuis Aalst, Aalst, Belgium; (3) Réhabilitation Research Group, Institut Hospital del Mar d'Investigacions Mèdiques (IMIM), Barcelona, Catalonia, Spain; (4) Geriatrics Department, Hospital Del Mar, Hospital de L'Esperança, Centre Fòrum, Parc de Salut Mar, Barcelona, Catalonia, Spain; (5) WHO Collaborating Centre for Public Health Aspects of Musculo-Skeletal Health and Ageing, Division of Public Health, Epidemiology and Health Economics, University of Liège, Liège, Belgium; *Shared senior authorship)*

Background: Muscle and nutritional disorders, such as sarcopenia, malnutrition, frailty, and obesity at hospital admission play a crucial role in the clinical course and outcomes of hospitalized older people with COVD-19. However, evidence about their effect in clinical outcomes in this population remains unavailable. **Objectives:** To assess feasibility prior to a large study aimed at determining whether the presence of sarcopenia, malnutrition, and frailty at admission were associated with a higher risk of mechanical ventilation (MV) in older inpatients with COVID-19. **Methods:** The Ageing in Brussels (AgeBru) hospital-based cohort included consecutive patients >=60-year-old hospitalized due to COVID-19 (17/09/2020-16/02/2021). Exclusion criteria: Chronic obstructive pulmonary disease, hospital-acquired COVID-19, therapeutic limitation for MV, direct admission to intensive care, or inability to perform handgrip strength. Data were collected retrospectively from medical records. Sarcopenia (EWGSOP2, sarcopenia probable), malnutrition (Global Leadership Initiative on Malnutrition criteria), and frailty (Clinical Frailty Scale) were assessed at admission. Primary outcome: Need of MV. Secondary, determine feasibility by: 1)The TELOS: 5-items Technological, Economical, Legal, Operational, Schedule, >=3 indicates feasibility; 2) Achieving>=70% of the sample size. A sample size (n=230) based on sarcopenia and need of MV was calculated. **Results:** Of the 308 eligible patients, 160 met eligibility criteria, and 46 were included (73.4±9.3-year-old; 54.3% men). Seventeen patients (37%) had sarcopenia, 16 (34.8%) malnutrition, and 8 (17,4%) frailty at admission. Ten (21.7%) patients needed MV. From the 17 patients with sarcopenia, 4 needed MV. A TELOS feasibility-score=2 and a 21% of calculated sample size were achieved. **Conclusion:** Sarcopenia, malnutrition, and frailty were present; the main outcome (MV) was infrequent. The limited sample size (21%) indicated that the study was underpowered (unable to answer the research question) and the TELOS-feasibility score indicated unfeasibility. Feasibility assessment was helpful to assess challenges and guide actions about further studies.

P3/8- FEASIBILITY, ACCEPTABILITY, AND POTENTIAL EFFICACY OF A HYBRID CARDIOPULMONARY (TELE)REHABILITATION PROGRAM FOR PEOPLE WITH LONG-TERM COVID-19: THE TELECOVIE PILOT STUDY. Léo Crépin(1,2), Paul Farand(3), Félix-Antoine Vézina(3), Alain Piché(3), Pamela Tanguay(4), Patrick Prud'Homme(3), Nicole Marquis(4), Michel Tousignant(2,4), Guillaume Léonard(2,4), Livia P Carvallho(2,4) *((1) Faculté de Médecine et des Sciences de la Santé, Université de Sherbrooke, Sherbrooke, QC, Canada; (2) Centre de Recherche sur le Vieillissement du CIUSSS de l'Estrie-CHUS, Sherbrooke, QC, Canada; (3)Département de Médecine, Université de Sherbrooke, Sherbrooke, QC, Canada; (4) École de Réadaptation, Université de Sherbrooke, Sherbrooke, QC, Canada)*

Background: A Canadian study showed that 14.8% of adults would present symptoms characteristic of long COVID as per the WHO criteria. Some of the most common symptoms is fatigue (≈55% prevalence), followed by post-exertion malaise (PEM), reduced exercise tolerance and breathlessness, all known to directly affect people's functional capacity and quality of life. Accurate guidelines for post-COVID rehabilitation have not yet been established. Telerehabilitation (TR), a modality that has proved to be effective in various health conditions, represents an interesting adjunct form of therapy, especially when health resources are limited and/or when there are physical or environmental barriers to travel. Objectives: To assess the feasibility, acceptability, and potential impact of a hybrid TR cardiopulmonary rehabilitation program for patients with post-COVID-19 fatigue and reduced functional capacity. **Methods:** Non-hospitalized patients with functional limitations (2-4/4 Post-COVID Functional Scale), fatigue (≥4/9 Fatigue Severity Scale, FSS), ≥35y, ≤9 metabolic equivalent of task (MET) were eligible to this single-arm pilot trial. All patients performed a cardiorespiratory fitness test (VO2peak) and a pulmonary function test at baseline. The 12-week intervention consisted of 2 weekly in-person (75') and 1 telerehabilitation (45') sessions. Main pre-post outcomes included: FSS (primary), DSQ-PEM, and functional capacity estimated from the performance in the 6-min walk test (6MWT). Quality of life (EQ5D5L) was measured at baseline and 3 months later. Results: 7 participants (4W, 53±7y, BMI=34.0±4.0kg/m^2; time since acute disease=17.1±7.5 months) were recruited. A total of 662 were screened for eligibility from 4 ongoing Quebec cohort studies. Recruitment, retention, and adherence rate were 4.6%, 71.4% and 88.5%, respectively. Participants who completed the study (n=5) were satisfied with the program according to acceptability measures. Performance-based measures included (mean±SD pre/post): $6MWT_{distance}$ = 387.6±23.8/444.2±22.5m; $HRpeak_{6MWTpre/post}$ = 117±14/123±7 bpm and $HRpeak_{6MWTpre/post\ (\%pred)}$ = 68±8 %/72±5 %;$1STST_{rep}$ = 16.2±2.2/20.4±2.5; FSS_{score} = 6.6±0.4/4.5±0.7. All participants surpassed the clinically important improvement threshold (6MWT (≥14m): 18-113(min-max); 1STS (≥2rep): 3-6(minmax); FSS (≥0.45): 0.8-4.8(min-max). **Conclusion:** Our

findings suggest that our program seems feasible, acceptable from the patients' perspectives, and potentially effective to reduce fatigue and PEM and to improve functional capacity among patient severely affected by the post-COVID-19 condition.

P3/9- PERSONS WITH FRAILTY OR PREFRAILTY WERE DIAGNOSED WITH COVID LESS THAN THOSE WITH ROBUST. Yu Na Kim(1,2), Saleena Arif(2) *((1) Boston University School of Medicine, Boston, MA, USA; (2) DotHouse Health, Boston, MA, USA)*

Aim: Several studies found a significant association of frailty with COVID-19 severity to support the evidence for the application of frailty assessment. However, there were contradictory results in other studies. Plus, most studies looked at the impact of frailty on patients with COVID. We conducted a study earlier this year to evaluate the effect of COVID on frailty in community-dwelling patients, and it showed that persons with frailty or prefrailty were diagnosed with COVID less than those with robust. This study was an extension of our previous study. **Methods:** We recruited patients aged ≥ 50 with HTN and/or diabetes into a frailty clinic in a community health center. One hundred ninety-six patients (average age 69.9, men 100, women 96) were seen from 12/1/2021 to 11/30/2022. The study protocol included sociodemographic data, frailty screening according to the internationally validated FRAIL (fatigue, resistance, ambulation, illnesses, and loss of weight) scale, comorbidities, physical activity, cognitive status, and activities of daily living. **Result:** 103 and 56 patients met the criteria for prefrailty and frailty. 15.53% and 19.64% of the patients with frailty and prefrailty had been diagnosed with COVID. Thirty-seven patients were found robust, and 21.62% had been diagnosed with COVID. **Conclusion:** Our study results showed that those with frailty or prefrailty were diagnosed with COVID less than those with robust (RR 0.9409, P=0.5390). These were the same results as our previous study, contradicting our hypothesis that patients with frailty and prefrailty would be diagnosed with COVID more than others. We believed this was because, in this particular group, patients with frailty and prefrailty were more careful not to contract COVID. More studies with a larger cohort are needed to investigate this further.

P3/10- SARCOPENIA MIGHT BE A BETTER RISK INDICATOR OF COVID THAN THE FRAILTY SCALE. Yu Na Kim(1,2), Saleena Arif(2) *((1) Boston University School of Medicine, Boston, MA, USA; (2) DotHouse Health, Boston, MA, USA)*

Background: Studies showed a significant association between frailty with COVID-19. However, there were contradictory results in other studies. Our previous study showed persons with frailty or prefrailty were diagnosed with COVID less than those with robust. **Objectives:** We hypothesized that muscle mass and strength might be a better risk indicator of COVID than the frailty scale. **Methods:** In our community health center, we identified 196 patients(average age 69.9, men 100, women 96) seen at the frailty clinic from 12/1/2021 to 11/30/2022. The frailty clinic was a new specialty clinic we developed, where we assessed their functional frailty with gait speed, hand grip strength, Mini-Cog, frailty scale, and clinical frailty phenotype. The study protocol included these data from the frailty clinic, sociodemographic data, and BMI. We used hand grip strength to assess their muscle strength. 2 patients were excluded because a history of COVID was unavailable. **Results:** Among 194 patients, 110 had weak hand grip, and 36 had had COVID infections. We divided the patients into two groups based on hand grip strength. Among 110 (mean age 71.56, w 63, m 47) with weak hand grip, 22 patients had COVID infections. 14 out of 84(mean age 67.7, w 63, m 21) with normal or strong hand grip were contracted to COVID. **Conclusion:** These results showed that individuals with weak muscle strength were 20% likely to have COVID infections (RR 1.2, P=0.5560). These findings suggested that sarcopenia was a better indicator of the risk of COVID than the frailty scale. Further studies in a bigger cohort are needed to investigate this further.

P3/11- ASSOCIATION OF CHEST X-RAY SEVERITY SCORES WITH CLINICAL OUTCOMES OF COVID-L9 IN A TERTIARY HOSPITAL IN MAKATI FROM MARCH 2021 T0 MARCH 2022. Zyra Joie J. del Rosario, Mary Nel B. Bacalso *(Department of Radiology, Ospital ng Makati, Pembo Makati City Makati City Metro, Manila, Philippines)*

Background: Coronavirus disease 19 (COVID-19) disease has emerged as an unprecedented health care crisis in the Philippines. In an effort to alleviate the burden on tertiary care centers, multiple alternate care sites and vaccines have been administered since March 1, 2021. To efficiently manage patients, risk stratification as well as prediction of clinical outcomes was evaluated through the use of severity scoring systems. **Objectives:** This study determined the association between modified Chest X-ray Severity Scores and patient's clinical outcomes among COVID-confirmed in-patients at Ospital ng Makati. **Methods:** Patients that tested positive for COVID-19 who were hospitalized between the dates of March 2021 and March 2022 were included.The initial and highest threshold value chest x-rays of these patients taken during hospitalization were scored. Patients were grouped according to the threshold value of the CXR score, and demographic data and vaccination status. **Results:** A total of 1160 patients were included in this retrospective cross-sectional study. It was determined that finding a CXR score threshold value of 6 or above during hospitalization predicted poor clinical outcome (mortality, admission to ICU and intubation). **Conclusion:** Hence, chest radiography, through the use of chest severity scoring, can be considered as an additional tool for risk stratification of patients and decision regarding hospitalization and close monitoring of specific patients with COVID-19 pneumonia.

P3/12- IS NIRMATRELVIR/RITONAVIR COMBINATION EFFECTIVE AT PREVENTING HOSPITALIZATION AND ALL-CAUSE MORTALITY IN OLDER PATIENTS WITH FRAILTY AT RISK FOR SEVERE COVID 19 INFECTION? Jorge G. Ruiz(1,2), Fei Tang(1), Yongtao Guan(3), Victor Cevallos(1), Iriana S. Hammel(1,2) *((1) Geriatric Research, Education, and Clinical Center (GRECC), Miami VA, Miami, FL, USA; (2) University of Miami, Miller School of Medicine, Miami, FL, USA; (3) University of Miami, Department of Management Science, Miami, FL, USA)*

Background: Older adults with frailty are at the highest risk for COVID 19-related serious complications. Treating patients at risk for serious disease with Nirmatrelvir/Ritonavir is associated with reduced hospitalizations and all-cause mortality. However, little is known about the differential effects of the combination among older adults with frailty. The study aim was to determine the effectiveness of Nirmatrelvir/Ritonavir against COVID 19-related hospitalization and mortality according to frailty status. **Methods:** A retrospective cohort study using the VA COVID-19 Shared Data Resource of US Veterans ≥ 65 years, testing positive for SARS-CoV-2 January-August 2022, without prior positivity, and at least one risk factor for severe COVID-19. We excluded patients who were hospitalized or died within two days of positivity; had potential drug interactions, kidney disease, or took Molnupiravir. Frailty was determined by a 31-item VA Frailty Index generated from electronic health records as a proportion of morbidity, function, sensory loss, cognition/mood, and other variables. The categories were robust (FI<0.1), prefrail (FI≥0.10-<0.21), and frail (FI≥0.21). We performed multivariate logistic regression to assess the association between Nirmatrelvir/Ritonavir and 30-day hospitalization and all-cause mortality after controlling for socio-demographics, vaccination, chronic conditions, smoking, and an active patient in the past 24 months. **Results:** 52,548 COVID-19-positive veterans met inclusion criteria, mean age 74.4 years (SD=6.8), 49,549(94.3%) male, and 39,927(76.0%) white, 17,155(32.6%) robust, 18,597(35.4%) prefrail, and 16,796(32.0%) frail. Of the total, robust 2,104(312.3%); prefrail 2,850(15.3%); and frail 3,354(20.0%) respectively received Nirmatrelvir/Ritonavir. As compared with eligible controls, receiving Nirmatrelvir/Ritonavir was associated with lower hospitalizations only in the robust, adjusted OR:0.46 (95%CI: 0.25-0.76), but not overall, adjusted odds ratios of 0.95(95%CI:0.81-1.11) or prefrail, 0.92(95%CI:0.67-1.22), and frail, 1.02(95%CI:0.84-1.26). Nirmatrelvir/Ritonavir was indeed associated with lower overall all-cause mortality, adjusted OR: 0.18 (95%CI:0.11-0.26); as well as in the robust, prefrail and frail groups: adjusted ORs of 0.008(95%CI:0.001-0.26), 0.21(95%CI:0.09-0.40), 0.18(95%CI:0.10-0.31) respectively. **Conclusion:** Nirmatrelvir/Ritonavir was associated with lower hospitalizations only in older robust patients, but not overall or in the prefrail and frail. Nirmatrelvir/Ritonavir was associated with decreased all-cause mortality overall and regardless of frailty status. The results suggest that Nirmatrelvir/Ritonavir is an effective intervention in older adults with frailty.

P3/13- TRAJECTORIES OF HEALTH-RELATED QUALITY OF LIFE (QOL) IN ADULT COVID-19 SURVIVORS AND DEVELOPMENT OF A QOL RISK CALCULATOR: A LONGITUDINAL ANALYSIS OF THE BIOBANQUE QUÉBÉCOISE DE LA COVID-19 (BQC-19). Livia Pinheiro Carvalho(1,2), Pamela Tanguay(1), Guillaume Léonard(1,2), Alain Piché(3), Marie-France Dubois(2,4), Gina Bravo(2,4), Hélène Corriveau(1,2), Nicole Marquis(1), Michel Tousignant(1,2) *((1) École de Réadaptation, Université de Sherbrooke, Canada; (2) Centre de Recherche sur le Vieillissement de CIUSSS de l'Estrie-CHUS, Canada; (3) Département de Microbiologie et d'Infectiologie, Université de Sherbrooke, Canada; (4) Département des Sciences de la Santé Communautaire, Université de Sherbrooke, Canada)*

Background: A significant proportion of people will experience prolonged symptoms after an acute COVID-19 infection that will have an impact on functional capacity, on the ability to return to work and on quality of life. **Objectives:** The aims of this study were to: 1) identify the profile and risk factors of different groups having similar trajectories of health-related quality of life (HRQOL) among patients who had a COVID-19 diagnosis in Quebec, Canada and 2) to develop a "risk calculator" to identify people at high risk of HRQOL decline. **Methods:** This study is a retrospective analysis of an ongoing prospective pan provincial trial (BQC-19). HRQOL was measured by the EQ-5D-5L. Sociodemographic and medical baseline characteristics, disease severity, self-reported fatigue symptoms at onset of the disease and functional status (SARC-F, Clinical Frailty Scale-CFS) were analyzed. The latent class mixed model (LCMM) was used to identify trajectories of HRQOL. The sample was then randomly divided into: training (70%) and validation (30%) dataset. The calculator was developed using a logistic regression on our training sample from which we extracted the beta coefficients. The ROC curves were used to determine the optimal discrimination cut-off. The predicted values (decliner or non-decliner) and the trues value of the test sample were compared in terms of diagnostic parameters (sensitivity, specificity and accuracy). **Results:** 3346 participants. Thirteen percent of people diagnosed in the community experienced a decline in HRQOL after being infected (2 classes), while 28% of people who were hospitalized had a more significant decline over time (3 classes). Among all patients (16% with accentuated decline), acute infection severity (aOR:5.74,95%CI:4.01-8.21), age (aOR:2.19,95%CI:1.55-3.09), ICU stay (OR:2.18,95%CI:1.52-3.12) and baseline functional capacity (CFS OR:5.28,95%CI:4.52-6.16; SARC-F OR:3.80,95%CI:3.34-4.32) were identified as the most important contributors to HRQOL decline. Each unit increase in the SARC-F and CFS scores increase by 3-5 times the risk of decline. The optimal cutoff (with very good accuracy - 84%) of

risk of decline is >18%. **Conclusion:** Similar factors, although to different degrees, explain the decline in HRQOL among the general population, hospitalized or not for COVID-19. These can be useful in clinical settings for determining at-risk patients and implementing different approaches accordingly.

E-HEALTH, DIGITAL TOOL

P4/1- DEVELOPMENT AND VALIDATION OF A NEW ELECTRONIC TOOL FOR FRAILTY SCREENING: THE ELECTRONIC SCREENING INDEX OF FRAILTY (E-SIF). Mateu Serra-Prat, Àngel Labado, Mateu Cabré, Mònica Papiol, Emili Burdoy, Joan Marc Parera *(Consorci Sanitari del Maresme, Research Unit, Hospital of Mataró, carretera de Cirera s/n, Mataró Catalonia, Spain)*

Background: International clinical guidelines recommend frailty identification in aged populations, especially in the primary care setting. Doctor and nurse workloads and the lack of valid, reliable and acceptable screening tools are main obstacles in clinical practice. Electronic tools are of interest but the few existing ones present several limitations. **Objectives:** To develop and validate a new electronic tool (e-SIF) using routinely available electronic health data to automatically and massively identify frailty status in the general population aged ≥65 years. **Methods:** The development phase included three steps. A). Selection of the clinical conditions to be included in the e-SIF after a review of existing tools and evidence on biomarkers and risk factors for frailty. B) Establishment of ICD-10 codes, criteria and algorithms to define each clinical conditions. C) Electronic tool building with automatic data extraction (from primary care computerized medical history, pharmaceutical receipt database, and hospital information system), data transformation (which involved quality control, data cleaning, and pseudo-anonymization) and e-SIF score calculation at a given moment. The validation phase consisted in an observational and prospective (cohort) study using retrospective data from computerized primary care and hospital medical records with all 9,315 inhabitants corresponding to three primary care centres aged ≥65 years. Study variables included e-SIF scores (at 31 December 2017), and mortality, institutionalization, hospitalization, emergency visits, outpatient visits, primary care visits, and day hospital sessions between 31 December 2017 and 31 December 2019. **Results:** e-SIF is a 42-item tool that classifies subjects in to four categories (robust, pre-frail, frail and very frail). According to e-SIF, frailty prevalence increases with age and is slightly higher in women. The two-year adjusted hazard ratios for pre-frail, frail, and very frail subjects, respectively, were as follows: 2.23 (95% CI: 1.74-2.85) , 3.34 (2.44-4.56), and 6.49 (4.30-9.78) for mortality; 2.80 (2.39-3.27), 5.53 (4.59-6.65), and 9.14 (7.06-11.8) for hospitalization; and 1.02 (0.70-1.49), 1.93 (1.21-3.08), and 2.69 (1.34-5.40) for institutionalization. **Conclusion:** e-SIF automatically and instantaneously classifies frailty status in ≥65 year old population for whom computerized medical history is available. Study results strongly suggest that e-SIF is a valid instrument for classifying frailty status in the community.

P4/2- QUALITATIVE ASSESSMENT OF STANDING MOTION WITH KINECTTM IS A USEFUL ADDITIONAL DIAGNOSTIC MARKER FOR SARCOPENIA. Yosuke Osuka(1), Nobuo Takeshima(2), Narumi Kojima(1), Takeshi Kohama(3), Eiji Fujita(4), Masanobu Kusunoki(3), Aiko Imai(5), Yukiko Kitabayashi(6), William F. Brechue(7), Hiroyuki Sasai(1) *((1) Research Team for Promoting Independence and Mental Health, Tokyo Metropolitan Institute of Gerontology, Tokyo, Japan; (2) Department of Health and Sports Sciences, Asahi University, Gifu, Japan; (3) Faculty of Biology-Oriented Science and Technology, Kindai University, Wakayama, Japan; (4) Department of Rehabilitation, National Institute of Fitness and Sports in Kanoya, Kagoshima, Japan; (5) Department of Rehabilitation, Suzuka University of Medical Science, Suzuka, Mie, Japan; (6) Department of Nursing, Chukyo Gakuin University, Mizunami, Gifu, Japan; (7) Kirksville College of Osteopathic Medicine, A.T. Still University of Health Sciences, Kirksville, Missouri, USA)*

Background: The EWGSOP and AWGS recommend performing a five-repetition sit-to-stand test (5SST) before making a confirmatory diagnosis of sarcopenia. We previously reported that coronal plane angle (CPA: a line across the center of the shoulders and hips relative to the vertical axis) assessed by Microsoft KinectTM during standing motion from a chair provided significant added value in identifying frailty in older adults. Therefore, CPA may be a useful additional diagnostic marker for identifying sarcopenia when incorporated into the 5SST. **Objectives:** This study aimed to determine if the inclusion of CPA assessment alongside the 5SST improves the accuracy of sarcopenia diagnosis. **Methods:** This population-based, cross-sectional study included 575 older Japanese adults (median [interquartile range] age: 79 [77-82] years, women: 63.7%) without neurological disease and missing data. Sarcopenia was diagnosed using the EWGSOP and AWGS operational definitions. Muscle mass, muscular strength, and physical function were assessed by bioelectrical impedance analysis, handgrip strength, and 5SST, respectively. CPA was assessed using the KinectTM infrared depth sensor. A torso line was drawn through the shoulder- and hip-joint coordinate points. A vertical line was drawn through the vertebral column perpendicular to the floor. The maximal angle on time (t) during the performance between the vertical axis and torso line was defined as CPA. **Results:** Prevalence (n) of sarcopenia in EWGSOP and AWGS was 15.3% (n = 88) and 27.3% (n = 157), respectively. Two diagnostic models were constructed by applying binomial logistic regression models. Model 1 included 5SST time, and Model 2 added CPA/weight to Model 1. The area under the receiver operating characteristic curve (AUC) and 95% confidence interval (CI) of diagnostic Models 1 and 2 for EWGSOP criteria were 0.64 (0.57-0.71) and 0.71 (0.65-0.78), respectively. According to AWGS diagnostic criteria, AUC (95% CI) for Models 1 and 2 was 0.65 (0.60-0.70) and 0.72 (0.68-0.77), respectively. DeLong's method showed that the AUC of Model 2 was significantly greater than that of

Model 1 for both diagnostic criteria (P<0.01). **Conclusion:** Our results show that adding CPA/weight to the 5SST enhanced diagnostic performance, indicating that such quantitative assessment may be useful additional diagnostic biomarkers.

P4/4- eCARE PROJECT, DIGITAL SOLUTIONS FOR FRAILTY PREVENTION IN OLD ADULTS. Marta Cárdenas-Ramos(1), Katharina Schneegans(2), on behalf of the eCARE Consortium *((1) Sagrada Familia Primary Care Centre, Consorci Sanitari Integral, Barcelona, Spain; (2) Research assistance of the Innovation Center for Digital Medicine and Clinic for Surgical Intensive Care and Intermediate Care. Universitätsklinikum RWTH Aachen. Germany)*

Background: Ageing, frailty and unwanted loneliness are overlapping conditions and entail a risk of worsening health and loss of quality of life. Comprehensive, person-centred care and multidimensional approach seem to be the best way to address them to preserve function in ageing. However, care systems are currently not organized to provide integrated care, but rather to identify and treat acute diseases. The development of digital health technologies is empowering many older adults to maintain their functional independence, opening the door to explore a new care service supported by innovative solutions to improve their health, quality of life and health management. **Objectives:** eCare is a multicenter European project aiming to deliver disruptive digital solutions for the prevention and comprehensive management of frailty to encourage independent living, wellbeing and to relieve health and care services budget pressure, throughout the implementation of a Pre-Commercial Procurement (PCP) scheme. **Methods:** Research and development (R&D) project co-funded by the EU that takes the form of a Pre-Commercial Procurement (PCP). PCP allows public organizations to test new services, supported by digital solutions that are developed together with innovative companies in the sector in an open and competitive multi-stage process before they become commercially available. The project is divided into 3 phases (solution design, prototyping and field testing) that will result in at least 2 solutions in the final phase. The target group is frail older adults with an emphasis on those who feel lonely and/or isolated. The eCare project consortium consists of 8 European organizations from Italy, Germany, Portugal, and Spain committed to digital transformation in healthcare. **Results:** Following the evaluation of 8 innovative approaches that started the competitive process at the end of 2021, the 4 most promising ones have been selected and have moved on to phase 2 of prototype development, where we are currently. Final solutions should improve the outcomes of frailty in older adults (including physical and psychosocial factors) and the quality and efficiency of service delivery. **Conclusion:** The project will procure the development, testing and implementation of digital tools/services and communication concepts to facilitate the transition to integrated care models across health and social services.

P4/5- FEASIBILITY OF A DIGITAL FALL PREVENTION EXERCISE PROGRAM: STUDY DESIGN, RATIONALE AND PRELIMINARY FINDINGS. Nicole Bajdek(1,2), Nancy K. Latham(2), Mary Dishaw(1,2), Rodrigo J. Valderrabano(2), Robert Dixon(1,2), Alisha Williams(3), Iman Khaghani-Far(3), Joseph T. Gwin(3), Naomi Hachen(3), Kieran F. Reid(1,2) *((1) Laboratory of Exercise Physiology and Physical Performance, Boston Claude D. Pepper Older Americans Independence Center for Function Promoting Therapies, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA; (2) Research Program in Men's Health: Aging and Metabolism, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA; (3) Best Buy Health Inc., Boston, MA, USA)*

Background: Falls have serious consequences and are a leading cause of disability, institutionalization and mortality for older adults. Therefore, effective strategies to prevent falls are essential and may help older adults continue to live independently, particularly older persons who are at increased risk for falling. While exercise programs with in-person supervision reduce the occurrence and risk of falls, there are accessibility and adherence barriers associated with older adults' participation in such programs. Digitally delivered home-based exercise interventions utilizing wearable technology and mobile applications may be an alternative fall prevention strategy for many vulnerable older adults. **Objectives:** To evaluate the feasibility of a 12-week digitally delivered fall prevention exercise program for community-dwelling older adults with elevated fall risk. **Methods:** This single arm intervention trial will enroll up to 30 older adults who report ≥ 2 falls or ≥ 1 injurious fall in the past year, or a fear of falling. Participants will be recruited from the greater Boston area, MA, USA. The structured exercise program will be delivered via a tablet device and consists of moderate-intensity strength and balance exercises with an embedded educational component, and walking activity. A study interventionist will provide each participant with regular motivational coaching calls throughout the program. Several measures of program feasibility will be evaluated including exercise adherence and qualitative measures of intervention acceptability, appropriateness and technology acceptance. Pre-post changes in other outcomes including fall risk, mobility, cognition, frailty status and physical activity will also be examined. **Results:** To date, 39 participants have been prescreened for participation and 16 have attended for a screening visit. Of these, 15 participants (mean age: 75.7 ± 4.6 yrs; BMI: 27.7 ± 6.0 kg/m2; short physical performance battery score: 8.7 ± 2.3; 66.7% females) have been enrolled in the study. Overall program adherence rates are currently 82.6 ±16.9% with no serious adverse events occurring. **Conclusion:** If successful, this study will demonstrate the feasibility of a home-based digital fall prevention exercise program. Our anticipated findings may lead to additional studies to establish the efficacy of a highly scalable fall prevention strategy that could benefit large populations of at-risk older adults. This

study was supported by Best Buy Health, Inc. and the Boston Claude D. Pepper Older Americans Independence Center (1P30AG031679).

P4/6- REAL-LIFE DAILY MOBILITY PROFILE OF SARCOPENIC OLDER ADULTS: ACTIMETRY DATA FROM THE SARA-INT TRIAL. Cendrine Tourette(1), Carole Margalef(1), Gianluca Zia(3), Susanna Del Signore(3), Jean Mariani(1,2), Rob Van Maanen(1), Waly Dioh(1), Stanislas Veillet(1) *((1) Biophytis - Sorbonne Université, BC9, Paris, France; (2) Sorbonne Université, CNRS - Institut de Biologie Paris Seine (UMR B2A), Paris, France; (3) BlueCompanion ltd, London, United Kingdom/Sapienza University, Rome, Italy/4 Caretek s.r.l., Torino, Italy)*

Background: Sarcopenia is a progressive muscle disorder in which the onset increases with age and may lead to mobility disability. Gait speed is a known predictor of health poor outcomes, usually assessed in clinical trial settings. **Objectives:** SARA-INT (NCT03452488) study strives to develop a viable option to treat community dwelling older subjects suffering from sarcopenia and to reduce the risk of mobility disability. The objective is to characterize the daily activity of sarcopenic community-dwelling seniors and the efficacy of BIO101 treatment. **Methods:** 233 randomized participants were asked to wear a watch during the whole duration of their participation. The watch recorded anonymous raw data from its sensors and processed them. Every 10 minutes, it transmitted the processed information to its coupled base-station located in the patient's house via a short-range radio protocol. Data transfer between watch and base-station was encrypted and encoded using the "Idea" algorithm and transferred over a radio link, respecting personal data privacy. The base station forwards such information to the SARA DATA server using the M2M mobile network (IOT). Mobility data automatically recorded by the watch include the level (5 levels from very low physical activity to sustained physical activity) and other specific outcome measures (number of steps, distance walked). **Results:** Characterization of SARA-INT population in regard with their daily activity and walking routine will be presented. The correlation of activity data with clinical endpoints of interest will be shown, and clustering analysis for the determination of patients' profile will be discussed as well. **Conclusion:** Connected actimetry implemented in SARA-INT allows to gather relevant information about mobility patterns of elderly sarcopenia patients throughout the 6-month trial period without interfering with everyday activity. It allows characterization of sarcopenic patients complementary to the clinical assessments on site. Further analyses will be conducted on the evolution over time of the activity indicators and the impact of BIO101 treatment.

CLINICAL TRIALS AND THERAPEUTICS

P5/1- EXTRACORPOREAL SHOCKWAVE THERAPY FOR DEGENERATIVE ARTHRITIS OF KNEE–PILOT STUDY. Hea-Eun Yang, IJun Choi *(Department of Physical Medicine and Rehabilitation, Veterans Health Service Medical Center, Seoul, South Korea)*

Background: Extracorporeal shockwave therapy(ESWT) for knee osteoarthritis is proven to be a safe treatment in various researches. Although there are some investigations verifying pain relieving effect of ESWT for knee osteoarthritis, the research on objectivity for structural improvements is insufficient. **Objectives:** The aim of this study is to evaluate the mechanism of the treatment effect using clinical symptoms and ultrasound as objective measures. **Methods:** Eighteen subjects with knee osteoarthritis were enrolled. The patients were randomly allocated to an experimental group (n=9), receiving ESWT, and a control group (n=9) receiving sham ESWT. For ESWT, patients received the total energy of 0.05 mJ/mm^2 with 1000 pulses weekly for 3 weeks. Assessments were performed before the treatment, immediately after the last treatment and one month after the last treatment using the following measurements ; pain on a visual analog scale(VAS), Western Ontario and McMaster Universities Osteoarthritis Index(WOMAC), Lequense index, knee joint range of motion and ultrasonographic features(joint effusion height, articular cartilage thickness and doppler activity). **Results:** All patients completed three treatment sessions without any complication. Both group showed OA related symptom improvements as measure on the VAS, WOMAC score and Lequense index. The suprapatellar effusion showed significant difference between the experimental group and control group. The suprapatellar effusion height were 0.6±0.3, 0.4±0.2 and 0.3±0.2 at baseline, after the treatment and at one month follow up in experimental group and were 0.6±0.3, 0.7±.3 and 0.7±0.2 in control group respectively. There were improvements in knee flexion ROM and Doppler activity right after the last treatment session in experimental group, but the effect was not maintained at one month follow up. **Conclusion:** The therapeutic activity itself could improve OA related symptoms, but objective improvements were observed only after ESWT treatment. Suprapatellar effusion was decreased after ESWT and the effect was maintained after one month. Doppler activity was increased after ESWT and it was not maintained at one month follow up. Our results suggest that ESWT might be effective in reducing suprapatellar effusion as well as symptom improvement in mild knee OA.

P5/2- MEASURE OF HEALTH-RELATED QUALITY OF LIFE IN INTERVENTIONAL STUDIES AIMING AT THE MANAGEMENT OF SARCOPENIA: RESULTS FROM A SYSTEMATIC LITERATURE REVIEW. Charlotte Beaudart, Céline Demonceau, Jean-Yves Reginster, Olivier Bruyère *(WHO Collaborating Center for Public Health aspects of musculo-skeletal health and ageing, Division of Public Health, Epidemiology and Health Economics, University of Liège, Belgium)*

Background: Currently, there is a rapid development of therapeutic strategies aiming at the management of sarcopenia. So far, mixed exercise and physical activity with nutritional supplementation have been shown to be the most effective sarcopenia interventions to increase muscle mass or muscle strength of participants. However, complete assessment of the benefits of a therapeutic intervention should also provide evidence of an impact on patients' health-related quality of life (HRQoL). **Objective:** The purpose of this systematic literature review is to summarize the effects of sarcopenia-designed interventions on the HRQoL of sarcopenic participants. **Methods:** The electronic databases MEDLINE, Scopus, Allied and Complementary Medicine (AMED), EMB Review – ACP Journal Club, EBM Review- Cochrane Central of Register of Controlled Trials and APA PsychInfo were searched up to October 2022 interventional studies aiming at the management of sarcopenia reporting a HRQoL assessment. Study selection and data extraction were carried out by two independent researchers. Quality of individual studies was measured using the Cochrane Risk of Bias 2.0 tool. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed. **Results:** From 3,725 potential studies, eight randomized controlled trials were identified as reporting HRQoL data for sarcopenic participants. The interventions proposed within those eight studies were heterogeneous ; nutritional supplement (n=3), exercise intervention (n=2), combined exercise and nutrition (n=1) and pharmacological drugs (n=25). Sample sizes varied between 54 and 380 participants and time of interventions between 12 weeks and one year. None of the studies identified HRQoL as the primary outcome. Only one study used a specific HRQoL questionnaire (i.e. the SarQoL), whereas the other studies used the SF-12, SF-36 and EQ5D generic questionnaires. Even if most of those studies- at the exception of the two studies using an intervention with pharmacological therapies- showed an improvement of sarcopenia biomarkers, results in terms of HRQoL improvements were less convergent. Only three out of the eight interventional studies (37.5%) highlighted an improvement of HRQoL following the proposed interventions including the one using the specific SarQoL. No study presented a high risk of bias in any of the five domains of the RoB 2.0 tool. **Conclusion:** So far, a restricted number of interventional studies aiming at the management of sarcopenia provided a measurement of HRQoL as an outcome. Even if most of the proposed interventions tends to be beneficial to improve muscle parameters of patients, HRQoL improvement remain scarce. One of the explanation hypothesis could be that almost all of the included studies used a generic tool to assess HRQoL of participants. Specific instruments are more sensitive to change and therefore more appropriate to be used in interventional studies. One unique study used the specific SarQoL questionnaire and actually reported an improvement of HRQoL following the intervention.

P5/3- VIBRATION THERAPY AS AN INTERVENTION FOR ENHANCING TROCHANTERIC HIP FRACTURE HEALING IN ELDERLY PATIENTS: A RANDOMIZED DOUBLE-BLINDED, PLACEBO-CONTROLLED CLINICAL TRIAL. Ronald Man Yeung Wong(1), Yik Lok Chung(1), Hiu Wun Wong(1), Pui Yan Wong(1), Ning Tang(2), Chi Yin Tso(2), James Griffith(3), Raymond Wai Kit Ng(4), Simon Kwoon Ho Chow(1), Wing Hoi Cheung(1) *((1) Department of Orthopaedics & Traumatology, The Chinese University of Hong Kong, Hong Kong SAR, China; (2) Department of Orthopaedics & Traumatology, Prince of Wales Hospital, Hospital Authority, Hong Kong SAR, China; (3) Department of Imaging and Interventional Radiology, The Chinese University of Hong Kong, Hong Kong SAR, China; (4) Department of Orthopaedics Rehabilitation, Tai Po Hospital, Hospital Authority, Hong Kong SAR, China)*

Background: Hip fractures are a global concern and poses a huge socioeconomic burden. The treatment of osteoporotic fractures is a major challenge as bone quality is often poor, and pre-clinical studies have shown that healing is delayed. Failure to unite results in pain, weakness, reduced mobility and fixation failure. Therefore, the enhancement of osteoporotic fracture healing has become a major goal in modern fracture management. Low-magnitude high-frequency vibration (LMHFV) is a biophysical intervention that provides non-invasive, systemic mechanical stimulation. Our previous pre-clinical studies have shown that LMHFV accelerates osteoporotic fracture healing. **Objectives:** The objective of this study is to investigate the effect of LMHFV on accelerating trochanteric hip fracture healing and functional recovery. **Methods:** A randomized double-blinded placebo-controlled clinical trial was conducted. This study is planned to enrol 120 patients from our institute. Patients aged 65 years or older with an acute trochanteric fracture surgically fixed with a cephalomedullary nail would be recruited, and then randomized into either vibration or placebo group. The LMHFV group would undergo vibration therapy at 35Hz, 0.3g, 20 minutes/day, 5 days/week. The LMHFV duration had been changed to 2 weeks, and time-points of assessment of various outcomes are now baseline, 2, 6, 12 and 26 weeks. The primary outcome of the study is fracture healing. Assessments include clinical, radiography with X-ray and Computed Tomography (CT) and dynamic perfusion Magnetic Resonance Imaging (MRI), densitometry, and functional outcomes. **Results:** This is an ongoing study. Our preliminary results show that the average age of current recruited patients was 82.8 years old. 78.4% of the recruited patients were female gender. Currently, union of fracture was not shown to be significant between the LMHFV

therapy group and control group in terms of CT results at 6 weeks. There was an improvement in quadriceps muscle strength in the LMHFV group at 6 weeks. There was also a trend of improved handgrip strength in the vibration therapy group compared to control group at 6 weeks. **Conclusion:** With the ageing population and prevalence of osteoporosis, the enhancement of osteoporotic fracture healing and functional outcomes in hip fractures can have significant impact for the recovery of patients. This is an ongoing study and is not yet complete. The findings from this randomised controlled clinical study to investigate the use of LMHFV to enhance fracture healing and functional outcomes can potentially provide useful findings for future management with the non-invasive nature of LMHFV. **Acknowledgements:** The study is funded by the General Research Fund Early Career Scheme, HKSAR Research Grant Council (Ref: 24108519).

P5/4- FEASIBILITY AND EFFECTIVENESS OF THE DETECTION AND INTERVENTION BY A GERIATRIC CONSULTATION TEAM IN FRAIL INPATIENTS AT SEVERAL NON-GERIATRIC IN-HOSPITAL SETTINGS: RESULTS FROM THE FRAILCLINIC PROJECT. Marta Checa-López(1), Alba Costa-Grille(1,2), Alejandro Álvarez-Busto (3), Jose A Carnicero-Carreño(3,4), Alan Sinclair(5), Angelo Scuteri(6), Francesco Landi(7), Juan José Solano-Jaurrieta(8), Leocadio Rodríguez-Mañas(1,3) *((1) Servicio de Geriatría, Hospital Universitario de Getafe, Getafe, Spain; (2) Fundación para la Investigación e Innovación Biosanitaria de Atención Primaria (FIIBAP), Madrid, Spain; (3) Centro de Investigación Biomédica en Red sobre Fragilidad y Envejecimiento Saludable (CIBERFES), Instituto de Salud Carlos III, Madrid, Spain; (4) Fundación de Investigación Biomédica, Hospital Universitario de Getafe, Getafe, Spain; (5) Foundation for Diabetes Research in Older People, Diabetes Frail, Medici Medical Practice, Luton LU1 3UA, UK; School of Life & Health Sciences, Aston University, Birmingham, UK; (6) Department of Clinical and Experimental Medicine, University of Sassari, Sassari, Italy; (7) Department of Geriatrics, Neurosciences and Orthopedics, Catholic University of the Sacred Heart School of Medicine, Rome, Italy; (8) Instituto de Investigación Sanitaria del Principado de Asturias (ISPA) and Geriatric Service, Monte Naranco Hospital, Oviedo, Asturias, Spain)*

Background: Although frailty is one of the most challenging and prevalent condition in in-patients' older adults, low evidence exists on the detection and management of this condition in different in-hospital settings to provide fitted care plans for these patients. **Objective:** to evaluate the feasibility and effectiveness of the detection and intervention by a geriatric consultation team in frail inpatients at several non-geriatric in-hospital settings, to prevent mortality and functional decline (progression of frailty status and disability). **Methods:** data from the FRAILCLINIC (NCT02643069), a randomized controlled trial was used. Frail (according to the Frailty Phenotype and/or FRAIL scale) inpatients ≥75 years old admitted to non-geriatric settings (Emergency Room, Cardiology, and Surgery) in hospitals in Spain (2), Italy (2) and the United Kingdom (1). Control group (CG) received usual inpatient care and the intervention group (IG) added a comprehensive geriatric assessment and a coordinated intervention with primary and social care, rehabilitation and a discharge plan. The outcomes were to prevent functional decline (worsening ≥5 points in Barthel Index), mortality and worsening in disability (Lawton Index) at 3 months. We used multivariate logistic regression models adjusted by age, gender and Charlson Index. We used the intention-to-treat principle (ITT) and the per-protocol (PP) approaches if the geriatric team recommendations were followed. **Results:** a total of 821 (IG: 416; mean age 82.46±6.03 SD, 51.44% women; CG: 405; 83±4.91 SD, 52% women) were included. In the IG, geriatrician's team recommendations were followed by a 77.16%. The intervention showed a decrease in the risk of worsening the Barthel Index at 3 months after discharge [ITT: OR(95%CI) 0.72 (0.51-1.01); p 0.055; PP: OR(95CI): 0.67 (0.47-0.96); p 0.027], mortality [PP: OR(95%CI)= 0.29 (0.14-0.57); p-value <0.001]and in the risk of worsening in the Lawton Index [PP: OR(95%) 0.71 (0.50-1.00); p-value 0.047]. **Conclusion:** regarding frail inpatients, CGA along with an individualized care plan, administered by a geriatrician's team at hospital admission in high-risk settings, is a protective factor for worsening in the functional status (assessed by the Barthel Index score and the Lawton Index), and for mortality at 3 months of follow-up when the geriatrician care plan is followed. **Acknowledgments:** We would like to thank the participants, cohort members and team researcher members. **Statements and declarations:** The authors declare no competing interests. **Sources of funding:** The present work was funded by grants from the Spanish Ministry of Economy, Industry and Competitiveness, cofinanced by the FEDER Funds (ISCIII, PI20/00977) and CIBERFES (CB16/10/00464), and El Proyecto MITOFUN, Fundación Francisco Soria Melguizo and by the European Commission Directorate General for Health and Consumer Affairs (DG SANTE) – Third Health Programme

P5/5- CHRONIC ORAL ADMINISTRATION OF THE MTOR INHIBITOR RAPAMYCIN TO OLDER PEOPLE, IS SAFE, DOES NOT PERTURB WHITE BLOOD CELL COUNTS, AND DOES NOT LIMIT RESISTANCE EXERCISE-INDUCED MUSCLE STRENGTH GAINS. Eleanor J Jones, Mathew Piasecki, Yuxiao Guo, Bethan E Phillips, Ken Smith, Daniel J Wilkinson, Philip J Atherton *(Centre of Metabolism, Ageing and Physiology (COMAP), MRC-Versus Arthritis Centre for Musculoskeletal Ageing Research, National Institute for Health Research (NIHR) Nottingham Biomedical Research Centre, University of Nottingham, Derby, United Kingdom)*

Background: Sarcopenia results in loss of muscle mass and function. One contributor to this process is altered muscle protein turnover, regulated by the mechanistic target of rapamycin (mTOR) signalling pathway. Paradoxically, the mTOR pathway becomes hyper-active in older age leading to e.g., impaired responsiveness to nutrition and exercise

in addition to dysregulated autophagy. Drugs targeting this pathway may therefore have therapeutic potential. Supporting this, the mTOR inhibitor rapamycin enhances lifespan in pre-clinical models and attenuates healthspan declines in terms of age-related muscle loss. In humans the immune and muscle biology consequences of rapamycin administration are unknown. **Objectives:** We as such assessed the effects of 8-weeks rapamycin treatment in older people, focusing on: i) safety and blood biochemistry, ii) rapamycin's interaction with exercise-induced muscle growth. **Methods:** Eleven healthy males were randomised to take either a sub-clinical dose of Rapamune (Sirolimus 1mg daily; n=6, 61±6 y) or a matched placebo tablet orally (n=5, 66±7 y) for 8-weeks. Venous blood samples were obtained weekly to determine any health impacts (via blood biochemistry) and blood sirolimus concentrations via liquid chromatography-mass spectrometry (LC-MS-MS). Following a 2-week tablet adjustment period, progressive unilateral resistance exercise training (RET) was performed at 75% 1-repetition maximum (1-RM) 3-times per week for 6-weeks; 1-RM was determined prior to, and following the 6-week training period. Two-way ANOVAs were performed with significance of $P<0.05$. **Results:** Blood sirolimus concentrations in both groups were non-detectable at baseline but increased in those taking Rapamune to 3.27±1.98 ng/ml at 8-weeks. No side-effects were reported from Rapamune administration and blood immune readouts (white blood cell counts) remained within normal range (baseline vs. 8-weeks, Drug: 5.17±1.59x109/L vs 5.67±1.26x109/L; Placebo: 5.39±1.89x109/L vs 6.60±3.33x109/L). Muscle strength in the trained leg increased to an identical extent in both groups after 6-weeks of RET (time-effect $p<0.0001$; Drug:+25.3±11.4% Placebo:+26.0±11.0%). **Conclusion:** This ongoing clinical trial (NCT05414292) demonstrates low-dose Rapamune is bioavailable and safe. Contrary to the notion of mTOR dependent exercise-induced muscle growth, Rapamune did not limit strength gains to RET. We conclude, administration of this life/health-span promoting compound is safe in older humans, does not prevent strength gains, and shows no evidence of immunosuppression.

P5/6- EFFECTS OF A 6-WEEK TREADMILL TRAINING AUGMENTED BY VIRTUAL REALITY ON FRAILTY IN PEOPLE WITH MULTIPLE SCLEROSIS.

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Background: Up to two thirds of people living with multiple sclerosis (pwMS) meet objective diagnostic criteria for frailty. Frailty within MS is associated with adverse clinical outcomes such as falls, when controlled for age, gender, and disability levels. Consequently, there is a critical need to identify strategies to counteract frailty in this clinical population. Since MS may affect both motor and cognitive function, cognitive-motor rehabilitation is a potentially viable strategy to reduce frailty in pwMS. **Objectives:** To examine the effects of a cognitive-motor rehabilitation intervention consisting of treadmill training augmented by virtual reality compared to treadmill training alone, on frailty in pwMS. **Methods:** Fifty-three people with relapsing-remitting MS [age=50.8 years (SD=9.2); 77.4% female; expanded disability status scale (EDSS) range=2.0-6.0] living in the United States were randomized to treadmill training augmented by virtual reality (n=25) or to an active control group consisting of treadmill training alone (n=28). Both groups trained three times per week for six weeks. Frailty was evaluated through the deficit accumulation model before and after the intervention using standard validated procedures. A 40-item frailty index was taken as the main study outcome. **Results:** Forty-five participants, 23 in the experimental group and 22 in the control group, completed the intervention and the pre- and post-training frailty assessments. Per-protocol repeated measures ANOVAs revealed that frailty index scores improved in both groups (time effect: $p<0.001$, $\eta2=0.262$). The frailty index decreased from 0.29 ± 0.13 to 0.27 ± 0.12 in the treadmill training alone group, and from 0.31 ± 0.15 to 0.26 ± 0.15 in the treadmill training augmented by virtual reality group. However, group by time interactions were not significant ($p=0.119$, $\eta2=0.055$). **Conclusion:** The current study provided initial evidence that

treadmill training with or without virtual reality may be a viable strategy to reduce frailty in pwMS. Interestingly, treadmill training augmented by virtual reality tended to have a greater effect in terms of frailty reduction (Δ~0.05) compared to treadmill training alone (Δ~0.02) as indicated by a clinically meaningful change, defined as a reduction greater than 0.03 in frailty index score.

P5/7- HOME-BASED REHABILITATION AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT: A PILOT RANDOMIZED CONTROLLED TRIAL. Sandra M. Shi, Faith-Anne Rapley, Heather Margulis, Kimberly Guibone, Edward Percy, Tsuyoshi Kaneko, Dae Hyun Kim *(Harvard Medical School, Boston, USA)*

Background: Despite the survival and symptomatic benefits of transcatheter aortic valve replacement (TAVR) for treatment of symptomatic aortic stenosis, some patients may have delayed recovery. Home-based rehabilitation may improve functional recovery after TAVR. **Objective:** To evaluate the effectiveness of home-based exercise combined with cognitive behavioral interventions (CBI), home-based exercise alone, and educational intervention on functional recovery over 8 weeks after TAVR. **Methods:** A total of 51 patients (mean age 84, female 37%) who were discharged home after TAVR were randomized to home-based exercise with CBI (n=18), home-based exercise alone (n=15), and educational intervention (n=18). Primary outcome was disability score (the number of 21 daily activities and physical tasks that one requires another person's help) over 8 weeks. Secondary outcomes included short physical performance battery (SPPB; range 0-12) score. **Results:** The disability score was significantly lower in the home-based exercise with and without CBI compared with educational intervention at 8 weeks (2.6 [0.3] vs 4.5 [0.5] p=0.042). The corresponding mean SPPB score (SE) was 9.5 (0.6) vs 6.5 (0.8) at 8 weeks (p=0.003), respectively. There was no significant difference between home-based exercise with CBI and without CBI. **Conclusion:** Home-based rehabilitation may facilitate functional recovery for older adults who are discharged home after TAVR.

P5/8- HOME-BASED EXERCISE PROGRAM WITH MEAL DELIVERY MAY IMPROVE FRAILTY IN HOMEBOUND OLDER ADULTS. Jessica L. Lee(1), Louise D. McCullough(2), Holly M. Holmes(1) *((1) Joan and Stanford Alexander Division of Geriatric and Palliative Medicine, The University of Texas Health Science Center at Houston, Houston, TX, USA; (2) Department of Neurology, The University of Texas Health Science Center at Houston, Houston, TX, USA)*

Background: The United Nations projects adults aged 60 and older will reach 2.1 billion by 2050. With this trend, there will be an increase in older adults who are homebound, leading to more frailty with increased healthcare utilization and institutionalization. Improvements in frailty and homebound status may occur through appropriate nutrition and increased physical activity. **Objectives:** Our pilot study aims to evaluate the effects of a home-based exercise program, administered through Meals on Wheels (MOW), on frailty status in homebound older adults. **Methods:** Homebound participants age 60 and older were recruited from a home-based primary care service and our local MOW organization. All participants received an enhanced (2 meals a day) home meal delivery for 12 weeks and half were randomized to the exercise intervention. Those in the exercise group received an exercise kit with 2 1-lb weights, 2 tennis balls, and a towel and were given a set of 3 low-impact exercises every week with their meal delivery. Physical frailty phenotype measures of weight loss, exhaustion, physical activity, gait speed, and grip strength were taken at baseline and 12 weeks. **Results:** Currently we have 20 participants who have completed the study. Their average age is 74±10 years, with 65% women and 35% men, and 15% Hispanics, 55% African Americans, and 30% Caucasians. Preliminary analysis was conducted on physical frailty phenotype status and overall scores, grip strength, and gait speed. None were statistically significant but frailty status in the control group went from 33% frail and 67% prefrail to 25% frail and 75% prefrail after 12 weeks. While frailty status in the exercise group went from 18% frail and 82% prefrail to 100% prefrail after 12 weeks of exercise. **Conclusion:** As we continue to enroll participants, we are encouraged that a simple home-based exercise program with meal delivery appears to be a safe and effective way to improve frailty in homebound older adults. Success with this exercise program delivered by nationally available MOW could lead to a large-scale, sustainable intervention for improving resiliency in homebound older adults.

OSTEOPOROSIS & FRAILTY

P6/1- DETERMINATION OF THE DIAGNOSTIC ACCURACY OF MAGNETIC RESONANCE IMAGING (MRI) DIFFUSION SEQUENCES IN DETECTING LUMBAR OSTEOPOROSIS WITH DUAL ENERGY X-RAY ABSORPTIOMETRY (DXA) AS A REFERENCE STANDARD: A SYSTEMATIC REVIEW AND META-ANALYSIS. Irene S. Bandong(1), Seth Gabriel F. Estanislao(2), Irish Johanna S. Isip(3) *((1) St Lukes Medical Center Quezon City, Institute of Radiology and Department of Nuclear Medicine, Marikina City Metro Manila, Philippines; (2) St Lukes Medical Center Quezon City, Institute of Radiology, Marikina City Metro Manila, Philippines; (3) St Lukes Medical Center Quezon City, Institute of Radiology Department of Nuclear Medicine, Marikina City Metro Manila, Philippines)*

Background: Osteoporosis (OP), the most common metabolic bone disorder, is a systemic disease characterized by diffuse decrease in bone mineral density and microarchitecture leading to increased bone fragility and ultimately increased susceptibility to fractures. It has various etiologies and has varying observable effects depending on the patient age group including sex hormone related bone loss, decreased

production of growth hormone (GH) by the pituitary gland, inflammatory etiologies that promote bone, medications, and endocrine disorders. It is primarily detected via dual energy X-ray absorptiometry, however recent advances in MRI technology have introduced the capability of diffusion sequences to detect osteoporosis. This meta-analysis aims to review trials that determined the feasibility of MRI to detect osteoporosis. **Methodology:** We used online libraries such as PubMed to search for studies published in the last decade. Data extraction was done, construction of 2x2 tables of test performance which determined the sensitivity, specificity, PPV, NPV, positive and negative likelihood ratio and diagnostic odds ratio following a confidence interval of 95% was done. Pooled estimates of sensitivity, specificity, and diagnostic odds ratio with 95% CI were calculated. **Results:** Review of citations resulted in a pooled sensitivity of 68% (95% CI: 0.557-0.801); pooled specificity of 92% (95% CI: 0.577-0914); pooled positive likelihood ratio of 6.116 (95% CI: 1.537-24.340); pooled negative likelihood ratio of 0.354 (95% CI: 0.242-0.518) and pooled diagnostic odds ratio of 17.283 (95% CI: 3.236-92.298). Overall significance involving the specificity ($p = 0.012$), positive likelihood ratio ($p = 0.008$), and diagnostic odds ratio ($p = 0.038$) were obtained. **Conclusion:** There was significant evidence to suggest a strong positive correlation of MRI diffusion sequences with DXA in the detection and diagnosis of osteoporosis. **Key words:** osteoporosis, magnetic resonance imaging, bone mineral densitometry, diffusion weighted imaging.

P6/3- INCREASED SATURATED-TO-UNSATURATED FATTY ACID RATIO IN THE BONE MARROW OF GLUCOCORTICOID-INDUCED OSTEOPOROSIS MOUSE MODEL THROUGH MODULATING SCD1 EXPRESSION. Sung Hye Kong(1,2), Jae-Yeon Yang(3), Ji Yeon Lee(3), Sang Wan Kim(1,4) *((1) Department of Internal Medicine, Seoul National University College of Medicine, Seoul, Republic of Korea; (2) Division of Endocrinology and Metabolism, Seoul National University Bundang Hospital, Seongnam, Republic of Korea; (3) Department of Research and Experiment, Biomedical Research Institute, Seoul National University Hospital, Seoul, Republic of Korea; (4) Division of Endocrinology and Metabolism, Boramae Medical Center, Seoul, Republic of Korea)*

Background: Glucocorticoid-induced osteoporosis (GIOP), a common cause of secondary osteoporosis, is characterized by bone loss and increased bone marrow adipose tissue (BMAT). However, little is known about BMAT composition of GIOP. **Objectives:** We aimed to analyze the composition of BMAT in the GIOP mouse model and evaluate the effect of parathyroid hormone (PTH) treatment on BMAT composition. **Methods:** C57BL/6 J male mice (10 weeks of age) were divided into 4 groups: (1) control: saline; (2) DEX: dexamethasone (5 mg/kg); (3) PTH: human PTH (80 μg/kg); (4) DEX+PTH groups for 8 weeks (n=6/group). The bone phenotype analysis including microCT, histology and serum P1NP, lipidomics, and RT-PCR of BMAT was performed. **Results:** Cortical bone volume and thickness of the femur were decreased in DEX, increased in PTH, and similar in DEX+PTH compared to control. P1NP level was also decreased in DEX, increased in PTH, and partially recovered in DEX+PTH compared to control. In lipidomics analysis, total free fatty acids (FFA) were decreased in DEX compared to the control. Among FFA, saturated fatty acids (SFA) were increased, while mono-unsaturated (MUFA) and poly-unsaturated fatty acids (PUFA) were decreased in DEX than in control ($p<0.001$). The ratio of saturated-to-unsaturated FFA ratio (SFA/(MUFA+PUFA)) were 0.345, 1.138, 0.281, and 0.327 in the control, DEX, PTH, and DEX+PTH, respectively. The key enzyme for fatty acid unsaturation, stearoyl-CoA desaturase-1 (SCD1) activity was significantly decreased in DEX, which was recovered in DEX+PTH (0.27, 0.08, 0.49, 0.45 in control, DEX, PTH, and DEX+PTH groups, respectively). In primary bone marrow adipocyte culture, expression level of SCD1was decreased after DEX treatment but increased after PTH and DEX+PTH treatment. **Conclusion:** In summary, saturated-to-unsaturated fatty acid ratio was decreased in the GIOP model, partially increased after PTH treatment. As a key enzyme, SCD1 activity was diminished in GIOP models, which might be recovered by PTH treatment.

P6/4- IMPACT OF ZOLEDRONIC ACID UPON MARKERS OF MUSCLE PROTEIN SYNTHESIS AND BREAKDOWN IN C2C12 SKELETAL MUSCLE CELLS. Shelby E Bollen(1), Joseph J Bass(1), Luke Slade(2), Daniel J Wilkinson(1), Kenneth Smith(1), Martin Hewison(3), Timothy Etheridge(2), Philip J Atherton(1) *((1) MRC/ARUK Centre for Musculoskeletal Ageing Research and National Institute for Health Research (NIHR), Nottingham Biomedical Research Centre (BRC), School of Medicine, University of Nottingham, UK; (2) Sport and Health Sciences, University of Exeter, St Luke's Campus, Exeter, UK; (3) Metabolism and Systems Research, University of Birmingham, Birmingham, UK)*

Background: Bisphosphonates represent a broad drug class commonly used to improve bone density and reduce fracture risk and incidence in osteoporosis. Several clinical trials have reported bisphosphonates (e.g., zoledronic acid (ZA)) exerting positive effects upon skeletal muscle, e.g., improvements in grip force and muscle mass, raising the question of whether bisphosphonates can have direct influences upon skeletal muscle. Currently, there is an absence of in vitro studies exploring these extra-skeletal effects of bisphosphonates, particularly their ability to rescue skeletal muscle from common catabolic scenarios (e.g. the use of steroids or inflammation). **Objectives:** Here, we aimed to investigate whether ZA can rescue skeletal muscle from catabolism by measuring markers of muscle protein breakdown and synthesis in C2C12 skeletal muscle cells following atrophic stimuli. **Methods:** Firstly, C2C12 myotubes at day 3 post-differentiation were treated with varying doses of ZA (250μM, 100μM, 10μM, 1μM, and 100nM) and collected after 48 hours. Additionally, 1μM or 100nM ZA was added to C2C12 myotubes at day 4 post-differentiation along with 0.1μg/ml dexamethasone or

lipopolysaccharide (LPS) before collection 24 hours later. Methyl[D3]-13C-methionine was utilised as a measurement of muscle protein synthesis (MPS) and several markers of both MPS and muscle protein breakdown (MPB) were investigated via western blotting. **Results:** Higher doses of ZA (250μM-10μM) significantly impacted cell viability with reductions in myotube diameter, alkaline soluble protein (ALP; P = <0.0001) and RNA content (P = <0.0001). Treatment of cells with dexamethasone induced a significant decrease in MPS (P = 0.0076), but co-treatment with 1μM or 100nM ZA was not sufficient to rescue from this reduction in MPS. p-Akt and p-mTOR significantly increased following co-treatment with 100nM ZA and dexamethasone compared to dexamethasone only (P = 0.0260 & 0.034, respectively). 1μM ZA paired with LPS also induced a rise in p-mTOR in comparison to LPS alone (P = 0.0331) but no differences were seen following treatment with 100nM ZA and LPS. **Conclusion:** All together, these observations suggest that ZA couldn't protect nor rescue from the atrophic effects of dexamethasone or LPS. Future work should focus on attempting to further understand the extra-skeletal effects of bisphosphonates, particularly in skeletal muscle.

P6/5- BONE MINERAL DENSITY, FREQUENCY OF FRACTURES, AND RISK OF FALLS IN POSTMENOPAUSAL WOMEN AT HIGH RISK OF SARCOPENIA. Maryna Bystrytska, Nataliia Grygorieva, Anna Musiienko, Nataliia Zaverukha *(D. F. Chebotarev State Institute of Gerontology NAMS of Ukraine, Kyiv, Ukraine)*

Background: The aging of the population leads to an increase in the prevalence of age-related diseases. The list of pathologies with a high impact on life quality and duration includes fragility fractures. The main predictors of fractures are low bone mineral density (BMD) and a high risk of falls, which can be associated with sarcopenia. **Objectives:** The aim of the study was to assess BMD, the risk of falls, and the frequency of osteoporotic fractures depending on the risk of sarcopenia in women over 50 years of age. **Methods:** The study included 293 postmenopausal women aged 50 to 89 years (mean age 71.3 ± 6.8 years). The females were divided into two groups depending on the presence of high risk of sarcopenia (according to the SARC-F questionnaire: < or ≥4 units). The risk of falls was measured by Desmond Fall Risk Questionnaire. Skeletal muscle strength was assessed using a handspring dynamometer and chair stand test. BMD was determined using dual-energy X-ray absorptiometry. **Results:** High risk of sarcopenia (≥4 SARC-F) was registered in 153 women (mean age 71.5 ± 8.4 years), and low risk – 140 females (average age 71.1 ± 4.5 years). The subjects of both groups did not significantly differ in age (p = 0.59), weight (p = 0.69), and body mass index (p = 0.11). The SARC-F score in women with a high risk of sarcopenia was 4.0 [4.0–5.0] and in those with low risk – 1.0 [0–2.0] units. In persons with a high risk of sarcopenia, the muscle strength of the dominant and non-dominant hand was significantly lower (16.0 ± 6.4 and 20.2 ± 6.1 kg; 13.7 ± 5.8 and 17.3 ± 5 .6 kg; p < 0.0001 for both). They also needed more time to complete the chair stand test (19.2 ± 17.7 vs. 15.9 ± 5.9 s; p < 0.04). Those with a high risk of sarcopenia also had a higher risk of falls – 8.0 [5.0–10.0] vs. 4.0 [2.0–5.0] units in women at low risk (Z = 7.6; p < 0.0001). BMD in the two groups did not differ significantly. However, in females with a high risk of sarcopenia, the rate of fragility fracture was significantly higher – 61.4 % vs. 45.0 % in women with a low risk of sarcopenia (p = 0.05). **Conclusion:** Patients at high risk of sarcopenia have lower skeletal muscle strength, a higher risk of falls, and despite no differences in BMD scores, a higher frequency of fractures. Thus, a high risk of sarcopenia can be assumed as a predictor of osteoporotic fractures independent of BMD.

P6/6- OSTEOPOROSIS PREDICTS PHYSICAL FRAILTY INDEPENDENTLY OF SARCOPENIA. Cecilia Albala, Rodrigo Saguez, Carlos Marquez, Barbara Angel, Moises Sandoval, Felipe Salech *(Universidad de Chile, Santiago de Chile, Chile)*

Background: The adverse consequences on health of frailty, make it early diagnostic very important. On the other hand, osteoporosis, in addition to its high risk of falls and fractures, poses a high risk of disability and dependency. Considering the consequences of both pathologies, and the association of both with sarcopenia, the risk of frailty in people with osteoporosis, independently of sarcopenia has been little studied. **Objective:** To study the association on osteoporosis with frailty and to determine if osteoporosis is an independent risk factor for frailty. **Methods:** Cohort study in 732 people ≥60 years (66.8%women, mean age 66.6y±5.2) from the Alexandros cohort, designed to study disability associated with obesity in community-dwelling people 60y and older living in Santiago/Chile. The frailty phenotype was defined as having ≥3 from the 5 following criteria: weak handgrip dynamometry, unintentional weight loss, fatigue/exhaustion, five chair-stands/slow walking speed and low physical activity. WHO standards for Bone Mineral Density (BMD) classified them in normal, osteopenia and osteoporosis. Nutritional state was determined by WHO standards of BMI. The participants were followed from 5 to 15 years to determine the incidence of frailty according to osteoporosis. **Results:** At baseline we found a prevalence of osteoporosis 23%, higher in women (29.2 vs.10.3%,p<0.01) and a prevalence of frailty of 9.0% (women 10.4%,men 6.2%,p<0.05).The crude OR for the association of osteoporosis with frailty was 1.92 95%CI:1.07-3.38, p=0.016. After excluding people with frailty at baseline we were able to follow 326 people, from which 77 developed frailty. After a mean follow-up of 12y±4.2 the risk of frailty was higher in osteoporotic than in non-osteoporotic (39.5% vs 21.2%,p=0.008) and the crude Risk Ratio for frailty in osteoporotic people was RR=1.86, 95%CI:1.21-2.87,p<0.01) When sex, age, sarcopenia and BMI were included in the regression analysis, the adjusted RR for frailty in osteoporotic was higher RR=2.60;95%CI:1.02-6.6,p=0.044). **Conclusion:** Considering the severe consequences of frailty over health, the high burden of Osteoporosis, its high frequency in women,

and the strength of the association between both conditions, the screening for frailty is highly recommended In older people with Osteoporosis

P6/7- BONE QUALITY INDICES AS TRABECULAR BONE SCORE AND PHALANGEAL QUANTITATIVE ULTRASOUND MEASUREMENTS ARE ASSOCIATED WITH MUSCLE STRENGTH AND FRACTURE RISK IN HEMODIALYSIS PATIENTS. Antonino Catalano(1,2), Agostino Gaudio(3), Federica Bellone(1,2), Giorgio Basile(1,2), Mattia Miriam La Fauci(1), Guido Gembillo(2), Giovanni Squadrito(2), Francesco Corica(1,2), Domenico Santoro(2), Nunziata Morabito(1,2) *((1) Geriatrics Unit, University Hospital of Messina, Messina, Italy; (2) Department of Clinical and Experimental Medicine, University of Messina, Messina, Italy; (3) Department of Clinical and Experimental Medicine, University of Catania, Catania, Italy)*

Background: Bone mineral density (BMD) is a major determinant of bone strength, although its role as a predictor of fracture in chronic kidney disease (CKD) and hemodialysis is still debated. **Objectives:** The aim of this study was to investigate surrogates of bone quality and their associations with muscle strength and fracture risk in hemodialysis. **Methods:** Multiple clinical risk factors for fractures and an estimated 10-year probability of fracture, BMD at the lumbar spine and femur, trabecular bone score (TBS), X-ray vertebral morphometry, phalangeal quantitative bone ultrasound (QUS), tibial pulse-echo ultrasonography (PEUS) and handgrip strength in a group of hemodialysis patients treated with acetate-free biofiltration (AFB) or bicarbonate hemodialysis were evaluated. **Results:** Bone ultrasound measurements at both phalangeal and tibial levels were significantly associated with lumbar and femoral DXA values. Handgrip strength was significantly associated with 10-year fracture probability ($r = -0.57$, $p < 0.001$ for major fractures and $r = -0.53$, $p < 0.001$ for hip fractures, respectively), BMD values of the femoral neck, total femur, and L1-L4 ($r = 0.47$, $p = 0.04$; $r = 0.5$, $p = 0.5$; $r = 0.5$; $r = 0.5$; $r = 0.5$). 47, $p = 0.04$; $r = 0.48$, $p = 0.02$; $r = 0.58$, $p = 0.007$, respectively), with TBS at the lumbar spine ($r = 0.71$, $p < 0.001$) and with the phalangeal QUS measurement of AD-SoS ($r = 0.369$, $p = 0.023$). In the hemodialysis group, 10 participants (24.3%) reported at least one morphometric vertebral fracture (Vfx); in contrast, only six participants (15%) showed Vfx in the control group. In the hemodialysis group, participants with Vfx compared with those without Vfx reported significantly different TBS, bone transmission time (BTT), cortical thickness and hand grip strength ($p < 0.05$). At multiple regression analysis, by identifying the 10-year risk of major fracture as the dependent variable, after adjusting for age, BMI, time since dialysis, AD-SoS, cortical bone thickness and handgrip strength, only BTT ($\beta = -15.21$, SE = 5.91, $p = 0.02$) and TBS ($\beta = -54.69$, SE = 21.88, $p = 0.02$) were found to be independently associated with fracture risk. **Conclusion:** In conclusion, hemodialysis patients showed higher fracture risk and lower values of surrogate indices of bone strength such as TBS and QUS parameters. In this cohort, handgrip strength measurement appeared to be a useful tool to identify those patients at higher risk of fracture.

GEROSCIENCE: SENESCENT CELLS

P7/1- SYSTEMIC SENOLYSIS USING A GENETIC MEDICINE IMPROVES HEALTHSPAN IN NATURALLY AGED MICE. Henry Garcia(1), Douglas Brown(2), Prakash Bhandari(3), Marco Malavolta(4), Arun Raturi(3), Matthew Scholz(1), John D. Lewis(1,2,3) *((1) Oisín Biotechnologies, Inc. Seattle, Washington, USA; (2) Department of Oncology, University of Alberta, Edmonton, Canada; (3) Entos Pharmaceuticals, Edmonton, Alberta, Canada; (4) Istituto Nazionale Riposo e Cura Anziani, INRCA, Ancona, Italy)*

Background: Senescence, a cell fate characterized by quiescence and secretion of pro-inflammatory cytokines, is a hallmark of aging that is implicated in a variety of age-related pathologies. Therapeutic approaches to eliminate senescent cells (SCs) in vivo using transgenic mouse models have demonstrated significant improvements in healthspan and amelioration of age-related degeneration, including decline of physical function such as sarcopenia and frailty. Since this approach requires that the organism be genetically engineered from the embryo, there is active development by multiple groups on senolytic drugs. These are a class of therapeutics designed to recapitulate this amelioration of age-related disease and increased healthspan for the clinic. The first generation of senolytics have been repurposed chemotherapies and flavonoids with off-target effects and tolerability limitations. Thus, next generation interventions require better specificity and tolerability Here, we describe a clinically viable gene therapy consisting of a suicide gene under a senescent cell promoter delivered in vivo with Proteo-Lipid Vehicles (PLVs). These PLVs employ fusion-associated small transmembrane (FAST) proteins that can efficiently transduce a wide range of cells in vivo. Selective ablation of target cells is then achieved through the expression of a potent pro-apoptotic transgene driven by a specific senescence-associated promoter such as p16Ink4A or p53. **Objectives:** We examined the effect of senolysis by our FAST-PLV senolytic therapy on healthspan utilizing a battery of clinically translatable metrics for physical function and frailty. **Methods:** Naturally Aged C57/B6 mice 24-26 months of age were treated monthly with senolytic PLVs encoding a suicide gene driven by senescence-associated promoters p16 or p53. Clinical frailty was assessed using 31 observational metrics, physical function was assessed with a battery of tests (grip strength, rotarod, treadmill, and open field), and heart function was assessed using ECG. **Results:** Aged mice treated with senolytic PLVs showed significantly reduced senescent cell burden. Mice treated with senolytic PLVs had an increased median post-treatment survival of 160%, lower clinical frailty, and improved physical and heart function. Additionally, there is evidence that spontaneous tumor burden in these mice was

reduced. **Conclusion:** Our data shows that senolytic FAST-PLVs improved healthspan and reduced frailty in naturally aged mice.

NUTRITION AND AGING

P8/1- EFFECTS OF ACUTE L-GLUTAMINE SUPPLEMENTATION ON OXIDATIVE STRESS BIOMARKERS OF SEDENTARY VERSUS TRAINED OLDER WOMEN.

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Background: Protein malnutrition and sedentary habits have been claimed as major factors to accelerate the cognitive and motor impairments in aging individuals. Apart of the total protein intake, the specific composition of amino acids within foodstuff is primordial. Glutamine (Gln) is the most abundant amino acid in circulation and exerts important roles in nitrogen metabolism, antioxidant defenses, and immune responsiveness in humans. Previous studies from our group have already shown that long-term Gln supplementation rebalanced the redox metabolism leading to physical and mental benefits in trained older women. **Objectives:** This study aims to investigate the effects of an acute Gln supplementation (0.15 g kg-1 BW) on plasmatic biomarkers of oxidative stress pre/post an aerobic-strength exercise session (60 min total) applied to sedentary versus trained older women. Methods: All forty-five volunteers (69.2 ± 4.5 yo) were recruited from the Primary Health Care Program, Department of Geriatrics and Gerontology, Federal University of São Paulo (UNIFESP), São Paulo, Brazil. This pre/post interventional intercrossed study has four experimental groups: (i) sedentary/placebo (SED-P; n=11); (ii) sedentary/Gln-fed (SED-Gln; n=12); (iii) exercised/placebo (EX-P; n=10); and (iv) exercised/Gln-fed (EX-Gln; n=12). We measured in plasma: levels of nitric oxide, uric acid, iron ions, heme-proteins, oxidized lipids, and reduced/oxidized glutathione (GSH/GSSG), which were compared with the reducing capacity of plasma (RCap) and the enzymatic activities of glutathione peroxidase (GPX) and glutathione reductase (GR), both antioxidants, and creatine kinase, an index of muscle injury. **Results:** Background differences in the antioxidant capacity of plasma were observed between sedentary and trained older women, before any supplementation. Regularly exercised older women display higher glutathione-based antioxidant capacity in plasma than sedentary volunteers, which diminished the oxidative stress and muscle injury, caused by the dysrupt of iron homeostasis during the exercise session. Nonetheless, acute Gln supplementation 30 min before aerobic-strength exercises did not alter these biochemical indexes between groups, as we previously observed in long-term Gln supplementation. **Conclusion:** Contrarily to the very positive results obtained in long-term Gln supplementation programs, acute administration of Gln did not result in signficant variation of redox biomarkers in plasma of sedentary or trained older women during an exercise session.

P8/2- RESPIRATORY SARCOPENIA: A POSITION PAPER BY FOUR PROFESSIONAL ORGANIZATIONS.

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Background: Definition and diagnosis of respiratory sarcopenia have not been unified. **Objectives:** To unify a view of definition, diagnosis, treatment, clinical significance and outcome, and future perspectives of respiratory sarcopenia. **Methods:** A position paper of respiratory sarcopenia was jointly prepared by the representative authors and authorized by the Japanese Society for Respiratory Care and Rehabilitation, the Japanese Association on Sarcopenia and Frailty, the Japanese Society of Respiratory Physical Therapy, and the Japanese Association of Rehabilitation Nutrition. **Results:** We defined respiratory sarcopenia as a coexistence of respiratory muscle weakness and decreased respiratory muscle mass. Although respiratory muscle function is indispensable for life support, its evaluation has not been included in the regular assessment of respiratory function or adequately evaluated in clinical practice. Considering this situation, we prepared a position paper outlining basic knowledge, diagnostic and

assessment methods, mechanisms, involvement in respiratory diseases, intervention and treatment methods, and future perspectives on respiratory sarcopenia and summarized the current consensus on respiratory sarcopenia. Respiratory sarcopenia is diagnosed when respiratory muscle weakness and decreased respiratory muscle mass are observed. If respiratory muscle mass is difficult to measure, we can use appendicular skeletal muscle mass as a surrogate. Probable respiratory sarcopenia is defined when respiratory muscle weakness and decreased appendicular skeletal muscle mass are observed. If only respiratory muscle strength is decreased without a decrease in respiratory function, the patient is diagnosed with possible respiratory sarcopenia. Respiratory muscle strength is assessed using maximum inspiratory pressure and maximum expiratory pressure. Ultrasonography and computed tomography are commonly used to assess respiratory muscle mass; however, there is insufficient data to propose the cutoff values for defining decreased respiratory muscle mass. Respiratory sarcopenia can worsen respiratory function, physical performance, activities of daily living, and prognosis. Combining both exercise and nutritional interventions may be helpful for prevention and treatment of respiratory sarcopenia. **Conclusion:** Future studies on the prevalence and prognosis of respiratory sarcopenia are required. The reliability and validity of diagnostic criteria for respiratory sarcopenia should be verified. Concerning respiratory muscle mass, standardization of measurement methods and the development of cutoff values and minimal clinically important differences are required.

P8/3- A STUDY ON THE PREVALENCE OF SARCOPENIA AND ITS ASSOCIATIONS IN A COMMUNITY HOSPITAL IN SINGAPORE. Tan You Mei Charmaine(1,2), Aw Junjie(1,2), Lim Yanshan Doris(3), Koh Siew Van(3), Ganeshan Karthikeyan(3), Sharna Seah Si Ying(4), Xia Jiawen Olivia(4), Low Xuan Lin(5), Quek Hui Yi(6), Ong Shuyi Andrea(1) *((1) Post-Acute and Continuing Care Department, Outram Community Hospital, SingHealth Community Hospitals, Singapore; (2) SingHealth Duke-NUS Family Medicine Academic Clinical Program, Singapore; (3) Rehabilitation Department, Outram Community Hospital, SingHealth Community Hospitals, Singapore; (4) Research and Translational Innovation Office, SingHealth Community Hospitals, Singapore; (5) Department of Health and Social Science, Singapore Institute of Technology, Singapore; (6) Department of Biological Sciences, National University of Singapore, Singapore)*

Introduction: The United Nations General Assembly has declared 2021-2030 the Decade of Healthy Ageing. Sarcopenia is an increasingly important and prevalent condition in ageing populations. It is associated with increased likelihood of adverse outcomes like falls, functional decline, and mortality. Community Hospitals (CH) in Singapore serve as a step-down inpatient facility for patients from the Acute Hospitals, where they receive rehabilitative and transitional care prior to discharge to the community. There is insufficient data on sarcopenia in older adults in a CH in Singapore. **Objectives:** We aim to study the prevalence and associations of sarcopenia in a CH in Singapore. **Methods:** A cross-sectional study was conducted on 400 inpatients admitted to Outram Community Hospital (OCH), from April 2022 to October 2022. Sarcopenia was defined as per Asian Working Group for Sarcopenia 2019. Data on demographics, total sedentary minutes per day, nutritional status assessed using the 3-Minute Nutritional Screen (3-MinNS), cognition evaluated with CMMSE, Modified Barthel Index (MBI) on admission, recent COVID infection, Charlson Comorbidity Index (CCI), waist circumference (WC) and waist-hip ratio (WHR) were collected. Logistic regression analysis was employed for all co-variates which were significant on univariate analysis. **Results:** (Preliminary analysis of 339 patients, full results available Q1 2023). The prevalence of sarcopenia in the 339 patients sampled was 60.1%. Increased age, not previously married, having a lower BMI, cognitive impairment, and those with severe malnutrition risk on screening with the 3-MinNS were associated with sarcopenia. Males and females with lower WC were associated with sarcopenia. Moreover, males with a lower WHR were also associated with sarcopenia while no statistically significant association was found for female WHR. On multivariate logistic regression analysis for sarcopenia, those who are older were more likely to have sarcopenia (OR: 1.06 95% CI: 1.01 – 1.11), however those who had BMI 23.0-27.4 kg/m^2 (OR: 0.22 95% CI: 0.10 – 0.45), 27.5-32.4 kg/m^2 (OR: 0.42 95% CI: 0.02 – 0.11), 32.5-37.4 kg/m^2 (OR: 0.06 95% CI: 0.01 – 0.24) were less likely to have sarcopenia as compared to those with BMI 18.5-22.9kg/m^2. **Conclusion:** Sarcopenia prevalence was high in a CH in Singapore. Increased age and lower BMI were found to be significant associations with sarcopenia.

P8/4- WITH AN AA INTAKE IDENTICAL TO WHEY, A VEGETABLE PROTEIN MEAL PRESENTS ALTERATIONS IN THE ARTERIAL BIOAVAILABILITY OF CERTAIN AAS IN THE ELDERLY. D. Dardevet(1), E. De Marco Castro(2), J. Pratt(3), D. Volkert(4), B. Mullen(2), G. Vialli(3), C. Guillet(5), JPI Appetite Consortium *((1) Saint-Gènes-Champanelle, France; (2) Dublin, Irland; (3) Padova, Italy; (4) Nuremberg, Germany; (5) Clermont-Ferrand, France)*

Background: Sarcopenia is a consequence of muscle anabolic resistance associated with a decrease of protein intake and inefficiency. **Objectives:** JPI «Appetite» objectives is to develop mixtures of vegetable proteins / fibers for seniors and to compare them to whey for their effectiveness on protein metabolism, mobility, muscle functionality and the quality of life. **Methods:** 3 mixtures were developed (PPF (Protein Fiber Product)) based on pea proteins: PPF1 (67% peas, squash), PPF2 (68% peas, oats, almonds) and PPF3 (45% peas, rice, soy). The mixtures were made up in order to be at least equivalent to the FAO protein. The amount of each PPF ingested by the 11 volunteers aged 70+, was calculated to provide the same amount of digestible leucine as 30g of whey (W). Arterialized blood was collected every 30min for 180min.

Plasma amino acid (AA) were measured by Accutag (Waters) method. Postprandial «areas under the curve» (iAUC) of each AA, Insulin and glucose were calculated, means ± SE and the difference ($p<0.05$) between the groups by analysis of variance in repeated measures (one way ANOVA). **Results:** The total amount of leucine ingested is identical between meals: 3, 2.8, 3.1 and 2.9g for Lac and PPF1,2,3. The same is true for valine, isoleucine, lysine and the sum of sulfur AAs (Met and Cys). The ingestion of aromatic AA (Phe and Tyr) and Arg is higher for PPF vs Lac (+68% and +66%) and that of lower Thr for PPF vs Lac, -35%. 2). The iAUC tended to be lower (-24% for Leu; $p<0.05$ PPF3 vs Lac), -20% for Val (ns), -27% for Ileu, $p<0.05$ for all PPF vs Lac)). For Thr, the difference is accentuated on the iAUC (-66% vs Lac against -35% for the ingested for all the PPFs). For Met and Cys, despite an identical intake between PPF and Lac, no significant increase in their plasma concentration is observed and the iAUC remains zero for all, unlike that of Lac ($p<0.05$). **Conclusion:** The theoretical construction of mixtures of vegetable proteins allowing an identical intake in Leu to 30g of whey does not allow in vivo in healthy elderly men to obtain the same plasma leucinaemias Moreover, at the same ingested, the sulfur-containing AAs do not increase with the PPFs, suggesting a very altered and specific bioavailability for these AAs. In conclusion, there is a difference in the use and/or metabolism of certain AAs depending on whether they are of plant or animal origin. This aspect should be taken into account in seniors where AA intake may already be reduced.

P8/5- THE FEASIBILITY OF AN ESSENTIAL AMINO ACID SUPPLEMENT FOR ADDRESSING PROTEIN AND ENERGY DEFICIENCIES IN POSTOPERATIVE ELECTIVE AND EMERGENCY COLORECTAL PATIENTS. Angela Windle(1), Dermot Burke(1), Theocharis Ispoglou(2) *((1) School of Medicine, University of Leeds, UK; (2) Carnegie School of Sport, Leeds Beckett University, UK)*

Background: Patients undergoing abdominal surgery are likely to have sarcopenia and reduced appetite, while associated energy and protein intake deficiencies can pose an issue to older surgical patients (Weimann et al, 2021). Protein enhances satiety so it has the potential to exacerbate energy deficiencies. Essential amino acid (EAA) supplements have been proposed as acceptable alternative means to address protein deficiencies since they do not suppress appetite in older adults (Ispoglou et al., 2021). However, it is not known if these supplements are acceptable to surgical patients. **Objectives:** To investigate the feasibility and acceptability of a nutritional supplement in two groups of surgical patients. **Methods:** A feasibility study was conducted in older (>60 years) postoperative elective (n=8) and emergency (n=8) abdominal surgery patients. Mean palatability scores of the supplement were obtained using visual analogue scales (Flint et al. 2000). Patients were then asked to consume the gel twice daily for four weeks. **Results:** Sixteen patients (5 female and 11 male) with a mean age of 68.81 (± 6.31) years completed palatability assessments. Elective patients found the gel more acceptable than the emergency patients by giving better scores in visual appeal, taste, and palatability. The aftertaste score was worse in the emergency group. Half of the elective patients complied with regime, one patient completed two weeks, two completed five and ten days and one patient withdrew. The emergency patients contrasted with elective patients where one person completed the regime. **Conclusion:** The acceptability of the supplement and compliance with the postoperative regime was better in the elective patients. Our data suggests that an EAA supplement could be part of nutritional support for elective patients, however, we would advise clinical trials to further test its efficacy. Postoperative taste is known to alter following colorectal surgery (Welchman et al, 2014), but it has not been previously identified that postoperative patients' taste may differ in elective or emergency cases. Our palatability assessments suggest that a bitter aftertaste, likely due to the addition of EAAs, was more evident to the emergency patients. This further highlights the need for bespoke approaches to develop supplements to address protein deficiencies. **References:** Butterworth, M., Lees, M., Harlow, P., Hind, K., Duckworth, L., & Ispoglou, T. (2019). Acute effects of essential amino acid supplement-based and whey protein supplements on appetite and energy intake in older women. Appl Physiol Nutr Metab, 44 (11), pp.1141-1149; Flint, A., Raben, A., Blundell, J. E., & Astrup, A. (2000). Reproducibility, power, and validity of visual analogue scales in assessment of appetite sensations in single test meal studies. International journal of obesity and related metabolic disorders : journal of the International Association for the Study of Obesity, 24(1), 38–48; Ispoglou, T., Witard, O. C., Duckworth, L. C. & Lees, M. J. (2021). The efficacy of essential amino acid supplementation for augmenting dietary protein intake in older adults: implications for skeletal muscle mass, strength and function. Proc Nutr Soc, 80, 230-242; Weimann, A., Braga, M., Carli, F., Waltzberg, D. Bischoff, S.C. & Singer, P.. (2021) ESPEN practical guideline: Clinical nutrition in surgery. Clinical Nutrition 40, pp. 4745-4761; Welchman, S., Hiotis, P., Pengelly, S., Hughes, G., Halford, J., Christiansen, P., & Lewis, S. (2014). Changes in taste preference after colorectal surgery: A longitudinal study. Clinical Nutrition (Edinburgh, Scotland), 34(5), 881–884.

P8/6- INTENSIVE TRANSMURAL DIETETIC TREATMENT FOR HOSPITALIZED OLDER ADULTS AT RISK OF MALNUTRITION: A RANDOMIZED CONTROLLED TRIAL.

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Background: Malnutrition is highly prevalent in hospitals and has a major negative impact on overall recovery in older adults (55+). During and after hospitalization older adults have an inadequate dietary protein intake and are physically inactive, and therefore they are at higher risk for loss of muscle mass, muscle strength, physical performance, and quality of life. Within current transmural care not all malnourished patients receive dietetic treatment or very limited. Intensified transmural dietetic care may increase protein intake and promote physical activity during and after hospitalization and consequently improve overall recovery. **Objective:** To evaluate the impact of an intensive dietetic transmural treatment during hospitalization and three months post-discharge on physical performance and protein intake for better overall recovery and quality of life in older patients. **Methods:** This multicenter, individually randomized, controlled trial in five hospitals in Amsterdam region included patients, aged 55 years and older, who were at risk of malnutrition. The intervention consisted of intensive dietetic care during hospitalization and up until three months post-discharge that included transmural guidance by trained dietitians, supportive materials and a mobilization program. The control group received regular care and were followed-up over the same period of time. Multilevel analyses were used to assess change in physical performance, measured with the Short Physical Performance Battery, from hospital admission to three months post-discharge. Secondary outcomes included changes in protein intake, muscle mass, muscle strength, length of hospital stay and quality of life. **Results:** Currently, over 2500 patients were screened of which approximately 50% were at risk of malnutrition. Of those, 69 patients are included in the trial. Final inclusions are still ongoing, but during the conference we expect to present our first data on the impact of the intensive dietetic care on our primary and secondary outcomes. **Conclusion:** This study provides insight in the effects of intensive dietetic transmural treatment for older patients at risk of malnutrition on overall recovery. We hypothesize that the intervention group will have better physical performance, protein intake and quality of life compared to the control group.

P8/7- MINERALS AND SARCOPENIA; A SYSTEMATIC REVIEW AND META-ANALYSIS ON THE ROLE OF CALCIUM, IRON, MAGNESIUM, PHOSPHORUS, POTASSIUM, SELENIUM, SODIUM AND ZINC ON MUSCLE MASS, MUSCLE STRENGTH AND PHYSICAL PERFORMANCE IN OLDER ADULTS.

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Objective: This systematic review and meta-analysis will evaluate the role of minerals on muscle mass, strength and physical performance in community-dwelling and institutionalized older adults. **Methods** In March 2022, a systematic search was performed in PubMed, Scopus and Web of Sciences using predefined search terms. Eligibility screening and data extraction was performed by two independent reviewers. Original research studies on dietary mineral intake or mineral serum blood concentrations on muscle mass, strength and physical performance or the prevalence of sarcopenia of any definition in older adults (average age ≥65 years) were included. Quality assessment was performed with the Effective Public Health Practice Project (EPHPP) Quality Assessment Tool for Quantitative Studies. **Results** From the 15622 identified articles, a total of 48 studies were included in the review, mainly being cross-sectional and observational studies. Selenium (n=8) and magnesium (n=7) showed significant association with the sarcopenic outcomes. For calcium and zinc no clear association with sarcopenia outcomes could be found. The association of potassium, iron, sodium, phosphorus, copper with sarcopenia outcomes remains unclear. **Conclusion**: This review shows the most promising results for selenium and magnesium on the treatment/prevention of sarcopenia in older adults. More long-term research and randomized controlled trials are warranted for the other minerals and their relation with sarcopenia.

P8/8- FISH INTAKE AND PRE-FRAILTY IN NORWEGIAN OLDER ADULTS. A PROSPECTIVE COHORT STUDY: THE TROMSØ STUDY 1994–2016.
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Background: Fish are suggested as being part of a healthy diet and a dietary factor in the prevention of frailty. However, the influence of a lifelong habitual fish intake on pre-frailty is unknown. **Objective:** To investigate the longitudinal association between the frequency of fish intake and pre-frailty in Norwegian older adults. **Methods:** This prospective cohort study used data from the fourth (1994–1995), sixth (2007–2008) and seventh (2015–2016) survey of the large, population-based Tromsø Study in Tromsø, Norway. We included 4350 men and women aged ≥65 years with data on frailty (modified Fried's frailty phenotype: weight loss, exhaustion, and low physical activity, grip strength and walking speed) in Tromsø7 and self-reported frequency of fish intake (low (0–3 times/month), medium (1–3 times/week) and high (≥4 times/week)) in Tromsø4, Tromsø6 and Tromsø7, respectively. We used multivariable logistic regression to study the association between (1) frequency of intake of lean, fatty and total fish in Tromsø6 and pre-frailty in Tromsø7, and (2) stable patterns of total fish intake across Tromsø4, Tromsø6 and Tromsø7 (21 years) and pre-frailty in Tromsø7. **Results:** The prevalence of pre-frailty was 28% (n = 1124). A medium and high intake of fatty fish in Tromsø6 was associated with 18% (odds ratio (OR) = 0.82, 95% confidence interval (CI) = 0.69, 0.98) and 37% (OR = 0.63, 95% CI = 0.43, 0.91) lower odds of pre-frailty after 8 years, compared with a low intake. For lean and total fish, a high intake was associated with 28% (OR = 0.72, 95% CI = 0.53, 0.97) and 31% (OR = 0.69, 95% CI = 0.52, 0.91) lower odds of pre-frailty after 8 years, respectively, compared with a low intake. There was no association between patterns of total fish intake over 21 years and pre-frailty. **Conclusion:** A higher frequency of intake of lean, fatty and total fish was associated with lower odds of pre-frailty after 8 years in older community-dwelling Norwegian adults. This underlines the importance of promoting frequent fish intake as part of a healthy diet to facilitate healthy ageing.

P8/9- BLENDED COUNSELING AND PROTEIN SUPPLEMENTATION INCREASE PROTEIN INTAKE IN COMMUNITY DWELLING OLDER ADULTS DURING A RESISTANCE EXERCISE PROGRAM: PRELIMINARY RESULTS OF THE TEAMS RCT.
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Background: In order to optimize training effects for prevention of sarcopenia and frailty in community dwelling older adults a higher daily protein intake is required. To increase total daily protein intake to optimal levels (minimal 1.2 g/kgBW/d, optimal 1.5 g/kgBW/d) during a resistance exercise training of 12 weeks we use blended dietary counseling and protein supplementation with protein enriched food products. **Objectives:** This study focusses on 1) first effects; 2) the adherence to this protein intervention. **Methods:** Preliminary data of the TEAMS RCT is available for 76 community dwelling older adults with physical limitations or receiving home-care (age ≥ 65y): 43 in exercise only (EX) and 33 in exercise+protein (EXpro) group. Dietary intake was measured by a 3d dietary record at baseline and after 12 weeks of intervention. A two-way mixed ANOVA with time, group, and group*time interaction was performed. Adherence data was logged by a dietician coach. **Results:** The mean age of the subjects was 74±6y, of which 74% were females. SPPB score was 9.8±1.8, 1-RM leg press 101±23 kg, BMI 29.2±5.3 and protein intake 0.9±0.3 g/kgBW/d. ANOVA revealed significant effect of time (P<0.001), and group*time (p=0.008). Adherence to the blended coaching sessions was high (94%), with the face-to-face sessions (88%) and tele-coaching (100%). In the EXpro group 61% of the subjects increased protein intake above the minimum intake level of 1.2 g/kgBW/d and 35% above optimal level of 1.5 g/kgBW/d, compared to 21% and 8% in the EX group. **Conclusion:** This study shows that blended dietary counseling with use of protein supplementation improves protein intake sufficiently in exercising community dwelling older adults. Blended counseling and the use of protein enriched food products is a promising strategy for dieticians in the prevention of sarcopenia and frailty. **Disclosure of Interest:** M. Benali on behalf of TEAMS project: Other: The study is funded by NWO grant. Fonterra and Carezzo take part in research consortium as a sponsor. These sponsors have no scientific influence on the presented data in this study., J. Helder: None Declared, J. Schoufour: None Declared, P. Weijs: None Declared, M. Tieland: None Declared. **Key words:** aging, frailty, nutrition, sarcopenia, telehealth

P8/10- EFFECTS OF MEDITERRANEAN-DASH INTERVENTION FOR NEURODEGENERATIVE DELAY (MIND) PLUS FOREST BATHING (FB) ON IMPROVING COGNITIVE FUNCTION AND CENTRAL OBESITY OF OLDER ADULTS WITH HYPERTENSION. Queenie Law(1), Katherine Yau(2), Rick Kwan(2) *((1) School of Nursing and Health Studies, Hong Kong Metropolitan University, HK, China; (2) School of Nursing, Tung Wah College, HK, China)*

Background: The burden of dementia on health care systems is projected to increase with aging population. Cognitive impairment is a precursor to a progressive dementia. Several studies have observed an association between hypertension and risk of cognitive impairment. Evidence from epidemiological studies demonstrated that adherence to the MIND dietary pattern is associated with better cognitive performance and lower risk of cognitive decline in older adults. FB has been tested in China and Taiwan and showed that FB enhanced heart rate and blood pressure functions. However, little is known about MIND diet is effective in enhancing cognitive function in the Chinese ethnicity, while FB can enhance the MIND diet in this study. **Objectives:** This study evaluated the effects of MIND-FB intervention, MIND diet and control on improving cognitive function and central obesity in older adults. **Methods:** A pilot three-armed Randomised controlled trial was conducted with 48 participants (median age: 76 ± 16; median MOCA score: 20 ± 8) from community centre (ClinicalTrials.gov: NCT05342896). They were randomised into either: MIND-FB group (n=15) receiving 12 weeks MIND-FB intervention, the MIND diet group (n=16) receiving diet counselling, or the control group (n=16) receiving usual care only. Cognitive function and waist circumference were assessed at baseline, 4-week and 12-week of intervention. Friedman test was used to test the within-group effects in three groups separately. **Results:** The Friedman test analyses showed significant improvement of cognitive function ($p<0.001$) between baseline and 12-week in MIND-FB (effect size: 0.619) and MIND diet group (effect size: 0.293). No significant difference was seen of cognitive function between MIND-FB group, MIND diet and control group at any time point. Waist circumference was significantly lower ($p=0.003$) in the MIND-FB group while there was no significantly difference between MIND diet and control group. **Conclusion:** The MIND-FB intervention and MIND diet used in this trial showed benefits on improving cognitive function in hypertensive older adults. FB enhanced the MIND diet in this study. This intervention has the potential to be applied in the community to prevent cognitive deterioration and to relief ease the public health care burden on society.

P8/12- THE ASSOCIATION BETWEEN SUBJECTIVE SYMPTOM OF DYSPHAGIA AND CGA ITEMS AMONG NURSING HOME RESIDENTS IN JAPAN: A CROSS-SECTIONAL STUDY. Yasuko Ishimoto(1), Taizo Wada(2), Yumi Kimura(3), Takahiko Nakamoto(4), Hisanori Kawashima(4), Emiko Kato(2), Mai Tatsuno(4), Michiko Fujisawa(2), Kozo Matsubayashi(2), Ryota Sakamoto(2,6) *((1)Department of Health and Sports Science, Faculty of Health Science and Technology, Kawasaki University of Medical Welfare, Kurashiki, Japan; (2) Center for Southeast Asian Studies, Kyoto University, Kyoto, Japan; (3) Graduate School of Human Sciences, Osaka University, Osaka, Japan; (4) Life in Kyoto, Kyoto, Japan; (5) Department of Field Medicine, Graduate School of Medicine and Faculty of Medicine, Kyoto University, Kyoto, Japan)*

Background: Dysphagia is one of the main cause of malnutrition and dehydration. Ten-item Eating Assessment tool (EAT-10) is a useful screening tool for dysphagia, but few studies showed the association with EAT-10 and Comprehensive Geriatric Assessment (CGA) items in nursing home. The aim of this cross-sectional study was to show the association of EAT-10 with activities of daily living (ADL), health status and lifestyle factors among the nursing home residents in Japan. **Methods:** A total of 209 elderly were administered CGA questionnaire in the nursing home in Kyoto, Japan, in July 2019. 115 elderly were excluded because they were specified under the long-term care insurance system or independent elderly under 74 year old. Study population consisted of 94 elderly subjects aged 75 years and older. EAT-10, basic activities of daily living (ADL), the Tokyo Metropolitan Institute of Gerontology Index of Competence (TMIG-IC), 5-item Fall risk index(FRI-5), Frailty screening Index(FSI), the 15-item Geriatric Depression Scale (GDS), JST-IC, life-style, medical history current medication use and subjective Self-rated health(SRH) were assessed. Subjective SRH was assessed by 100-mm visual analogue scale. Using EAT-10 cut-off point value of 3, participants were divided into two group: dysphagia high risk group and dysphagia low risk group (EAT-10 scores of ≥3 and <3) and compared the characteristics of those groups. We evaluated association between EAT-10 and CGA items. Student's t-test was used for continuous variables the $\chi 2$ –test for categorical variables. **Results:** There was no significant difference in age between these groups. The elderly subjects with EAT-10≥3 were significantly higher score than those with Eat-10<3 in FSI (1.6 vs 0.9), FRI (5.8 vs 3.9), and GDS (5.5 vs 3.6) and significantly lower in self-rated health (54.1vs 67.6) respectively ($p<0.05$). **Conclusion:** The elderly with dysphagia has risk of frail, fall and depression and low self-rated health. Subjective symptom of dysphagia should be paid more attention to improve physical and mental care in nursing home.

P8/13- PROTOCOL FOR A RANDOMISED, DOUBLE-BLIND, CROSSOVER PILOT STUDY OF THE EFFECT OF VITAMIN C SUPPLEMENTATION ON SKELETAL MUSCLE: THE OLDER ADULTS AND VITAMIN C (OLDVIC) TRIAL. Jamie Scott(1), Ailsa Welch(1), Max Yates(1), Paul Malcolm(1), Rashed Sobhan(1), Jonathan Tang(1), Richard Hayhoe(2), Jennifer Ahn-Jarvis(3), Cathrina Edwards(3), Donnie Cameron(1,4) *((1) Norwich Medical School, University of East Anglia, Norwich, Norfolk UK; (2) School of Allied Health, Anglia Ruskin University, Chelmsford, UK; (3) Quadram Institute, Norwich, Norfolk, UK; (4) Department of Radiology, C.J Gorter MRI Center, Leiden, University Medical Center, Leiden, Netherlands)*

Background: Ageing is associated with mitochondrial dysfunction, characterised by reduced oxidative phosphorylation and ATP production, and excess production of reactive oxygen species (ROS). Excess ROS can trigger pro-inflammatory molecular pathways that promote proteolysis in skeletal muscle and may contribute to the development of sarcopenia. Animal studies have shown that improved antioxidant defences can reduce age-related mitochondrial dysfunction, increase ATP production, and preserve skeletal muscle function. One such dietary antioxidant is vitamin C, which acts as a cofactor for collagen and carnitine synthesis, and has been associated with skeletal muscle mass and function in epidemiological studies. However, its effect on skeletal muscle mitochondrial function has not yet been explored. **Objectives:** To determine whether six weeks of oral vitamin C supplementation affects mitochondrial oxidative capacity (primary outcome), skeletal muscle membrane turnover, muscle strength, physical function, vitamin C status, and inflammatory markers (secondary outcomes) compared with a matching placebo. **Methods:** This 16-week, randomised, double-blind, crossover, placebo-controlled pilot study will recruit 12 non-smoking women >=65 years old to randomly receive 500mg/day vitamin C or matching placebo for six weeks, with a four-week washout period between interventions. Eligible participants will have low fruit and vegetable consumption, sedentary lifestyles, no use of antioxidant supplementation nor anti-inflammatory medications, alcohol consumption within recommended guidelines, and no chronic diseases. Tests at baseline, and days 42 and 112 will include: functional measures, such as skeletal muscle mitochondrial oxidative capacity and membrane turnover - which is thought to be related to ROS production - from 31Phosphorous magnetic resonance spectroscopy, grip and leg-extension strength measured using hand-held dynamometers, and short physical performance battery score; and blood biomarkers including plasma vitamin C and serum C-reactive protein, tumour necrosis factor-alpha, and interleukin-6. Differences in outcomes between intervention groups will be compared using a paired t-test or Wilcoxon matched pairs test. **Results:** Results from this trial will be published in a peer-reviewed scientific journal. **Conclusion:** This study will inform future larger intervention trials, providing information on both the feasibility of the study design - for measuring and identifying changes in outcome measures - and the size of any observed changes.

P8/14- INFLAMMATORY MARKERS AND FRAILTY IN HOME-DWELLING ELDERLY, A CROSS-SECTIONAL STUDY. Pia Bålsrud(1), Stine M. Ulven(1), Inger Ottestad(1), Kirsten B Holven(1,2) *((1) Department of Nutrition, Institute of Basic Medical Sciences, University of Oslo, Oslo, Norway; (2) National Advisory unit on FH, Oslo University Hospital, Oslo Norway)*

Background: Low-grade, chronic inflammation, known as "inflammaging", is suggested to be an important driver for the development of frailty in older age. However, studies on the association between frailty, as a continuous variable, and inflammatory markers are limited. **Objectives:** The aim of this study was to investigate the relationship between inflammatory markers and frailty index (FI) in older, home-dwelling adults. **Methods:** Home-dwelling men and women aged >= 70 years old, living in Eastern Norway were recruited from the National Register, and included in a cross-sectional study. All participants met for one study visit at the study center. Our FI was developed according to Rockwood's frailty index, and included 38 variables. Each participant was given a FI score between 0 and 1. Circulating inflammatory markers (IL-6, CRP, IGF-1, cystatin C, cathepsin S, and glycoprotein A) were analyzed from non-fasting blood samples using ELISA. **Results:** The study population comprised 403 elderly (52% women), with a median age of 74 years and a mean BMI of 26.2 kg/m^2. The mean FI score for the total group was 0.17 (SD ± 0.1), however with a range between 0.005-0.560. The group was divided into a frail group (FI index >=0.025) and non-frail group). After adjusting for BMI, age, sex, and smoking in the whole group, IL-6, cathepsin S, cystatin C, and Glycoprotein A remained significant associated to FI score (IL-6: 11.9 %, 95%CI: 4.9, 19.1, cathepsin S: 3477.0 pg/mL, 95%CI 1246.0, 5708.0, cystatin C: 3.5 %, 95%CI: 1.5, 5.7, Glycoprotein A: 0.43 mmol/L, 95%CI: 0.22, 0.65, p<0.01 for all), while CRP and IGF-1 were not (7.7%, 95%CI: -2.4, 18.8, p= 0.137, 0.084ng/ml, 95%CI: -2.80, 2.97, p=0.954). **Conclusion:** This study showed that among elderly subjects above 70 years of age, a significant association between FI score and inflammatory markers. However, whether inflammation is a cause or consequence of frailty and whether the progression of frailty can be attenuated by diet and other lifestyle factors remains to be clarified.

P8/16- LEUCINE ENRICHED PROTEIN SUPPLEMENTATION IN PRE-FRAIL OLDER ADULTS IMPROVES FRAILTY AND BODY CELL MASS. Alexa Lai(1), Vidhya Nachammai(1), Reshma Merchant(1), A. Denishkrshna(2) *((1) Division of Geriatric Medicine, Department of Medicine, National University Hospital, Singapore; (2) Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore, Singapore)*

Background and aims: Over the past decade sarcopenia has been recognized as a fast-upcoming geriatric giant. Given the multiple negative outcomes associated with it such as falls, functional decline and physical disability there has been growing interest in preventative strategies. The aim of the study was to evaluate if adding 16g of protein and 3g of leucine supplementation to the diet of pre-frail older adults who consume ≤ 1g/kg of protein a day improves physical function over 3 months. **Methods:** 156 pre- frail Older adults ≥ 60 years old were enrolled with 112 in the control group (C) and 44 in the dietary intervention arm (N). Subjects were included if they consumed ≤ 1g/kg/day protein through food diary recall, had well controlled diabetes and absence of kidney disease. Participants in the nutrition arm were provided leucine-enriched protein supplements. The primary outcomes were improvement in gait speed, frailty and Short Physical Performance Battery (SPPB). Secondary outcome was improvement in body composition. **Results:** A total of 156 pre-frail older adults (mean age 73.1y, mean education 7.2y) participated in a 3 month interventional study. At the 3-month endpoint there was improvement in the intervention group in gait speed(0.01 vs -0.07), handgrip strength (0.86 vs 0.13) and SPPB (0.44 vs -0.24) compared to the control. In the fully adjusted model, leucine enriched protein was associated with significant improvement in frailty score (B -0.54, 95% CI -0.94 - -0.13; p-= 0.10) and body cell mass (B 0.79, 95% CI 0.10-1.48; p-= 0.025). **Conclusion:** The intervention of a leucine enriched protein diet resulted in improvement in frailty and body cell mass in the pre-frail older adult. Studies are required on the additional role of resistance training to protein supplementation to develop a multimodal approach in preventing sarcopenia in the older population.

P8/17- APPETITE DISTURBANCES AND FRAILTY STATUS – A PILOT STUDY. Anna Rudzińska(1), Karolina Piotrowicz(1), Joanna Czesak(2), Ian Perera(1), Jerzy Gąsowski(1) *((1) Department of Internal Medicine and Gerontology, Jagiellonian University Medical College, Kraków, Poland; (2) Institute of Clinical Rehabilitation, University School of Physical Education, Kraków, Poland)*

Background: As the prevalence of frailty increases with age, reaching about 25% among adults aged 85 years and over, knowledge of nutritional needs and eating habits of community-dwelling older adults may be crucial from the perspective of frailty syndrome prevention and the possibility of its reversal. **Objectives:** The primary aim of this pilot study was to assess whether appetite levels vary between frail and non-frail participants. Additionally, we aimed to assess nutritional habits of community-dwelling older adults. **Methods:** We included 30 couples ≥ 65 years old who were recruited between June 1 and August 31, 2022. We assessed frailty status of included participants using Fried's criteria (Cardiovascular Health Study) and Rockwood scale (Clinical Frailty Scale). Nutritional assessment was performed using Mini Nutritional Assessment and Council on Nutrition Appetite Questionnaire (CNAQ). Modified Prohealthy Diet Index (pHDI) and Non-Healthy Diet Index (nHDI) were calculated using the data obtained from food frequency questionnaires filled by participants. We used the activPal technology to assess the participant's one-week mobility. Additionally, we assessed the independence of older participants in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) scales. **Results:** Among 60 participants, 9 were identified as frail and 30 as pre-frail. According to CNAQ, appetite disturbances were identified in 23.3% of the participants with no significant differences between frail or pre-frail patients, and patients without frailty. The mean result of the MNA questionnaire obtained by the subjects was 25. Frail and pre-frail patients scored significantly lower on the MNA questionnaire than patients without frailty ($p<0.05$). Weak correlations were identified between MNA result and number of steps per day (rho 0.33, p=0.01) and between MNA result and Non-Healthy Diet Index (rho 0.28, p=0.03). **Conclusion:** In our pilot study, we noticed a weak correlation between MNA score and nHDI score, that could be explained by more frequent snacking on sweets and energy-dense or processed foods. This, on the one hand, may be considered unhealthy, but at the same time may prevent from weight loss and its consequences.

P8/18- UNDERNUTRITION CHARACTERISED BY INTAKES AND OBJECTIVE MEASURES OF MICRONUTRIENT STATUS, AND CLINICAL BIOCHEMISTRY, IS ASSOCIATED WITH CALCULATED RISK SCORES FOR RISK OF HOSPITAL ADMISSION AND MORTALITY FROM COVID-19, IN A FREE-LIVING UK ADULT POPULATION. Ailsa A Welch(1), Yvie M Morgan(1,2), Saskia P M Truijen(3) *((1) Norwich Medical School, University of East Anglia, Norwich, Norfolk, UK; (2) Norwich Research Park, Colney Ln, Norwich, UK; (3) Department of Internal Medicine, Division of Rheumatology, Maastricht University Medical Center, and Care and Public Health Research Institute (CAPHRI), Maastricht University, Maastricht, the Netherlands)*

Background: Undernutrition is a risk factor for the chronic diseases of aging, onset of immunosenescence and risk of COVID-19 outcomes. Micronutrients, known as vitamins and minerals confer immunoprotection but their role in COVID-19 infection has been underexplored. **Objectives:** To investigate associations between micronutrient intakes and status, and biomarkers of the chronic diseases of aging (clinical biochemistry) according to a COVID risk score. **Methods:** Cross-sectional analyses were performed on 2,960

men and 4,152 women aged 18-96 years, recruited from the UK National Diet and Nutrition Survey. The COVID risk score (COVID_RISK) was based on established risk factors for hospital admission or mortality from COVID-19 and included: sex, age, BMI category, waist:hip ratio, income, diabetes, respiratory diseases, long-term conditions, and smoking habit. COVID_RISK was divided into three categories: low, medium, and high risk. Associations between dietary intakes, and circulating concentrations of vitamin C, B6, B12, D, folate, zinc, iron (dietary magnesium only) and clinical biochemistry (HbA1c, white blood cells (WBC), C-reactive protein (CRP), total cholesterol, and homocysteine) were analysed according to COVID_RISK, with tests for trend across categories calculated using regression analyses. **Results:** In both men and women lower intakes of vitamins C, B6, D, folate, and zinc, iron and magnesium were associated with high-risk scores, excepting vitamin B12 which increased with COVID_RISK (P trend <0.005 for all). These trends were further reflected in the nutrient biomarkers for vitamins C, B6, D, and haemoglobin but were only apparent for zinc in men, and folate in women (P trend <0.005). The clinical biochemistry markers of HbA1c, WBC, CRP, total cholesterol, and homocysteine all increased according to COVID_RISK, with differences ranging from 12.0% for HbA1c to 84% for CRP, in women (all P trend <0.005). Total cholesterol increased according to COVID_RISK in women and decreased in men (P trend <0.005). **Conclusion:** COVID risk scores that predict increased hospital admission or mortality from COVID-19 were associated with undernutrition and poorer nutritional status of immunoprotective micronutrients, as well as higher concentrations of circulating markers of chronic diseases. This indicates that improving undernutrition in relation to prevention or treatment of COVID-19 infection should be further investigated.

P8/19- MALNUTRITION & CHEST CT FINDINGS IN ELDERLY PATIENTS HOSPITALIZED FOR COVID-19 IN ACUTE MEDICINE UNIT: RESULTS FROM THE GERICO COHORT. Thomas Bourrieu(1,2), Édouard Desvaux(3), Gilles Kehoua(1,2), Nassima Toumi(1,2), Caroline Gayot(1,2), Pierre Jésus(4), Achille Tchalla(1,2) *((1) Geriatric Medicine Department, University Hospital Center of Limoges, France; (2) VieSanté Laboratory, UR 24134 (Aging, Frailty, Prevention, eHealth), University of Limoges, France; (3) Internal Medicine Department, University Hospital Center of Limoges, France; (4) Nutrition Unit, University Hospital Center of Limoges, France)*

Background: Malnutrition and severity of chest CT findings are risk factors for bad prognosis in elderly patients with Covid-19. **Objectives:** Our objectives were: 1) studying the association between malnutrition and severity of chest CT findings in these patients; 2) studying other risk factors associated with malnutrition; 3) comparing survival between each group of severity of chest CT findings. **Methods:** From the GERICO (GERIatric COvid) database, we included patients hospitalized at Limoges University Hospital Center between March 2020 and May 2021, with Covid-19 confirmed by RT-PCR or chest CT, and a chest CT with severity graduation. Sociodemographic data, comorbidities, treatments, initial symptoms, biological and CT data were recorded. Patients were divided into non-malnourished, moderately and severely malnourished groups, following the criteria from 2021 French health authorities' recommendations, in order to analyse the association of some factors with malnutrition. Survival analyses comparing each group of severity on chest CT were performed. **Results:** 88 patients with a chest CT and sufficient data available for malnutrition diagnosis were included in the study: 56 (63.63%) were non-malnourished, 6 (6.82%) moderately malnourished and 26 (29.55%) severely malnourished. Multivariate analyses showed no association between severity of chest CT findings and malnutrition. Positive associations were found between malnutrition and chronic respiratory diseases (OR = 4.20; IC 95% = [1.07-16.58]; p = 0.04), beta-blockers (OR = 4.10; IC 95% = [1.19-14.13]; p = 0.03) and mild symptoms of the upper respiratory tract (OR = 7.12; IC 95% [1.24-40.91]; p = 0.03). A negative association was found with diabetes mellitus (OR = 0.22; IC 95% = [0.06-0.82]; p = 0.02). Survival analyses showed a median survival of 756 days after admission, a quarter occurring in less than 43 days. No statistically significant differences were found between the 5 groups of chest CT severity (p = 0.053578) and between groups ≤ or > 25% of extension (p = 0.369547). **Conclusion:** We could not demonstrate any statistically significant association between malnutrition and severity of chest CT findings in elderly patients hospitalized with Covid-19. Chronic respiratory diseases, mild symptoms of the upper respiratory tract, ant beta-blockers may be risk factors of malnutrition, and diabetes mellitus a protective factor.

P8/21- COVID ISOLATION, DRAMA CONCLUDED WITH DENUTRITION, SCORBUT AND SARCOPENIA. Guy Lacombe(1), Martin Peletier(2), Adrian Pusca(2) *((1) Full professor, geriatric medecine, Sherbrooke university, CIUSSS-l'Estrie -CHUS, Canada; (2) Clinical professors , Granit hospital of CIUSSS-de l'Estrie-CHUS, Canada)*

Background: Frail dans isolated elderly were even more at risk during COVID pandemia. Limitation of social contact and activity contribute to decrease access to food and health care. Severe vitamin deficits like scorbut were extremely rare before the COVID restrictions. **Objectives:** To describe 2 cases of scorbut, severe sarcopenia that were detected in a rural geriatric clinic during the pandemic. Describe the others nutritionals deficits and sarcopenia that were not presents before pandemy in their medical follow-up. **Methods:** Multidisciplinary follow up, Chart review and data analsis of the laboratory test of the area before and after the pandemia. **Results:** Two elderly patients in stable clinical situation before the pandemia developed severe C Vitamin deficits with cutaneous rash, bleeding and loosing teeth in the year following the beginning of contact restriction secondary to COVID Pandemy. Both were living alone, ad minimal cognitive deficits and one ad were well controllled bipolar psychiatric disease. The transformed

their diet to a very limited and restricted intake. They did loose muscle mass to a point of limited mobility, Review of lab test showed that this extremely rare vit C deficit before pandemia become more frequent. We discuss case finding strategy to protect isolated and at risk of denutrition. **Conclusion:** Frail dans isolated elderly were even more at risk during COVID pandemia. Nutritional and sarcopenic were catastrophic for many of them.

EPIDEMIOLOGY

P9/1- HEALTH RESOURCE CONSUMPTION AND ADDITIONAL HEALTH CARE COSTS ATTRIBUTABLE TO FRAILTY IN CATALONIA (SPAIN). Àngel Lavado(1), Júlia Serra(2), Mateu Serra-Prat(3), Mateu Cabré(4), Emili Burdoy(5) *((1) Information Management Unit, Consorci Sanitari del Maresme, Barcelona, Spain; (2)Clinical Research Unit, Institut Municipal d'Investigació Mèdica; Barcelona, Spain; (3) Research Unit, Consorci Sanitari del Maresme, Barcelona, Spain; (4) Internal Medicine Department, Hospital of Mataró, Consorci Sanitari del Maresme, Barcelona, Spain; (5) Primary Care Department, Consorci Sanitari del Maresme, Barcelona, Spain)*

Background: Frailty is a geriatric syndrome with high prevalence and relevant consequences on health, disability and dependency. A part from severe individual consequences, frailty may have an important social and economic impact. Few studies have evaluated additional health care cost attributable to frailty. **Objective:** The present study aims to assess health resource consumption and health costs attributable to frailty in aged population in Catalonia. **Methods:** A population-based observational and longitudinal study was designed with follow-up from January 2018 to December 2019. Data was obtained retrospectively from computerized primary care and hospital medical records. The study population included all inhabitants aged ≥65 years ascribed to three basic health areas in the Maresme region (Barcelona, Spain) ascribed to the hospital of Mataró. Frailty status was established according to the electronic screening index of frailty (e-SIF), a new validated electronic tool that automatically and massively classifies frailty status in ≥65 year-old population from which electronic clinical notes with ICD-10 codes are available. Health cost elements considered were hospitalizations (including ambulatory surgery), emergency visits, outpatient visits, day-hospital sessions and primary care visits. Health resource consumption throughout 2018 and 2019 was obtained from primary care and hospital electronic clinical registers. Cost analysis was performed from the public health financing agent perspective according to actual public payment rates for the health resources considered. **Results:** 9315 subjects were included (mean age 75.4 years, 56% women) with a prevalence of frailty of 12.3%. As frailty status increases consumption of all cost element considered also significantly increase. Mean health care cost (in €) per person in the study period was 1420.19€ for robust, 2845.51€ for pre frail, 4200.05€ for frail and 5610.73€ for very frail. Multivariate linear regression analysis shows that, independently of age and sex, frailty comes at an additional health care cost of 905€ per person and year, which represent a 2.25-fold increase in health care expenditure. **Conclusion:** The results stress the economic relevance of frailty in late life. As frailty increases, health spending increases. Postponing or reducing frailty might be useful to reduce healthcare costs and contribute to the sustainability of the public health care system.

P9/2- FREQUENCY AND IMPACT ON CLINICAL OUTCOMES OF SARCOPENIA IN PATIENTS WITH IDIOPATHIC PULMONARY FIBROSIS. Hirotsugu Ohkubo, Kohei Fujita, Akiko Nakano, Yuta Mori, Kensuke Fukumitsu, Satoshi Fukuda, Yoshihiro Kanemitsu, Takehiro Uemura, Tomoko Tajiri, Ken Maeno, Yutaka Ito, Tetsuya Oguri, Yoshiyuki Ozawa, Takayuki Murase, Akio Niimi *(Department of Respiratory Medicine Allergy and Clinical Immunology, Nagoya City University Graduate School of Medical Sciences, Mizuho-cho, Mizuho-ku, Nagoya, Aichi, Japan)*

Objectives: Sarcopenia is a syndrome characterized by reduced muscle mass and function. It is well-recognized as a complication in chronic diseases such as chronic obstructive pulmonary disease. However, little is known about sarcopenia in patients with idiopathic pulmonary fibrosis (IPF). This study aimed to investigate the clinical characteristics of sarcopenia and the association between quality of life and sarcopenia in patients with IPF. **Methods:** In this pilot cross-sectional study, 56 Japanese outpatients with IPF (49 men) were enrolled prospectively. Sarcopenia was diagnosed according to the criteria of the Asian Working Group for Sarcopenia 2019. Its associations with clinical parameters including age, pulmonary functions, physical performance, and patient-reported outcomes (PROs) were examined. **Results:** The frequency of sarcopenia was 39.3% (n = 22) in this cohort. There were significant differences in St. George's Respiratory Questionnaire (P = 0.005), modified Medical Research Council score (P = 0.004), and Hospital and Anxiety Depression Scale depression score (P = 0.030) between the sarcopenic and non-sarcopenic groups. On multivariate regression analysis, 6-minute walk distance (6MWD) was an independent factor associated with sarcopenia (odds ratio 1.241, 95% confidence interval 1.016 – 1.515, P = 0.034). **Conclusion:** Sarcopenia was associated with PROs and physical performance in patients with IPF. **Key words:** sarcopenia, idiopathic pulmonary fibrosis, patient-reported outcome, 6-minute walk test, appendicular skeletal muscle index, bioimpedance analysis, quality of life, depression.

P9/3- INCIDENT SARCOPENIA IN THE HOSPITALIZED ELDERLY AND RISK OF DEATH. Clemente Zuniga(1,2), Susana González(1), Luis Miguel Gutierrez(3), Rufino Menchaca(1), Isabel Calvo(2), Paulina Lopez(2), Andrea Gomez(2) *((1) Universidad Autonoma de Baja California-Tijuana, Mexico; (2) Departamento de Geriatria, Hospital General Tijuana, Mexico; (3) Instituto Nacional de Geriatria, Mexico)*

Background: Hospitalization influences sarcopenia in a negative way. Some studies have explored the risk of poor outcome at the hospital in patients thar are admitted with sarcopenia, but to our knowledge very few have studied the patient that develops sarcopenia while in the hospital. **Objectives:** The aim of this study is to determine the relationship between sarcopenia that develops in the hospital and risk of death in patients over 60 years of age. Methods: A prospective cohort study was done including 100 patients that were admitted to Hospital General Tijuana without sarcopenia. Patients that developed sarcopenia according to the revised criteria of the European Working Group on Sarcopenia in Older People (EWGSOP) during their hospital stay where then compared to the ones that did not by bivariate and multivariate analysis. A survival analysis was conducted after a month of admission, Kaplan-Meier curves calculated and compared using Log Rank test. Finally Cox proportional HR analyses was done to determine the variables associated with a higher risk of death. **Results:** By the third day of hospitalization 37 patients had developed sarcopenia, 21 (56.75%) of them died at the hospital, while of the 63 that did not develop sarcopenia, only 6 (9.52%) died (RR: 5.95, IC95% 2.64 – 13.41, $p < 0.001$). After multivariate analysis the two factors related to the development of sarcopenia where malnutrition (MNA < 17) and lower muscle mass at admission. In the survival analysis Kaplan-Meier curves were obtained for both groups and the difference between them was statistically significant (Log Rank > 0.001). In the Cox regression analysis the only variable that correlated with less survival was sarcopenia. **Conclusion:** This study demonstrates that elderly patient that are admitted to the hospital without sarcopenia but malnourished and with low muscle mass have an increased risk of developing sarcopenia while in the hospital. The ones that do develop sarcopenia have more than 5 times a higher risk of death at hospitalization and during the 30 days after admission.

P9/4- THE PROTOCOL OF NUTRICARE STUDY: DIETARY CHALLENGES IN THE POPULATION OF NURSING HOMES' RESIDENTS. Živa Lavriša(1), Igor Pravst(1,2,3) *((1) Nutrition institute, Ljubljana, Slovenia; (2) Biotechnical faculty, University of Ljubljana, Slovenia; (3) VIST Faculty of applied sciences, Ljubljana, Slovenia)*

Background: The elderly (aged 65+) are recognized as a particularly vulnerable population group in terms of nutrition. The prevalence of malnutrition in the elderly is higher than in the younger population, with institutionalised elderly, including those living in nursing homes (NH), being particularly at risk. Health supportive nutrition and lifestyle are important factors for preventing frailty in elderly, including weight loss, functionality, and various diseases, such as sarcopenia. In Slovenia, there is currently no nationally representative data on dietary status, malnutrition, and sarcopenia prevalence in NH. **Objectives:** The main objective of the study is to collect epidemiological data on nutrition and nutrient intakes of elderly (65 years and older) living in nursing homes and to assess the prevalence of vitamin D, vitamin B12, folate and iron deficiency. Additionally, the prevalence of malnutrition and indicators of sarcopenia will be analysed. **Methods:** Nutrient intakes will be assessed by 24-h dietary recall, performed for two non-consecutive days, complemented by a food frequency questionnaire to analyse the mean usual dietary intakes. Malnutrition will be assessed by the Mini nutritional assessment questionnaire. Status of vitamin B12, D, folate and iron will be assessed by blood sample analysis. Prevalence of sarcopenia will be explored according to the EWGSOP2 criteria, with consideration of muscle strength (measured as grip strength), muscle quantity (estimated with bioimpedance spectroscopy measurements), and muscle performance (assessed using timed 'Up and go' test). **Results:** The results of this cross-sectional epidemiological study will provide nationally representative data on the prevalence of malnutrition, sarcopenia, nutrient intakes, and micronutrient status of elderly, living in NH in Slovenia. The results will be compared to the relevant recommendations. The results of the research will provide insight into the challenges in this area and serve as a base for possible future interventions. **Conclusion:** As epidemiological data on nutritional status of the elderly, living in Slovenian NH has not been available to date, the present study will allow an insight into this fragile population, enabling evidence based future public health interventions for better care and health of this population. Study protocol can be further used in other countries with lack of data on this vulnerable population group.

P9/6- SERUM LONG-CHAIN POLYUNSATURATED FATTY ACID LEVELS AND SARCOPENIA IN OLDER JAPANESE COMMUNITY-DWELLERS. Hiroshi Shimokata(1,2), Fujiko Ando(2,3), Atsumu Yuki(2,4), Tomoko Imai(2,5), Shu Zhang(2), Yukiko Nishita(2), Rei Otsuka(2) *((1) Graduate School of Nutritional Sciences, Nagoya University of Arts and Sciences, Aichi, Japan; (2) Department of Epidemiology of Aging, Center for Gerontology and Social Science, National Center for Geriatrics and Gerontology, Aichi, Japan; (3) Faculty of Health and Medical Sciences, Aichi Shukutoku University, Aichi, Japan; (4) Faculty of Education, Kochi University, Kochi, Japan; (5) Department of Food Science and Nutrition, Doshisha Women's College of Liberal Arts, Kyoto, Japan)*

Background: Recently, basic studies have reported the preventive effects of long-chain polyunsaturated fatty acids (LC-PUFA) on muscle mass and strength loss, and LC-PUFA intake may be useful in the prevention of sarcopenia. However, epidemiological studies in humans have been limited.

Objectives: To investigate the association between serum LC-PUFA levels and sarcopenia in older Japanese community-dwellers using panel data of a cohort study. **Methods:** Data from the present study were collected as a part of the National Institute for Longevity Sciences - Longitudinal Study of Aging (NILS-LSA). Repeated measures data on serum LC-PUFA levels (mg/dL) and sarcopenia were collected from 2,298 older Japanese community-dwellers aged 60 to 91 years who participated in any of the 1st, 2nd, 3rd, 5th, and 7th wave examination (1997-2012). The cumulative participation was 5,449 times and mean participation was 2.4 times. Sarcopenia was identified according to the Asian Working Group for Sarcopenia 2019 Consensus. Associations of sarcopenia and serum docosahexaenoic acid (DHA), eicosapentaenoic acid (EPA), and arachidonic acid (AA) levels were examined by generalized estimation equation (GEE), controlling for age, sex, education level, history of disease (stroke, hypertension, heart disease, and diabetes), smoking status, and survey waves, with interaction between LC-PUFA and age. Analysis by GEE was performed after centralization of all continuous variables. **Results:** The prevalence of sarcopenia at the first visit was 4.9% (5.6% in men and 4.2% in women). In the GEE model between serum EPA level and sarcopenia, EPA was significantly associated with sarcopenia ($\beta \pm SE = -5.76 \pm 1.99$, $p = 0.004$), but interaction between EPA and age was not significant, controlling for all covariates. The associations of sarcopenia with DHA and interaction between DHA and age were not significant. Serum AA levels and interaction between AA and age were not significantly associated with sarcopenia. **Conclusion:** Higher serum EPA level was associate with lower risk of sarcopenia, but serum DHA and AA levels were not associated with sarcopenia in older Japanese community-dwellers.

P9/7- POLYPHARMACY IS DIFFERENTIALLY ASSOCIATED WITH 20-YEAR MORTALITY AMONG COMMUNITY-DWELLING ELDERLY WOMEN AND MEN: THE ISRAEL GLUCOSE INTOLERANCE, OBESITY AND HYPERTENSION COHORT STUDY. Liat Orenstein(1,2), Angela Chetrit(1), Adam Goldman Adam Goldman(2,3), Ilya Novikov(4), Rachel Dankner(1,2) *((1) Unit for Cardiovascular Epidemiology, Gertner Institute for Epidemiology and Health Policy Research, Sheba Medical Center, Ramat-Gan, Israel; (2) Department of Epidemiology and Preventive Medicine, School of Public Health, Sackler Faculty of Medicine, Tel-Aviv University, Tel-Aviv, Israel; (3) Department of Internal Medicine, Sheba Medical Center, Ramat-Gan, Israel; (4) Biostatistics and Biomathematics Unit, Gertner Institute for Epidemiology and Health Policy Research, Sheba Medical Center, Ramat-Gan, Israel)*

Background: Elderly individuals are characterized by multimorbidity and high medication intake, entailing risks for adverse events. Sex-differences were reported with regards to morbidity and medication use. **Objectives:** To examine the overall and sex-specific association of polypharmacy (≥5 concurrent drugs use) with 20-year mortality among community-dwelling elders. **Methods:** Survivors of the longitudinal Israel Study of Glucose Intolerance, Obesity, and Hypertension, which began in 1967, underwent extensive evaluation during 1999–2004, and were followed for all-cause mortality until 2019. Baseline information on demographic, socioeconomic, lifestyle and health-related characteristics, including anthropometrics and blood samples, were collected. Cox regression models were used to examine the association of polypharmacy with all-cause mortality. Propensity Score by Inverse Probability of Treatment Weights (IPTW) was utilized to account for a possible confounding by indication. **Results:** In this study, 1,210 men and women (53%), with mean baseline age of 72.9±7.4 years, were followed over a median time of 12.8 years. Of them, 50.7% died over the follow-up time. Women received a higher mean number of drugs (4.3 vs 3.5; $p<0.0001$), were twice more likely to take vitamins (31.8%, vs 15.7% of men, $p<0.0001$), and had higher comorbidity, at baseline examination. Polypharmacy prevalence was 38.3%, and was more frequent with age, female sex, European-American origin, sedentary lifestyle and poor self-rated health. After adjusting for confounders, polypharmacy was not significantly associated with mortality, although an interaction was found with sex ($p=0.045$). Polypharmacy was associated with a 41% greater mortality risk in women (HR=1.41, 95%CI: 1.05-1.89), but not in men (HR=0.94, 95%CI: 0.70-1.27). **Conclusion:** Polypharmacy was more prevalent in older women than in older men, and associated with a greater 20-year mortality in women only. Sex-specific adaptation of guidelines for appropriate drug use among community-dwelling elders is warranted.

P9/8- GROWTH DIFFERENTIATION FACTOR 15 AND IMPAIRED LOWER-EXTREMITY FUNCTION IN OLDER ADULTS. Karine Ferreira de Campos(1), Esther García-Esquinas(1,2,3), Antonio Buño-Soto(4), Mercedes Sotos-Prieto(1,2,5,6), Esther Lopez-Garcia(1,2,6), Fernando Rodríguez-Artalejo(1,2,6), Rosario Ortolá(1,2) *((1) Department of Preventive Medicine and Public Health, Universidad Autónoma de Madrid, Madrid, Spain; (2) CIBER of Epidemiology and Public Health (CIBERESP), Madrid, Spain; (3) National Center for Epidemiology, Carlos III Health Institute, Madrid, Spain; (4) Department of Laboratory Medicine, La Paz University Hospital-IdiPaz, Madrid, Spain; (5) Department of Environmental Health and Nutrition, Harvard T.H. Chan School of Public Health. Boston, MA, USA; (6) IMDEA Food Institute. CEI UAM+CSIC, Madrid, Spain)*

Background: Growth differentiation factor 15 (GDF-15) is an emerging biomarker of disease burden, but no prospective studies have examined the relation between GDF-15 and the risk of some of the main geriatric syndromes, such as impaired lower extremity function (ILEF). **Objective:** To evaluate the cross-sectional and longitudinal association between serum GDF-15 concentrations and measures of ILEF in older adults. **Methods:** Data were taken from 2112 individuals aged ≥65 years participating in the Seniors-ENRICA-2 cohort. Serum GDF-15 was measured at baseline (2015-2017) while

ILEF was assessed at baseline and again in 2019. Impaired performance of the lower extremity was defined as a score ≤9 in the Short Physical Performance Battery (SPPB). Impaired agility and mobility were assessed with the Rosow and Breslau questionnaire. Analyses were performed with logistic regression and adjusted for relevant potential confounders, including morbidity. **Results:** In cross-sectional analyses, the odds ratios (95% confidence interval) per 25% increase in GDF-15 concentrations were 1.07 (1.01; 1.13) for impaired performance of the lower extremity, 1.19 (1.12; 1.26) for agility limitation and 1.20 (1.12; 1.27) for mobility limitation. After a mean follow-up of 2.2 years, a 25% increase in GDF-15 was also associated with higher risk of ILEF, with odds ratios of 1.10 (1.02; 1.19) for impaired performance of the lower extremity, 1.21 (1.08; 1.36) for agility limitation, and 1.22 (1.09; 1.36) for mobility limitation. Results were similar among participants free of cardiovascular disease or diabetes. **Conclusion:** Higher levels of serum GDF-15 are associated with ILEF in older adults. Further studies should elucidate the underlying mechanisms and confirm the therapeutic potential of modifying GDF-15.

P9/9- ASSOCIATION OF PROBABLE SARCOPENIA AND FRAILTY AMONG COMMUNITY-DWELLING OLDER ADULTS IN MODENA COUNTY. Andrea Fabbo, Barbara Manni, Giulia Vaccari, Emanuele Rocco Villani *(UOC Geriatria, disturbi cognitive e demenze, AUSL Modena, Modena, Italy)*

Background: Both frailty and sarcopenia are associated with cognitive impairment among older adults. Anyway, their association with other variables known to be related to cognitive impairment is only partially evaluated. **Objectives:** to evaluate the association of sarcopenia and frailty with drugs prescription, falls, and social context among older adults with cognitive impairment. **Methods:** consecutive patients, referring to the outpatient geriatric clinic of the AUSL of Modena County from October 2020 to June 2021. Cognition was screened according to MMSE (adjusted cutoff of <24 indicates cognitive impairment); risk of sarcopenia was assessed with SARC-F (cutoff of >4 indicates probable sarcopenia); frailty was defined according to the CFS (cutoff of 5 defines overt frailty); drugs were classified according to their ATC. Polypharmacy was defined as the concurrent use of >=5 drugs; deprescribing was defined as the reduction of at least one medication; number of falls were assessed in the twelve months before the examination. A telephonic follow-up after four months was performed to collect data about new falls and hospitalizations. **Results:** 285 patients (mean age 82.4±7.9 years, 67.6% females) were evaluated. Geriatric syndromes were prevalent: frailty was found in 168(63.4%) participants, possible sarcopenia in 153(55.2%), history of falls in 122 (42.8), polypharmacy in 191(66.7%). Cognitive impairment was present in 188(66.0%) participants; mean number of drugs was 6.3±3.2. Regarding patients with cognitive impairments, ipovisus was prevalent both among sarcopenic and frail patients. Frailty was not associated with different pattern of drug prescription, while SSRI, ACE-inhibitors and PPI were less prevalent in sarcopenic patients. Hospitalization and falls were more prevalent among sarcopenic but not frail patients, while poor social context was more prevalent among frail patients. **Conclusion:** Among patients with cognitive impairment, probable sarcopenia and frailty are associated with different drugs and outcomes. Both frailty and sarcopenia should always be assessed when dealing with patient with cognitive impairment.

P9/11- DEGREE OF SENSORY PERCEPTION ON THE SKIN AND 10-YEAR CHANGES TO STEP LENGTH IN JAPANESE COMMUNITY DWELLERS. Rei Otsuka(1), Hiroshi Shimokata(1,2), Fujiko Ando(1,3), Rumi Kozakai(1,4), Chikako Tange(1), Shu Zhang(1), Kanae Furuya(1), Yukiko Nishita(1), Hidenori Arai(5) *((1) Department of Epidemiology of Aging, Research Institute, National Center for Geriatrics and Gerontology, Aichi, Japan; (2) Graduate School of Nutritional Sciences, Nagoya University of Arts and Sciences, Aichi, Japan; (3) Faculty of Health and Medical Sciences, Aichi Shukutoku University, Aichi, Japan; (4) Hokusho University, Hokkaido, Japan; (5) National Center for Geriatrics and Gerontology, Aichi, Japan)*

Background: Frailty is a common syndrome among older adults, and sensory decline may exacerbate the functional decline in this population. The decline of the somatosensory system may potentially contribute to postural instability and may lead to an increased risk of falls, but the longitudinal relationship between sensory function and proper gait is still unclear. This study aimed to clarify the relationship between sensory acuity of the skin and changes to step length in middle-aged and older adults. **Methods:** We studied 899 men and 810 women aged 40-79 years without any history of stroke, rheumatoid arthritis, or Parkinson's disease in the first wave (1997-2000, baseline) who had also participated at least once in subsequent six study waves (2000-2012) of the National Institute for Longevity Sciences-Longitudinal Study of Aging, in Japan. Sensory perception of the skin at baseline was assessed in the finger using a two-point discrimination test and categorized into either a high (<10 mm) or low (≥10 mm) level according to the sex-stratified median. Step length at a comfortable speed was assessed by an 11-m straight walkway, including 1 m for acceleration and deceleration. A mixed-effects model was used to evaluate the fixed effects of sensory level, follow-up time from baseline, and the interaction of sensory level and time on repeated measurements of step length. The models adjusted for baseline age, sex, and height. **Results:** Mean (standard deviation) step length and follow-up time in participants were 68.4 (8.4) cm and 9.9 (3.6) years, respectively. The linear mixed model showed that the main effect of sensory level on step length was not significant but that the interaction of sensory level and time was statistically significant. When we estimated the slope of step length, the decline of step length in the low sensory level group (-0.152cm/year) was larger than in the high sensory level group (-0.047cm/year). **Conclusion:** Lower baseline sensory perception on the

skin was associated with a greater subsequent decline in gait step length, and our results indicate the importance of skin sensation in preserving future gait ability as people age.

P9/12- FRAILTY TRENDS BY EDUCATION AND SOCIOECONOMIC STATUS FROM 1990 TO 2020 AMONG 75-, 85- AND 95-YEAR-OLDS: A NATIONWIDE STUDY FROM SWEDEN. Alexandra Wennberg, Yining Tao, Stina Ek, Karin Modig *(Unit of Epidemiology, Institute of Environmental Medicine, Karolinska Institute, Stockholm Sweden)*

Background: Frailty impacts approximately 10% of older adults and trend studies show it is becoming more common. Although past studies have examined the association between socioeconomic status and frailty, there is a paucity of evidence examining how frailty and frailty-associated mortality trends differ by education and income over time. **Objective:** In Swedish register data, assess frailty among 75-, 85-, and 95-year-olds over a period of 30 years by education and income levels. **Methods:** Frailty was assessed with the Hospital Frailty Risk Score (HFRS) using ICD codes from inpatient and outpatient medical records: frail (HFRS≥5) and non-frail (HFRS<5). We examined how frailty trends differed by education tertiles (low, middle, high) and income level by quartiles over time. We additionally examined the association between frailty and 5-year mortality by socioeconomic status over this period. Sex was included as an effect modifier. **Results:** Overall, frailty became more common over time. When comparing HFRS in stratified education groups, the lowest group had the highest mean HFRS among 75-year-olds, while higher levels of education had higher HFRS at older ages. The lowest group accounted for the greatest proportion of the frail population at all ages; however, this proportion decreased over time. Similarly, in stratified income quartiles, the lowest income group had the highest HRFS among 75-year-olds while higher income groups had higher HFRS among older ages. Income quartiles were evenly distributed among the frail population at all ages and this was stable over time. However, in sex stratified models, the highest income group accounted for the greatest proportion of the frail population among men. The association between frailty and 5-year mortality remained stable over time regardless of socioeconomic factors. **Conclusion:** The increase in frailty over time may partially be attributable to improved diagnostics and disease survival, though the stable association with mortality is somewhat discouraging and could imply a stagnation of overall mortality improvements among older adults. Different frailty trends by socioeconomic factors suggest that public health interventions and policy can be targeted to specifically address the most vulnerable, but more research investigating causal pathways is needed.

P9/13- FAT PERCENTAGE CUT-OFF POINTS TO IDENTIFY OBESITY AND PREVALENCE OF SARCOPENIC OBESITY IN UKRAINIAN COMMUNITY-DWELLING OLDER ADULTS. Nataliia Grygorieva, Maryna Bystrytska, Anna Musiienko, Nataliia Zaverukha *(D. F. Chebotarev State Institute of Gerontology NAMS of Ukraine, Kyiv, Ukraine)*

Background: The prevalence of obesity is constantly increasing every year, which leads, in particular, to a decrease in physical activity and mobility, especially in the elderly. Another disease that reduces the functional capabilities of patients is sarcopenia - a generalized age-associated loss of muscle mass. The combination of these conditions is now known as sarcopenic obesity. Data on its prevalence in the population are ambiguous, which is due to the lack of unified criteria for the diagnosis of sarcopenic obesity. The aim of the study was to investigate the fat-percentage cut-off values for obesity and the prevalence of obesity in Ukrainian community-dwelling older adults. **Methods:** In the single-center study, 3095 persons (2666 women and 429 men) aged 20-90 years old (average age 57.8±13.5 years) were examined. The body composition (body weight (BW), height, body mass index (BMI), fat mass (FM), lean mass, appendicular lean mass (ALM), and appendicular lean mass index (ALMI, ALM/height, kg/m^2), fat mass/BW (%), ALM/BW (%)), were assessed by dual-energy X-ray absorptiometry (DXA, Hologic, Discovery). Sarcopenia was defined by European-Working-Group-on-Sarcopenia-in-Older-People criteria. Obesity was defined as a fat percentile above the 60th percentile (Zoico-method) or a BMI of ≥30 kg/m^2 (WHO definition), and sarcopenic obesity as a combination of sarcopenia and obesity. **Results:** Body fat-percentage thresholds for obesity were 28.3% for men and 41.4 % for women according to Zoico-method. The rates of obesity were 20.10 and 30.5 % for men and women, respectively, by the WHO definition versus about 40 % for both genders by Zoico-method. Prevalences of sarcopenic obesity was 3.4 % (ALM <15 kg) and 4.4 % (ALMI <6 kg/m^2) for women and 1.2 % (ALM <20 kg) and 3.5 % (ALMI <7 kg/m^2) for men. When obesity was assessed using WHO-definition the frequency of sarcopenic obesity was 0.1 % for women and no case of sarcopenic obesity for men. **Conclusion:** Determining the cut-off points of fat mass for the diagnosis of obesity is necessary for the further selection of the subjects with sarcopenic obesity. Our results are similar to data for other European populations. Differences in the frequency of sarcopenic obesity obtained according to different criteria require further research and unification of criteria.

P9/14- FREE-LIVING PHYSICAL BEHAVIOURS AND SARCOPENIA AND ITS DETERMINANTS: SYSTEMATIC REVIEW AND PRELIMINAR META-ANALYSIS OF OBSERVATIONAL STUDIES. Juan Luis Sánchez-Sánchez(1), Lingxiao He(2), Borja del Pozo Cruz(3), Daniel Gallardo Gómez(4), Javier S. Morales(5), Philipe de Souto Barreto(6), Pedro L. Valenzuela(7) *((1) Public University of Navarre, Department of Health Sciences, Pamplona, Spain; (2) Xiamen University, Xiamen, China; (3) Centre for Active and Healthy Ageing, Department of Sports Science and Clinical Biomechanics, University of Southern, Denmark, Denmark; (4) Epidemiology of Physical Activity and Fitness Across Lifespan (EPAFit) Research Group, Univeristy of Seville, Sevilla, Spain; (5) Move-it Research Group, University of Cádiz, Cádiz, Spain; (6) Institute on Ageing, Gerontopole CHU Toulouse, Toulouse, France; (7) Instituto de Investigación del Hospital 12 de octubre, Madrid, Spain)*

Background: Sarcopenia, the loss of muscle mass and function accompanying ageing is a critical determinant of adverse outcomes in older adults, including disability. Physical behaviours (physical activity-PA- and sedentary behaviour-SB-) are critical determinants of health across life and might be antagonistically associated with sarcopenia at older age. Recent incorporation of objective measures overcome limitations of previous methods and allow better exposure characterization in terms of intensity and timing. The latter could lead to a better understanding of the associations between physical behaviours and sarcopenia and its determinants (muscle mass, muscle strength and physical performance). **Objectives:** To synthesize the evidence around associations between physical behaviours and sarcopenia in older adult populations. **Methods:** Three bibliographic databases (Medline, Web of Sci:nce and Scopus) were systematically searched from inception to June 27th 2022 to screen for articles observationally investigating associations between SB and PA and sarcopenia (defined by any means) in samples of older adults (≥60 years). Interventional studies were excluded. In these preliminary analyses, a random effect meta-analysis was conducted to examine longitudinal associations between total PA and incident sarcopenia. **Results:** Of the 3702 articles screened, a total of 170 studies were read in full. Of those, 124 fulfilled inclusion criteria (n=22851; mean age=70.10 [range=62-100.3] years; 52.39% women). PA (evaluated in 112 articles) and SB (n=42) were assessed by different means: accelerometers (n=53), pedometers (n=5), interview (n=28), questionnaire (n=22) and single question (n=20). Four prospective studies (n=7545) with an average follow-up ranging from 5 to 9 years (weighted average=7.34) were meta-analyzed. Higher levels of total PA (vs. lower levels) were associated with a reduced risk of incident sarcopenia (RR=0.55, 95%CI=0.38-0.80, p=0.002), with little signs of heterogeneity (I2=10.2%) or risk of bias (Beggs's p-value=0.154). **Conclusion:** Preliminary meta-analyses indicate that total PA might be protective against the onset of sarcopenia. Further analyses are expected, and in these, PA intensity-specific and SB will be explored as determinants of sarcopenia, which could ideally lead to inform PA-based recommendations/interventions.

P9/15- WHAT CHARACTERIZES REGAINING WALKING ABILITY AFTER A HIP FRACTURE – EXPLORING PHYSICAL RESILIENCE PROFILES. Stina Ek(1), Mozhu Ding(1), Alexandra Wennberg(1), Anna C. Meyer(1), Margareta Hedström(2,3), Karin Modig(1) *((1) Unit of Epidemiology, Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden; (2) Department of Clinical Science, Intervention and Technology (CLINTEC), Karolinska institutet, Stockholm, Sweden; (3) Trauma and Reparative Medicine Theme (TRM), Karolinska University Hospital, Stockholm, Sweden)*

Background: The older population of today will live with and survive both chronic and acute conditions, therefore aging research needs to shift towards a focus on healthy aging and independence. A key to healthy aging is coping with adverse events as they appear, i.e., to be resilient. Physical resilience, defined as the ability to maintain or restore physical function after an acute or chronic health stressor, focuses on intrinsic capacity and physical function, which is one of the keys to staying independent. One such stressor, that is usually devastating for the older adult in terms of loss of function and independence, is hip fracture. **Objective:** To investigate physical resilience after a hip fracture among Swedish adults, as well as to explore what characterize individuals with similar resilience patterns, to form different physical resilience profiles. **Methods:** 55,467 individuals registered in the Swedish Hip Fracture Register (SHR) between 2010-2020 were included. Baseline sociodemographic-, socioeconomic (SES)- and health related characteristics, as well as walking ability both before the fracture and 4 months after were gathered. Based on walking ability before and after the fracture, individuals were categorized as Independent/Dependent at baseline and Resilient/Declining at the follow-up. Multivariable logistic regression was used to investigate the association between sociodemographic, socioeconomic, and medical factors with resilience, and cluster analysis was used to detect specific physical resilience profiles. **Results:** The multivariable logistic regression, including all studied characteristics, showed that high SES were independently associated with being resilient, especially among the independent walkers. It also showed that some diseases - such as dementia and depression - were inversely associated with resilience, while cardiovascular- and joint diseases showed no association. The five clusters that emerged from the cluster analysis showed different physical resilience profiles, differing in sociodemographic- and socioeconomic factors and disease burden. **Conclusion:** Knowing more about what characterizes physical resilience will help us understand more about how to improve the prognosis after a hip fracture. The next step will be to follow these physical resilience profiles over time, to explore their long-term risk of adverse health outcomes such as hospitalization, home care utilization and mortality.

P9/16- ASSOCIATION BETWEEN CHRONIC RESPIRATORY DISEASES AND PHYSICAL FRAILTY AMONG PERUVIAN COMMUNITY-DWELLING OLDER ADULTS. Cristina Li(1), Silvia Leon(1), Ivonne Carrion(1), William Checkley(2,3), José F. Parodi(1), Suzanne L. Pollard(2,3), Trishul Siddharthan(4), Matthew Maddocks(5), John R. Hurst(6), Alejandro Zevallos(1), Oscar Flores(1,7) *((1) Universidad de San Martin de Porres, Facultad de Medicina Humana, Centro de Investigación del Envejecimiento (CIEN), Lima, Peru; (2) Division of Pulmonary and Critical Care, School of Medicine, Johns Hopkins University, Baltimore, MD, USA; (3) Center for Global Non-Communicable Diseases, School of Medicine, Johns Hopkins University, Baltimore, MD, USA; (4) Division of Pulmonary and Critical Care, Miller School of Medicine, University of Miami, Miami, Florida ; (5) Cicely Saunders Institute of Palliative Care, Policy & Rehabilitation, King's College London, London, UK; (6) UCL Respiratory, University College London, London, United Kingdom; (7) Biomedical Research Unit, AB PRISMA, Lima, Peru)*

Background: Previous studies have reported associations between frailty and severe airflow obstruction, frequent exacerbations, and dyspnea. Chronic respiratory diseases (CRD), such as asthma, chronic bronchitis, and chronic obstructive pulmonary disease (COPD) are common in lowmiddle- income countries (LMICs). Most studies that have explored the relationship between physical frailty and CRD come from high-income settings. **Objective:** To determine whether CRD is associated with physical frailty in a Peruvian community-dwelling sample of older adults. **Methods:** Based on the cross-sectional study Global Excellence for COPD outcomes (GECo), we analyzed a sample of 1029 participants 60 years and over from low-income settings of urban Lima, Peru. We used the five parameters for Physical Frailty Phenotype (self-reported weight loss, self-reported exhaustion, low hand grip strength with dynamometer, low gait speed, and low physical activity with Physical Activity Questionnaire for Elderly-PASE). Frailty status was operationalized as robust (0 criteria), pre-frail (1-2 criteria) and frail (3-5 criteria). CRD included self-reported asthma, self-reported chronic bronchitis, and COPD diagnosed with gold standard spirometry. We used ordinal logistic regression to analyze the association between CRD and frailty (outcome), adjusted by sex, age and multimorbidity (number of chronic conditions). The proportional odds assumption for the ordinal logistic regression models was met when evaluated with the Brant test. **Results:** The mean participant age was 68.8 (SD=6.3) years old, 570 (55%) were male and 413 (40%) were obese. Regarding frailty status, 401 (39%) were robust, 542 (53%) were pre-frail, 86 (8%) were frail; 152 (15%) participants had CRD: 56 (5%) had criteria for asthma, 82 (8%) for chronic bronchitis and 32 (3%) for COPD. We found that CRD was not associated with frailty, in crude: 1.21 (95% CI: 0.86-1.7) nor in adjusted model: OR 1.02 (95% CI: 0.72-1.45). **Conclusion:** We did not find that CRD was not independently associated with frailty in this low-income setting.

P9/17- LEFT LEG BALANCE WITH CLOSED EYES AS A BIOMARKER OF HEALTHY AGING IN EPIDEMIOLOGICAL ONLINE STUDY. O. Tomarevska(1), O. Poliakov(1,2), N. Ponomarenko(3), Z. Boiarska(4), N. Ellanska(1), V. Chyzhyk(5) *((1) Laboratory Occupational-Labour Rehabilitation D.F. Chebotarev Institute of Gerontology of the National Academy of Medical Sciences of Ukraine, Kyiv, Ukraine; (2) Physiology Department of the Kyiv Medical University, Kyiv, Ukraine; (3) Physical Rehabilitation Department of the Chernihiv Polytechnic National University, Chernihiv, Ukraine; (4) Department of Biophysics and Physiology of the Vilnius University, Vilnius, Lithuania; (5) Department of theory and methods of physical education of the Kremenets regional humanities pedagogical academy named after Taras Shevchenko, Kremenets, Ukraine)*

Background: Epidemiological studies require the most informative indicators that are inexpensive to use to assess the health and processes of premature aging of the population under multifactorial influences, including epidemiological, economic crises. The needing for preventive health studies is for workers and older people in retirement as using inexpensive informative research methods available to everyone. **Objectives:** The aim of the study was to assess health and identify the concomitant factors of a healthy lifestyle for left leg balancing with closed eyes. **Methods:** The research methods were an online monitoring as based on the automatic scale assessment of the visual, auditory, physical motor abilities of the respondents, blood pressure and cognitive attentiveness. The study conducted in 2020 - 2022, 635 peoples aged 31-93 years, using a survey and functional tests. We used correlation analysis in Excel and the odds ratio of cases STATA 17.0. **Results:** Positive correlation associates between ($p<0.001$) the general health and total distance in kilometres daily walking (r-0.241), and quantity of distinct types of physical exercises performed daily (r=0.206). Balancing decreases significantly with age. Associative relationships of the influence on the left leg balance were obtained to enhance the performance and increase the number of physical exercises (r=0.137; $p<0.01$), the number of kilometers walked (r=0.233; $p<0.001$) and the negative impact of this state of high systolic blood pressure (r=-0.207; $p<0.001$) and high diastolic pressure (r=-0.1398; $p<0.01$). It was found that with systolic pressures of 126-160, 44.6% of poor balancing marker were noted and 125 -110 was noted in 19.7% (Odds ratio 3.28 [95% 2.22-4.83; P=0.0000]); and blood pressure of less than 109, there were 23.6% (Odds ratio 2.6 [95% 1.3-5.1; P=0.0070]) of negative indicators less than 6 seconds for all ages. Higher chance of cases for poor left leg balancing at high pressure obtained relative to the risk ratio of chance at normal pressure and at low pressure. **Conclusion:** The behavioral changing towards more active preventive physical exercise, like increase in the number of different exercises, daily kilometers travelled during a walk, significantly improves static balance, as well as blood pressure management. This is one of the significant factors in maintaining the ability of older people to successfully perform balancing and, as a result,

improving human health.

P9/18- SLEEP MEDICATION USE AND FALLS IN OLDER ADULTS WITH OSTEOPOROSIS. Loretta R. Anderson(1), Stina Ek(2), Denise Orwig(1), Alexandra Wennberg(2) *((1) University of Maryland, Baltimore, USA; (2) Karolinska Institutet, Solna, Sweden)*

Background: Sleep problems are common, affecting 25-44% of older adults. Approximately 1/3 of older adults take sleep medications to alleviate symptoms, but they are associated with fall risk. Falls are prevalent among older adults with approximately 1 in 4 experiencing a fall each year, costing the U.S. approximately $50 billion dollars annually. Osteoporosis has also been linked to falls, but little research has examined sleep medication use and falls risk among older adults with osteoporosis. **Objective:** The objective of this study was to examine the association between sleep medication use and falls risk in osteoporotic older adults. **Methods:** We examined data from the 2011 National Health and Aging Trends Study (NHATS), a nationally representative survey of Medicare beneficiaries aged 65 and older. Outcomes of interest were falls risk in the last month, falls in the last year, multiple falls in the last year, and fear of falling. Self-reported sleep medication use dichotomized for analysis (0= once/week or less; 1= 2 or more times/week) was the exposure of interest. Osteoporosis was self-reported (yes/no). **Results:** Of the 8,245 participants, 7,609 were community-dwelling, 58% female, 68% white, and 20.5% had osteoporosis. Multivariable logistic regression analysis showed, among osteoporotic older adults, sleep medication users, compared to rare- or non-users, had higher odds of a fall in the last month (O.R. = 1.64, 95% CI: 1.10, 2.47), in the last 12 months (O.R. = 1.60, 95% CI: 1.20, 2.12), multiple falls in the last 12 months (O.R. = 1.64, 95% CI: 1.08, 2.50), and fear of falling (O.R. = 1.58, 95% CI: 1.18, 2.11). Models adjusted for sociodemographic factors, anxiety, depression, diabetes, arthritis, and hypertension. **Conclusion:** Osteoporotic sleep medication users show increased risk of falls, multiple falls per year, and fear of falling. As older adults with osteoporosis are already at increased risk of falls, reducing sleep medication use may decrease this risk, thus decreasing the need for costly medical care. This study contributes vital knowledge to clinicians' efforts to reduce falls in vulnerable older adults and may help reduce overall economic burden to Medicare.

P9/19- HERITABILITY OF THE DIAGNOSTIC COMPONENTS ON SARCOPENIA IN MIDDLE-AGED AND OLDER ADULTS IN JAPAN: A TWIN STUDY. Daisuke Matsumoto(1,2,3), Fujio Inui(1,2,3), Chika Honda(3,4), Rie Tomizawa(3,5), Mikio Watanabe(3,6), Norio Sakai(3,6), Osaka Twin Research Group(3) *((1) Graduate School of Health Sciences, Kio University, Japan; (2) Faculty of Health Sciences, Kio University, Nara, Japan; (3) Center for Twin Research, Osaka University Graduate School of Medicine, Osaka, Japan; (4) Faculty of Nursing, Shiga University of Medical Science, Shiga, Japan; (5) Graduate School of Nursing, Osaka Metropolitan University, Osaka, Japan; (6) Division of Health Sciences, Osaka University Graduate Sch ool of Medicine, Osaka, Japan)*

Background: The genetic and environmental aspects of the diagnostic components of sarcopenia are not yet well understood. **Objectives:** The present study aimed to estimate the heritability of the diagnostic components of sarcopenia and investigate the relationships among them. **Methods:** The twin volunteers were recruited from the registry established by the Center for Twin Research, Osaka University, between June 2018 and December 2019. We analyzed the data from 84 participants (20 males and 64 females, 36 monozygotic [MZ] and six dizygotic pairs; mean age = 66.7 ± 12.0 years). The diagnostic components of sarcopenia relied on the Asian Working Group for Sarcopenia 2019. We assessed the handgrip strength as muscle strength and the usual gait speed as physical performance measure. A body composition analyzer (MC-780A; TANITA Co., Ltd., Tokyo, Japan) was used to determine body weight and bioelectrical impedance analysis In addition, the skeletal muscle index (SMI) was determined as the appendicular skeletal muscle mass (kg) divided by height squared. We estimated the narrow-sense heritability of these diagnostic components of sarcopenia and the genetic and environmental relationships between them using a genetic twin modeling. **Results:** Twelve participants (14.3%, five MZ pairs) were identified as low muscle quantity, six (7.1%, one MZ pair) as low muscle strength, and three (3.6%, no MZ pair) as low physical performance, respectively. Three participants (3.6%) including one MZ pair were diagnosed as having sarcopenia (one severe sarcopenia). For the usual gait speed, 38% (95% confidence interval: 0.09, 0.62) of the variance was explained by additive genetic effects, and 62% (95% confidence interval: 0.38, 0.91) was explained by unique environmental effects, although the heritability of usual gait speed was lower than the SMI (74%) and handgrip strength (63%). We could not find evidence of shared genetic and environmental variations among these components of sarcopenia. **Conclusion:** Usual gait speed may be more influenced by environmental factors than genetics, suggesting a high potential for improvement through the intervention.

P9/20- ASSOCIATION BETWEEN FOUR INTRINSIC CAPACITIES AND COGNITIVE IMPAIRMENT IN ADULTS AGED 60 YEARS AND OLDER WITH ALZHEIMER'S DISEASE IN A REAL-LIFE COHORT: MEMORA. Alfonso Zamudio-Rodriguez(1), Virginie Dauphinot(1), Claire Moutet(1), Elina Dedome(1), Antoine Garnier-Crussard(1,2) *((1) Clinical and Research Memory Center of Lyon, Lyon Institute For Aging, Hospices Civils de Lyon, Villeurbanne, France; (2) Normandie Univ, UNICAEN, INSERM, U1237, PhIND «Physiopathology and Imaging of Neurological Disorders», NeuroPresage Team, Cyceron, Caen, France)*

Background: The prevalence of all-cause dementia is projected to increase from 50 million people in 2010 to 113 million in 2050 worldwide. Beyond neurodegenerative and vascular brain lesions leading to cognitive impairment, evidence suggests that a decline in intrinsic capacities (IC) may contribute to an increased risk of dementia in older adults. However, it is unknown whether patients with Alzheimer's disease (AD) at the early stage (i.e., who are mildly impaired) may have a higher IC (mobility, audition, nutrition, psychological) than those in a more advanced stage of impairment. Therefore, this study aimed to determine the association between four intrinsic capacities and cognition in AD. **Methods:** Cross-sectional study involving 538 AD patients aged 60 years or older from the MEMORA real-life cohort and attending a memory clinic. We focused on the four IC domains: mobility (SPPB > 9), audition (HHIE-S < 12), nutrition (MNA ≥ 24), and mood (GDS-4 = 0), combining the values obtained into a total IC score (score 0 - 4). Patients were considered mildly impaired if MMSE was ≥ 20/30 and moderately/severely impaired if MMSE < 20/30. Logistic regression models were constructed to assess the association between IC score and cognitive performance, adjusting for potential confounders. **Results:** The mean age was 81.4 years (SD 6.0), 66.7% were women, and 45.7% of patients were mildly impaired. The frequency of preserved IC (mobility, audition, nutrition, psychological) was 15.0%. Compared to those who were mildly impaired, those who were moderately/severely impaired were older (80.3 ± 6.4 vs. 82.3 ± 5.8; p<0.001) and had lower IC (2.5 ± 1.1 vs. 2.1 ± 1.1; p<0.001). The logistic regression model adjusted for age, sex, and education showed that IC was associated with cognitive performance (OR = 0.81, 95% CI, 0.66 - 0.99; p= 0.040). **Conclusion:** Higher IC was independently associated with cognitive performance in older adults with AD. Probably, the higher level of IC leads to higher resilience and coping capacities leading to preserving cognitive capacity in older adults with AD, and improving IC may constitute part of preventive strategies for AD. However, these results need to be verified with a longitudinal approach.

ANIMAL MODELS, PRECLINICAL STUDIES

P10/1- AGE-ASSOCIATED SEM CELL EXHAUSTION PROMOTES FRAILTY. Ander Matheu(1), Leire Moreno-Cugnon(1) *((1) Cellular Oncology Laboratory, Biodonostia Institute, San Sebastian, Spain)*

Background: Stem cell exhaustion is a critical process involved in the decline of the regenerative capacity of tissues with age but its impact on longevity and frailty requires further investigation SOX2 marks and maintains the activity of stem and progenitor cell populations in multiple adult tissues. **Objectives:** Our aim is to study the impact of SOX2 in frailty, longevity and age-associated stem cell exhaustion. **Methods:** To study SOX2 function in frailty and longevity, we took advantage of $Sox2E^{GFP}$ mouse model, in which one copy of Sox2 was replaced by GFP. **Results:** By naturally aging Sox2GFP heterozygous mice, we found that aged $Sox2^{GFP}$ haploinsufficient mice present generalized tissue impairment and signs of accelerated aging including tissues where Sox2 activity is linked to stem cells (stomach, lung, testes) or are relevant for aging (kidney, spleen). At the organismal level, they display aggravated cognitive decline and frailty, however longevity seems to be partially affected (maximal lifespan is not altered. At cellular level, we found diminished number of neurospheres in $Sox2E^{GFP}$ mice. Furthermore, we observed that type A and B neural stem cells (NSCs) together with neuroblasts were decreased in $Sox2^{EGFP}$ mice in vivo in old, but not young mice and this correlated with increased accumulation of DNA damage and oxidative stress, as well as decreased telomere length in the subventricular zone. Moreover, SOX2 reactivation in neurospheres from 2-years mice rejuvenated NSCs activation. **Conclusion:** Altogether, our results confirm that SOX2 plays a major role in stem cell exhaustion, frailty and aging.

P10/2- DEVELOPMENT OF IN VIVO MODELS TO EVALUATE MOLECULES ON MUSCLE MASS AND FUNCTION. Sophie Raynal, Fawzia Mouveaux, Michaël Bonnet, Christelle Delalande, Karine Bardin-Deval, Valérie Autier, Micheline Kergoat *(Metabrain Research, Les Ulis, France)*

Background: Metabrain Research is a biotechnology company focusing on the impact of muscle dysfunction in cardiometabolic diseases. Indeed, it was reported that 10-year cardiovascular disease incidence in a general population is inversely correlated with muscle mass. **Objectives:** To explore this field, the company has developed several animal models and associated muscle tests to evaluate selected leads on muscle health. **Methods:** A first model of hindlimb immobilization and remobilization in mice was developed in association with measurement of force using grip test to reproduce medical immobilization, trauma situation or sedentary behavior after surgery. A second model of diabetic GK rats aggravated or not with a high fat diet was used to mimic human pathological

state associated with sarcopenia and physical activity was evaluated in swimming session. A selected lead molecule was tested in those models to evaluate its efficacy on muscle mass and function. **Results:** All the developed models exhibited sarcopenia features, i.e., loss of muscle mass, altered muscle function with shortened swimming time (-40%, $p<0.01$ vs controls) and extended immobilization time (+80%, $p<0.01$ vs controls), and increase in gene expression associated with muscle loss (myostatin, atrogin). In addition, in GK rats, muscles were infiltrated with numerous lipid vacuoles and excreted 3 methyl-histidine, a marker of protein degradation, was increased. Interestingly, the molecule tested was able to molecularly decrease myostatin and atrogin expressions (around -80%, $p<0.0001$ vs controls) and improve muscle function, i.e., improvement of relative force in immobilized model in association with a greater muscle mass during remobilization. **Conclusion:** We developed animal models that allow the screening and the selection of effective molecules on muscle function and mass preservation offering a promising therapy for patients affected by metabolic aging, who do not currently benefit from relevant therapeutic solutions.

P10/3- ROLE OF SENESCENCE AND INFLAMMATION IN NOONAN SYNDROME PATHOPHYSIOLOGY. Laurène Mazeyrie(1), Ophélie Pereira(1), Lucas Bourdens(1), Marie Sallese(1), Céline Saint-Laurent(1), Romain Paccoud(1), Marine Delagrange(2), Jean-Philippe Pradère(1), Philippe Valet(1), Cédric Dray(1), Thomas Edouard(2), Armelle Yart(1) *((1) Restore, UMR1301 - Toulouse, France; (2) Centre Hospitalier Universitaire De Toulouse - Toulouse, France)*

Background: Noonan Syndrome (NS), a relatively frequent genetic disease associating multiple congenital defects, seems to be also characterized by a premature aging phenotype. Indeed, patients display bone and muscle weakening, predisposition to myeloproliferative disorders (MPD), and metabolic disturbances, that are reminiscent of age-related diseases. Recent data reveal recurrent dysfunctions of myelomonocytic cells (macrophages, myeloid precursors, osteoclasts) in lane with NS clinical signs and the contribution of myeloid cells and an inflammatory component (the so-called inflammaging) in aging-associated diseases is well-established. NS is mainly caused by gain-of-function mutations in Ptpn11, encoding the tyrosine phosphatase SHP2, that result in its hyperactivation, pinpointing a possible role of SHP2 hyperactivation in age-associated disorders. **Objectives:** Our objectives are: 1- To characterize the early aging/frail phenotype associated to NS in a well-established mouse model of the disease, with a focus on muscle weakness, and to understand the underlying mechanisms. 2- To determine if SHP2 hyperactivation can contribute to the pathophysiology these disorders in a context of ageing. **Methods:** Thanks to different mouse models approaches (genetic, pharmacological, diet and aging), we are characterizing the role of SHP2 hyperactivation by different in vivo measures (grip test, Rotarod, Kinetic Weight Bearing (KWB)) and in vitro analyses in muscle. **Results:** As demonstrated in other tissues, we show an increase of inflammation and senescence genes expression in NS mice muscles correlated with a decrease of strength, animal speed and strength of the paws. Moreover, with bone marrow transplantation (BMT), NS mice transplanted with WT bone marrow show a decrease of senescence genes expression and an increase of strength compared to NS mice transplanted with NS bone marrow. Treatment of aged mice (physiological or metabolic aging) with SHP2 inhibitors reduces senescence and inflammation, and counteracts ageing-driven muscle wasting. **Conclusion:** With the characterization of muscle weakness associated to metabolic dysfunction in Noonan Syndrome, we hope to understand and improve patients' quality of life. Furthermore, beyond rare diseases, this project may highlight new therapeutic strategies to combat age-related diseases.

BIOMARKERS AND IMAGING

P11/1- ASSOCIATION BETWEEN CREATININE-TO-CYSTATIN C RATIO AND PREVALENT AND INCIDENT FRAILTY IN OLDER POPULATIONS. Shuli Jia, Meiling Ge, Birong Dong *(The Center of Gerontology and Geriatrics (National Clinical Research Center for Geriatrics), West China Hospital, Sichuan University, Chengdu, China)*

Background: Creatinine to cystatin C ratio (CCR) is recently suggested to be a surrogate marker for sarcopenia. However, little is known about whether CCR is a candidate biomarker for physical frailty. This study aimed to investigate the association between CCR and prevalence and risk of incident frailty in older adults based on a large-scale prospective cohort. **Methods:** Cross-sectional and longitudinal analyses with 4-year follow-up of 3914 older adults aged ≥60 years enrolled in the China Health and retirement Longitudinal Study (CHARLS). Levels of serum of creatinine and cystatin C were measured to calculate the CCR. Frailty was assessed using a modified version of the physical frailty phenotype (PFP) including five binary criteria (weakness, slowness, exhaustion, low activity level and weight loss). Participants with three or more criteria were defined as frail. Multinomial logistic regression were used for the associations between CCR and frailty at baseline (2011), and discrete-time cox proportional hazards models were applied to evaluate the association between CCR and incident frailty over 4 years follow-up (2013-2015). **Results:** Of the 3,914 older adults, 3,549 (91.7%) were non-frail, and 365 (9.3%) frail at baseline. During follow-up, there were 474 subjects (13.2%) of incident frailty among those non-frail at baseline. In cross-sectional analysis, the multivariable-adjusted odds ratio (OR) for prevalent frailty was 0.87 (95% confidence interval (CI), 0.76 to 0.99) per 1 standard deviation (SD) higher of normalized CCR. In longitudinal analysis, the multivariable-adjusted hazard ratios (HR) for risk of incident frailty at follow-up was 0.83 (95% CI, 0.74 to 0.93) per 1 SD higher of normalized CCR. When compared with those with the lowest quartile of CCR, participants with the highest quartile of CCR had lower risk of risk of incident frailty (HR 0.52, 95% CI 0.35-0.75, P=0.001). **Conclusion:** Higher CCR levels was independently associated with reduced

prevalence of frailty at baseline and risk of incident frailty in community-dwelling older adults. CCR might represent a potential serum biomarker of physical frailty. However, further studies are needed to validate the results and investigate the underlying mechanisms.

P11/2- ERECTOR SPINE MUSCLE AREAS ASSOCIATED WITH DAILY STEP COUNT IN PATIENTS WITH IDIOPATHIC PULMONARY FIBROSIS. Hirotsugu Ohkubo, Kohei FujitaAkiko Nakano Keima Ito, Yuta Mori, Kensuke Fukumitsu, Satoshi Fukuda, Yoshihiro Kanemitsu, Takehiro Uemura, Tomoko Tajiri, Ken Maeno, Yutaka Ito, Tetsuya Oguri, Yoshiyuki Ozawa, Takayuki Murase, Akio Niimi *(Department of Respiratory Medicine Allergy and Clinical Immunology, Nagoya City University Graduate School of Medical Sciences, Mizuho-cho, Mizuho-ku, Nagoya, Aichi, Japan)*

Background: Assessment of the cross-sectional area of the erector spinae muscles (ESMCSA), and psoas major muscle volume (PMV) by computed tomography (CT) can be used to evaluate muscle loss in patients with various diseases including cancer, and chronic obstructive lung disease. **Objective:** We aimed to confirm whether ESMCSA and PMV are associated with daily step counts in patients with idiopathic pulmonary fibrosis (IPF). **Methods:** Fifty-nine IPF patients who completed chest, abdominal, and pelvic CT scans, pulmonary function tests, 6-minute walk tests, and daily step counts were prospectively enrolled in this cross-sectional pilot study. The daily step count was measured continuously for 7 consecutive days using a tri-axis accelerometer. **Results:** The mean age was 73.3 ± 8.1 years, and the mean percent predicted forced vital capacity was 81.6 ± 15.8%. The mean ESMCSA and PMV were 25.5 ± 6.7 cm2 and 270 ± 75.6 cm3, respectively. The median daily step count was 4258 [2155–6991] steps. Both the ESMCSA and PMV correlated well with age and body mass index; however, the ESMCSA was weakly correlated with pulmonary function tests. Linear regression analysis for daily step count showed that ESMCSA was an independent factor for daily step count (Standardized β 0.36, P=0.007), whereas PMV was not. **Conclusion:** This study showed that ESMCSA is useful in predicting daily activity in patients with IPF. **Key words:** idiopathic pulmonary fibrosis, erector spinae muscle, computed tomography, 6-min walk test, daily step count. **Conflict of interest:** The authors have declared that no competing interests exist.

P11/3- MYOSTATIN AND ITS DOWNSTREAM REGULATING PATHWAY IMPAIRS SKELETAL MUSCLE REGENERATION UNDER HYPOBARIC HYPOXIA. Sukanya, Srivastava, Richa Rathor, Geetha Suryakumar *(Defence Institute of Physiology and Allied Sciences, DRDO, Delhi, India)*

Background: High altitude induced skeletal muscle atrophy attributes to loss of skeletal muscle mass, physical performance, reduced regeneration and repair capacity of skeletal muscles. The balance between regeneration and degeneration is regulated by several myokines. Myostatin, is a potential myokine and a key mediator of catabolic pathways also known to play a crucial role in negative regulation of skeletal muscle mass. However the role of myostatin and its signaling cascades under prolonged HH is still unexplored. **Material and Methods:** Male Sprague Dawley rats (n=5 each group) weighing 220-250gms were exposed to hypobaric hypoxia (25000ft) for different durations 01, 03 and 07 days. After the exposure animals were sacrificed and hind limb muscles were excised for further analysis. **Results:** The levels of myostatin were accelerated significantly with prolonged HH exposure when compared to normoxic rats. The enhanced myostatin levels activated and upregulated the expression of the downstream mediators, of skeletal muscle mass, SMAD3, SMAD4 and MURF-1 in relation to control rats. Additionally, the myogenic regulatory markers PAX-7, cyclinD1 and myogenin were reduced during prolonged HH exposure. An overexpressed protein carbonyl content, 3 nitrotyrosine and AOPP levels depicted an increased oxidative damage. The master regulator of mitochondrial biogenesis PGC-1α exhibited an incline during 1 dHH and later showed a declining trend with progressive HH exposure. **Conclusion:** The results indicate that the levels of myostatin and its downstream signaling pathway leads to muscle loss with prolonged HH exposure and disturbs the repair and regeneration capacity of skeletal muscle mass. Hence myostatin could be a potential biomarker for assessing the skeletal muscle loss and reduced physical performance at high altitude.

P11/4- A SCOPING REVIEW OF SARCOPENIA SCREENING TOOLS. Rongna Lian(1,2), Gengchen Jiang(3), Qianqian Liu(3), Qiling Shi(3), Shuyue Luo(1,2), Lei Wang(4,5), Ming Yang(1,2) *((1) National Clinical Research Center for Geriatrics, West China Hospital, Sichuan University, Chengdu, China; (2) Center of Gerontology and Geriatrics, West China Hospital, Sichuan University, Chengdu, China; (3) The First School of Clinical Medicine, Lanzhou University, Gansu, China; (4) Department of Medical Ultrasound, Sichuan Provincial People's Hospital, University of Electronic Science and Technology of China, Chengdu, China; (5) Chinese Academy of Sciences Sichuan Translational Medicine Research Hospital, Chengdu, China)*

Background: Researchers and clinicians face multiple options when screening for sarcopenia. Choosing the optimal screening tool for a specific clinical scenario is challenging. **Objectives:** We aimed to provide a comprehensive picture of all sarcopenia screening tools to help researchers and clinicians choose appropriate tools more effectively and provide valuable information for the development of future tools. **Methods:** We systematically retrieved the following databases in April 2022: MEDLINE, EMBASE, and CENTRAL. Diagnostic test accuracy studies were included. Two authors independently performed the study selection and data extraction. The characteristics and citations of the included tools were summarized. **Results:** We screened 2,105 search records and included 105 studies. We identified 54 screening tools, which

were categorized into questionnaires (n=13), biomarkers (n=10), formulas and models (n=9), physical performance tests (n=9), integration tools (n=7), anthropometric measures (n=3), and imaging methods/BIA (n=3). The most commonly used questionnaire was SARC-F (770 citations), followed by SARC-CalF (254 citations) and MSRA-7 (61 citations). Sarcopenia index (based on serum cystatin C and creatinine) and Ishii score were the most widely used serum biomarker (123 citations) and formula (294 citations), respectively. Handgrip strength and calf circumference (CC) were the most commonly used physical performance test (331 citations) and anthropometric measure (127 citations), respectively. Ultrasound was the most commonly used imaging method (57 citations). The diagnostic accuracy of these tools was assessed in community-dwelling people (sensitivity: 0.54~0.63; specificity: 0.79~0.84) and hospital residents (sensitivity: 0.63~0.72; specificity: 0.74~0.80). Questionnaires, CC, and Ishii score were assessed in nursing home residents (sensitivity: 0.41~0.59; specificity: 0.80~0.90). The included tools varied significantly in content. Some assessed parts or entire components of sarcopenia with different methods, while others assessed different domains, such as age, sex, body mass index, falls, diet, and even mental health. **Conclusion:** Over 50 sarcopenia screening tools are currently available, which assess significantly different contents. Questionnaires (especially SARC-F) are more commonly used than other tools.

P11/5- TOWARDS EXAMINING EFFECTS OF AGE ON SKELETAL MUSCLE WITH SIMULTANEOUS HIGH-RESOLUTION MRI MEASUREMENTS OF MUSCLE TEXTURE AND T2. Bragi Sveinsson(1,2) *((1) Athinoula A. Martinos Center for Medical Imaging, Department of Radiology, Massachusetts General Hospital, Boston, USA; (2)Harvard Medical School, Boston, USA)*

Background: Magnetic Resonance Imaging (MRI) can not only provide high-resolution anatomical information but also quantitative measurements of tissue microstructure. An example quantitative measure is the relaxation parameter T2, which has been related to tissue inflammation and hydration. In this work, we demonstrate the ability to do simultaneous high-resolution measurements of T2 and muscle texture in skeletal muscle using an ultra-high MRI field strength of 7T and compare the results in two healthy subjects with a 39-year age difference. **Objectives:** Our objective is to demonstrate preliminary results from simultaneous MRI measurements of skeletal muscle texture and T2 at a very high resolution in two healthy subjects of differing age. Such measurements could potentially serve as a tool to aid in investigating conditions such as sarcopenia. **Methods:** We used the DESS MRI method on a 7T MRI to obtain axial images in the lower thigh of two healthy female subjects, one 23 years old and the other 62 years old. We used repetition/echo times of 22.5/6.3 ms and a flip angle of 20°. This enabled a high-resolution voxel size of 0.148×0.148×2 mm, resulting in a total scan time of 11.5 minutes. Starting at the upper tip of the patella and proceeding proximally up the thigh, we drew a region of interest (ROI) around the vastus medialis muscle in 25 slices. Muscle texture was quantified by computing the standard deviation of the intensity of the first DESS signal divided by its mean (σ/μ). By comparing the intensities of the first and second DESS signals, we estimated the T2 relaxivity using MRI physics models. **Results:** In the younger scan subject, the average σ/μ was measured as 20.2% and the average T2 was 31.7%. In the older subject, the corresponding values were 21.7% and 24.5% for the σ/μ and the T2, respectively. **Conclusion:** This small study is not powered to fully determine differences in skeletal muscle between age groups, but the results indicates that such measurements are feasible within reasonable scan times. This could eventually provide a tool for assessing details about muscle not apparent from simple morphology. Such a tool could be valuable for monitoring conditions such as sarcopenia.

P11/6- RELIABILITY AND CORRELATION OF 3D FREEHAND ULTRASOUND MUSCLE VOLUME MEASUREMENTS WITH DXA OR BIA IN A GERIATRIC REHABILITATION WARD. Jeremie Huet(1,2), Antoine Nordez(2), Christophe Cornu(2), Anne-Sophie Boureau(1) *((1) Geriatric Department, Nantes Université, Nantes, France; (2) Nantes Université, Movement - Interactions - Performance, MIP, UR 4334, Nantes, France)*

Background: Sarcopenia is a very frequent and devastating disease in the elderly but lacks of accessible tools for diagnosis and follow-up. 2D ultrasound shows an emerging interest in the field to estimate muscle mass but still needs standardisation and suffers from low predictive values. Freehand 3D ultrasound (3D-US) has been developed in preclinical settings and is well validated for measuring muscle volumes. Muscle volume should be better correlated with total muscle mass and muscle function in the elderly. Moreover, our team has managed to validate a new 3D-US technique, applicable in a geriatric clinical setting. **Objectives:** Measure the intra-rater reliability of muscle volume measurements with a new 3D-US setting. Analyse its correlation with muscle function and total appendicular skeletal muscle mass. **Methods:** Patients were recruited prospectively in the Nantes Geriatric rehabilitation ward between may and october 2022. We excluded patients with edema. All patients had a bioelectrical impedance analysis (BIA). In addition, those with an indication of bone densitometry underwent a dual X-ray absorptiometry (DXA) analysis of body composition. Moreover, maximum voluntary isometric contraction for each muscle group was measured with a hand-held dynanometer. 3D-US was performed on 3 muscles of the right lower limb with a portable optical tracking set-up and real-time volume reconstruction software. Volume segmentation was done by an experienced operator using semi-automatic software. Intraclass correlation coefficients (ICC) were used to assess reliabilty. Pearson's correlation coefficient and linear models were used to analyse correlation between measurements. **Results:** 60 patients (mean age 87) volunteered to participate. Among those, 22 had a DXA analysis. 10 patients had a second evaluation of muscle volume : ICC was 0.99 (CI

= [0.98, 1]). All muscle volumes were well correlated with total appendicular skeletal muscle mass (ASMM), regardless of the method used. Even if still significant, muscle volumes were less correlated with measured MVIC. In a multivariate linear model, only weight, sex and tibialis anterior volume were significantly associated with ASMM with an adjusted R-squared of 0.75. **Conclusion:** 3D-US is a reliable technique to measure muscle volumes in a geriatric ward. Its good correlation with ASMM suggests its potential for follow-up and prognosis.

P11/7- ASSOCIATION OF EPIGENETIC AGE WITH CLINICAL FRAILTY AND OUTCOMES IN A PILOT STUDY OF ADULTS WITH CIRRHOSIS UNDERGOING LIVER TRANSPLANTATION. Sara C LaHue(1,2), Stephanie Roa(1,2), Srilakshmi Seetharaman(2), Thelma Y Garcia(1,2), Matias Fuentealba(1), David Furman(1), Jennifer C Lai(2), John C Newman(1,2) *((1) Buck Institute for Research on Aging, Novato CA, USA; (2) UCSF School of Medicine, San Francisco, CA, USA)*

Background: Frailty is an important predictor of mortality and clinical outcomes in adults with cirrhosis. Biological mechanisms of aging may underlie frailty, and can be estimated by epigenetic clocks such as PhenoAge via changes in DNA methylation (DNAm). Biological age is accelerated (AgeAccel) when epigenetic>chronological age. Cirrhosis is a unique context in which to study frailty because frailty strongly predicts clinical outcomes even with relatively young chronological age, and frailty is reversible after transplant. The Functional Assessment in Liver Transplantation (FrAILT) Study is a prospective study of >800 adults with cirrhosis awaiting liver transplantation and includes detailed liver frailty index (LFI) data which predicts pre-transplant mortality. **Objectives:** Test in a pilot feasibility study the association between clinical frailty scores and DNAm PhenoAge AgeAccel in FrAILT, as well as the association of Age Accel with clinical outcomes after liver transplant. **Methods:** DNA samples from peripheral blood mononuclear cells of 12 UCSF participants in the FrAILT Study were selected for this pilot. DNAm status of 850,000 CpG sites was measured in triplicate using Illumina MethylationEPIC arrays. AgeAccel was derived from a linear regression model where DNAm PhenoAge was regressed on chronological age. Group differences calculated by T-test. **Results:** Seven subjects were frail (LFI≥4.4, mean age 55) and 5 were robust (LFI<3.2, mean age 55). All subjects were transplanted. The mean coefficient of variance for 3 biological age replicates was 0.05. DNAm PhenoAge biological age was associated with chronological age (R2=0.66). Mean AgeAccel was +2.5 years (P=0.23) in frail vs. robust subjects. 4 subjects who died or were readmitted post-transplant had mean AgeAccel +3.8 years (P=0.07) vs. 8 subjects without these outcomes. **Conclusion:** In this pilot study of epigenetic age in a relatively young transplant population, measuring biological age was feasible and AgeAccel may be associated with both clinical frailty and clinical outcomes. A larger study is needed for a fully powered analysis, and to determine if biological age provides predictive power for frailty-related outcomes independent of clinical frailty measures.

P11/8- PLASMA MICRORNA SIGNATURE ASSOCIATED WITH SKELETAL MUSCLE WASTING IN POSTMENOPAUSAL OSTEOPOROTIC WOMEN. Veronica Sansoni(1), Martina Faraldi(1), Jacopo Vitale(2), Silvia Perego(1), Marta Gomarasca(1), Carmelo Messina(3,4), Luca M Sconfienza(3,4), Giuseppe Banfi(1,5), Sabrina Corbetta(4,6), Giovanni Lombardi(1,7) *((1) Laboratory of Experimental Biochemistry & Molecular Biology, IRCCS Istituto Ortopedico Galeazzi, Milan, Italy; (2) Laboratory of Movement and Sport Science, IRCCS Istituto Ortopedico Galeazzi, Milan, Italy; (3) Radiology Unit, IRCCS Istituto Ortopedico Galeazzi, Milan, Italy; (4) Department of Biomedical Sciences for Health, Università degli Studi di Milano, Milan, Italy; (5) Vita-Salute San Raffaele University, Milano, Italia; (6) Endocrinology and Diabetes Service, IRCCS Istituto Ortopedico Galeazzi, Milan, Italy; (7) Department of Athletics, Strength and Conditioning, Poznań University of Physical Education, Poznań, Poland)*

Background: Skeletal muscle mass wasting almost invariably accompanies bone loss in elderly and the coexistence of these two conditions depends on the strong endocrine cross-talk existing between the two organs, other than their biomechanical coupling. Since the current diagnostics limitations in this field, given the progressive population ageing, more effective tools are needed. **Objectives:** Aim of this study was to identify a circulating microRNA signature as potential biomarker for the diagnosis of muscle mass loss in postmenopausal osteoporotic women. **Methods:** One hundred seventy nine miRNAs were assayed by qPCR in plasma samples from 28 otherwise healthy postmenopausal osteoporotic women. The cohort was divided in tertiles based on ASMMI (appendicular skeletal muscle mass index). miRNAs with a statistically significant fold change ≥±1.5, between the 1st and the 3rd tertile, were considered. A linear regression model was used to estimate the association between miRNA expression and ASMMI, adjusting for BMI, age, total fat at the quadriceps level (determined by MRI) and BMD (determined by DXA). ROC (receiver operating characteristic) curves were calculated to estimate the diagnostic potential of the identified miRNAs. Bioinformatics analysis was carried out to identified target genes and associated pathways regulated by up and down-regulated miRNAs. Target prediction and Gene Ontology (GO) enrichment analyses were conducted by mirWalk v3.0 and Panther v17.0, respectively. **Results:** Five miRNAs (hsa-miR-221-3p, hsa-miR-374b-5p, hsa-miR-146a-5p, hsa-miR126-5p, hsa-miR-425-5p) resulted down-regulated and 2 miRNAs (hsa-miR-145-5p, hsa-miR-25-3p) were up-regulated in the 1st tertile (lowest ASMMI tertile) compared to the 3rd tertile (highest ASMMI tertile). All the corresponding ROC curves had AUC> 0.8 ($p< 0.05$). The two signatures "hsa-miR-126-5p, hsa-miR-146a-5p, hsa-miR-425-5p" and "hsa-miR-126-5p, hsa-miR-146a-5p, hsa-miR-145-5p, hsa-miR-25-5p" gave the highest AUC (0.914 and 0.901, respectively). Pathway enrichment analysis demonstrated the involvement of the seven identified miRNAs in the regulation of skeletal

muscle mass. **Conclusion:** In this study, we identified, for the first time, two miRNA signatures specifically associated with muscle mass wasting in postmenopausal osteoporotic women.

P11/9- HIGH LEVELS OF SRAGE ARE ASSOCIATED WITH A GREATER RISK OF MORTALITY IN FRAIL OLDER ADULTS WITH TYPE 2 DIABETES. Lee Butcher(1), Jose A. Carnicero(2), Karine Pérès(3), Stefania Bandinelli(4), Francisco Jose Garcia-Garcia(5), Francisco Rodriguez Artalejo(6), Leocadio Rodriguez-Mañas(2), Jorge D. Erusalimsky(1) *((1) The Cellular Senescence and Pathophysiology Group, Cardiff Metropolitan University, Cardiff, UK; (2) Fundación para la Investigación Biomédica del Hospital Universitario de Getafe, Getafe, Spain; (3) Inserm, Bordeaux Population Health Research Center, UMR 1219, University Bordeaux, Bordeaux, France; (4) Geriatric Unit, Local Health Tuscany Center Agency, Florence, Italy; (5) Division of Geriatric Medicine, Hospital Virgen del Va lle, Complejo Hospitalario de Toledo, Toledo, Spain; (6) Department of Preventive Medicine and Public Health, School of Medicine, Universidad Autónoma de Madrid, Madrid, Spain)*

Background: Frailty is prevalent among older adults with Type 2 Diabetes (T2D). Elevated serum levels of the soluble receptor for advanced glycation-end products (sRAGE) predict mortality in frail older adults (Butcher et al. Age Ageing 2019; 48:691-697). On the other hand, the evidence that sRAGE is also related to a higher risk of mortality in people with T2D is inconsistent. **Objective:** We explored if frailty status influences the relationship between sRAGE and mortality in older adults with T2D. **Methods:** We analysed data of 394 individuals with T2D (median age, 76 years) from four population-based European cohorts, enrolled in the FRAILOMIC project. Participants were stratified by frailty status (n=282 non-frail and 112 frail). Multivariate Cox proportional hazards regression and Kaplan Meyer survival analyses were used to assess the relationship between sRAGE and mortality. **Results:** During six years of follow-up 99 individuals died (47 non-frail and 52 frail). Individuals who died had significantly higher baseline levels of sRAGE than those who survived (median [IQR]: 1211 [1156-1272] vs 1373 [1183-1659] pg/mL, P = 0.012). In the whole T2D group high serum sRAGE (>1524 pg/mL) was positively associated with an increased risk of death (HR 2.25 95%CI 1.52-3.35, P < 0.001). The risk of death was markedly enhanced in the frail subgroup (HR 2.48 95%CI 1.26-4.90, P = 0.009), compared to the non-frail subgroup (HR 1.64, 95%CI 0.91-2.98, P = 0.102). Kaplan-Meier analysis showed a significant difference in survival rates between T2D frail individuals with high sRAGE and those with low sRAGE (P = 0.001), whereas no survival difference was seen in the non-frail subgroup (P = 0.1). **Conclusion:** Frailty status influences the relationship between sRAGE and mortality in older adults with T2D. sRAGE could be used as a prognostic marker of mortality in this population, particularly if individuals are also frail. Determination of sRAGE in frail older adults with T2D could be a useful tool to determine the need for interventions to reduce mortality.

P11/10- DYSREGULATION OF PENTOSE PHOSPHATE PATHWAY AND ARGININE AND ORNITHINE METABOLISM ARE ASSOCIATED WITH DECLINED INTRINSIC CAPACITY IN OLDER ADULTS. Yiming Pan, Pan Liu, Yun Li, Lina Ma *(Department of Geriatrics, Xuanwu Hospital Capital Medical University, National Research Center for Geriatric Medicine, Beijing, China)*

Background: Intrinsic capacity can reflect the sum of individual physical and mental abilities, and can be used to comprehensively evaluate the health status of the older adults. As a functional indicator, the biological mechanism of intrinsic capacity is unclear. **Objective:** To explore candidate biomarkers and possible mechanisms of the declines in intrinsic capacity and each domains. **Methods:** Hospitalized patients aged 60 and over were recruited. The subjects were evaluated separately based on the five domains of intrinsic capacity proposed by the World Health Organization. Assessment tools adopted include: Short physical performance battery for mobility, Montreal cognition assessment for cognition, geriatric depression scale for psychology, self-reported hearing/visual impairment for sensory and nutritional risk screening for vitality. Serum from subjects were collected for metabolomics analysis. The metabolomics characteristics of the declined intrinsic capacity group and the non-declined group were compared. **Results:** The subjects consisted of 50 subjects with declined intrinsic capacity and 20 subjects with normal intrinsic capacity. Totally 349 metabolites were identified in the subjects' serum, including 24 differential metabolites related to intrinsic capacity. There were 5 metabolite sets and 13 pathways associated with the declines in each dimension of intrinsic capacity. **Conclusion:** Older adults with declined intrinsic capacity can be identified by characteristic serum metabolites. The decline in intrinsic capacity is accompanied by changes in various acyl carnitines, carbohydrates and amino acids. The pentose phosphate pathway and arginine and ornithine metabolism are closely related to intrinsic capacity. Redox balance is likely to play an important role in the decline in intrinsic capacity. **Key words:** metabolomics, intrinsic capacity, pentose phosphate pathway, arginine and ornithine metabolism, acyl carnitines.

P11/11- MUSCLE ECHOGENITY ASSESSMENT: INTERRATER AGREEMENT BETWEEN A RADIOLOGIST AND INTERNAL MEDICINE RESIDENTS. Sarah Damanti(1), Marta Cilla(2), Bruno Tuscono(3), Chiara Pomaranzi(4), Valeria Tiraferri(4), Valentina Canti(5), Giordano Vitali(6), Moreno Tresoldi(1), Patrizia Rovere Querini(4,5) *((1) Unit of General Medicine and Advanced Care, IRCCS San Raffaele Institute, Milan, Italy; (2) Center for Liver Disease, Division of Internal Medicine and Hepatology, IRCCS San Raffaele Institute, Milan, Italy, (3) Unit of Radiology, IRCCS San Raffaele Institute, Milan, Italy; (4) Vita-Salute San Raffaele University, Milan, Italy; (5) Department of Immunology, Transplantation and Infectious Diseases, IRCCS Ospedale San Raffaele, Milan, Italy; (6) San Raffaele Diabetes Research Institute, IRCCS Ospedale San Raffaele, Milan, Italy)*

Background: The burden of skeletal muscle signs and symptoms is elevated in both acute COVID-19 and post-acute COVID-19 infection [1,2]. It has therefore been postulated that muscle structural alterations underpin these manifestations [2]. SARS-CoV-2 may have a direct cytopathic effect on muscles, but also systemic inflammation [3], prolonged inactivity [4-7] and malnutrition can foster muscle catabolism. Muscle ultrasound (US) is a promising low-cost and non-invasive method to rapid assess muscle mass and quality [8-10]. The evaluation of muscle quality has gained increasing attention in the recent years since it seems to deteriorate earlier than muscle mass. Moreover, muscle quality is independently associated with relevant clinical outcomes [11-13]. Muscle quality is influenced by the quantity of non-contractile and contractile elements present in muscles. Fat and fibrous tissues appear white when examined with B-mode ultrasound, whereas skeletal muscles are black [14]. An increased rectus femoris echogenicity has been showed in COVID-19 patients [15] and indeed, the activation of genes promoting fibrosis has been demonstrated both in critical illness myopathy [16] and specifically in intensive care unit patients infected by SARS-CoV-2 [17]. The large applicability and the diagnostic accuracy of muscle quality ultrasound depend on interrater reliability that has been scarcely reported so far [18]. **Objectives:** We aimed at assessing the interrater agreement of a radiologist and two internal medicine residents in assessing muscle echo-intensity (EI) of COVID-19 survivors. **Methods:** One month after hospital discharge medial gastrocnemius ultrasound were performed. EI was measured with the Heckmatt visual grading scale [19] (from grade 1=normal to grade 3= markedly echo intense). Images were transferred to a computer and analysed separately by the physicians. Inter-rater agreement was calculated though Kappa Cohen coefficient. **Results:** 75 patients were enrolled. The interrater agreement was 0.32 ($p < 0.001$). **Conclusion:** Assessing muscle quality though ultrasound is simple and accessible to physician of different specialities. Our preliminary data in COVID-19 survivors suggest that the interrater agreement among operators with different seniority and competences is fair. If our data will be confirmed in larger samples muscle ultrasound could be an important tool to evaluate PASC syndrome. **Rerences:** 1. Carfi A, Bernabei R, Landi F. Persistent symptoms in patients after acute COVID-19. JAMA 2020;324:603–605; 2. Pleguezuelos E, Del Carmen A, Llorensi G, Carcole J, Casarramona P, Moreno E, et al. Severe loss of mechanical efficiency in COVID-19 patients. J Cachexia Sarcopenia Muscle 2021;12:1056–1063; 3. Azkur AK, Akdis M, Azkur D et al (2020) Immune response to SARS-CoV-2 and mechanisms of immunopathological changes in COVID-19. 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P11/12- IDENTIFICATION OF CIRCULATING EXOSOME-DERIVED PROTEIN BIOMARKERS FOR SARCOPENIA. Paula Aparicio(1,2,3), David Navarrete Villanueva(4), Alba María Gómez Cabello(4), Tresa López-Royo(1,2,3), Enrique Santamaría(5), Joaquín Fernández-Irigoyen(5), Karina Ausín(5), Germán Vicente Rodríguez(4), Rosario Osta(1,2,3), Raquel Manzano(1,2,3) *((1) LAGENBIO, Faculty of Veterinary, University of Zaragoza, Zaragoza, Spain; (2) Centre for Biomedical Research in Neurodegenerative Diseases (CIBERNED), Instituto de Salud Carlos III, Madrid, Spain; (3) Agroalimentary Institute of Aragon (IA2), Institute of Health Research of Aragon (IIS), Zaragoza, Spain; (4) GENUD (Growth, Exercise, Nutrition and Development) Research Group, University of Zaragoza, Zaragoza, Spain; (5) Proteomics Platform, Navarrabiomed, Hospital Universitario de Navarra (HUN), Universidad Pública de Navarra UPNA, IdiSNA, Pamplona, Spain)*

Background: Sarcopenia, the gradual and generalized loss of muscle mass and function with aging, is one of the major health problems in older people, given its high prevalence and enormous clinical and socioeconomic implications. Its diagnosis remains unclear, with physical tests that are difficult to access in clinical practice leading to an underdiagnosis of the disease. The analysis on exosomes, a subtype of plasma extracellular vesicles, is a new diagnostic possibility, allowing the analysis of protein biomolecules in an accessible and minimally invasive manner. Furthermore, these biomarkers could also be used for monitoring and evaluation of therapeutic responses in the disease. **Objectives:** In this context, our aim is to characterize the specific proteins contained in exosomes obtained from sarcopenic patients, to use them as biomarkers for diagnosis of the disease. **Methods:** For this purpose, plasma exosomes were isolated from sarcopenic patients and healthy robust controls of similar age and their cargo was analyzed by proteomics. Proteins whose concentration in exosomes was different between sarcopenic and robust patients were further validated using ELISA. Moreover, the concentration of these candidates was correlated to the EWGSOP2 sarcopenia tests for low strength and low performance to evaluate their sensitivity and specificity. **Results:** Our results show the existence of differences in the protein content of plasma exosomes between healthy and sarcopenic patients. It was found that the concentration of candidate proteins were significantly correlated with most of the physical tests. ROC curve analysis showed that the area under ROC curve (AUC) of our candidate proteins was 0.8921 (p=<0.0001, %95 CI 0,8201-0,9640) and 0.7476 (p=0.0016, %95 CI 0,6266-0,8687), respectively. In this line, two candidates have been identified as biomarkers to diagnose the disease. **Conclusion:** This study opens the door to the use of exosomal proteins to contribute in the diagnosis of sarcopenia.

DRUG DEVELOPMENTS

P12/1- LYSYL OXIDASE-LIKE 2 INHIBITOR RESCUES D-GALACTOSE-INDUCED SKELETAL MUSCLE FIBROSIS. Yongxin Wu(1), Qian Xiao(1) *((1) Department of Geriatrics, The First Affiliated Hospital of Chongqing Medical University, Chongqing, China)*

Background: Aging-related sarcopenia is currently the most common sarcopenia. The main manifestations are skeletal muscle atrophy, replacement of muscle fibers with fat and fibrous tissue. Fibrous tissue plays a principal role in force transmission, maintenance and repair of muscle fibers following injury. However, excessive fibrosis can impair muscle regeneration and function. Lysyl oxidase-like 2 (LOXL2) is a copper-dependent amine oxidase which function is to catalyze the crosslinking of elastin and collagen in extracellular matrix (ECM). Recent studies have found that selective LOXL2 inhibitors can reduce a variety of tissue fibrosis. However, there is still a lack of research on the effect and mechanism of LOXL2 and LOXL2 inhibitors on skeletal muscle fibrosis. **Objectives:** We aimed to investigate the expression level of LOXL2 in muscle of aged mice and the effect of selective LOXL2 inhibitor on Dgalactose (D-gal)-induced skeletal muscle fibrosis in fibroblast cells in vitro and C57BL/6J mice in vivo, and further elucidated the underlying mechanisms. **Methods:** The skeletal muscles from young and aged mice were first determined the degree of fibrosis and expression level of LOXL2. Then, mice derived skeletal muscle fibroblasts were used to investigate the signaling pathways conferring the protective effects of LOXL2 inhibitor against D-gal-induced senescence, collagen deposition, and redox balance disorder. C57BL/6J mice were subjected to injection of D-galactose to induce premature aging, followed by 8-week LOXL2 inhibitor intervention and assessment of skeletal muscle mass, strength and degree of muscle fibrosis. **Results:** The expression level of LOXL2 and fibrosis indicators were increased in aged mice. LOXL2 inhibitor markedly attenuated D-galinduced senescence, collagen deposition and increased production of reactive oxygen species (ROS) in fibroblasts. Mechanistically, LOXL2 inhibitor enhanced the mitochondria functions by inhibiting TGF-β1- evoked phosphorylation of p38 MAPK. LOXL2 inhibitor treatment partially enhanced the skeletal muscle mass, strength and reduced redox balance disorder in premature aging mice. **Conclusion:** LOXL2 inhibitor can alleviate senescence, fibrosis, and increased ROS in vitro. These effects are related to the inhibition of TGF-β1/p38 MAPK pathway. Furthermore, treatment with LOXL2 inhibitor partially restored structural and functional damage of skeletal muscle in premature aging mice which provide a new idea for treatment of sarcopenia.

PHYSICAL EXERCISE

P13/2- HEALTH-IMPROVING PHYSICAL CULTURE FOR THE ELDERLY AND ITS FEATURES.

Nataliia Prokopenko *(Chebotarev State Institute of Gerontology of the National Academy of Medical Sciences of Ukraine, Kiev, Ukraine)*

Background: Dosed physical activity is an effective element of the complex of non-drug therapy and rehabilitation for many diseases. The specificity of health-improving physical culture for the elderly is due to both age-related physiological changes in the body in the process of involution, and polymorbidity. **Objectives:** The study of the physical state of health of the elderly and the formation of basic principles regarding the physical training of the elderly for the improvement their health and prevent accelerated aging. **Methods:** 1704 men and women aged 50 and older were interviewed. The anamnestic method was applied, which made it possible to characterize the motor activity and health status (presence of chronic diseases, age of detection of diseases) of the interviewed persons by periods of their lives. 195 men and women aged 20-95 underwent psychophysiological testing. Indicators of the cardiovascular system, respiration, muscle strength, muscle endurance were measured. **Results:** Leading pathologies among the elderly are diseases of the cardiovascular system, nervous system and sensory organs, musculoskeletal system and connective tissue. The study showed that the index of physical activity among the respondents is very low, especially among women. At the same time, a sedentary lifestyle contributes to the emergence and development of the row of diseases: diseases of the circulatory system, respiratory organs, digestive organs, and the genitourinary system. It is shown that the basis of any health-improving program for the elderly should be cyclic aerobic exercises. The criteria for the distribution of elderly people into groups for physical education are given depending on the level of functional reserves of the cardiovascular system. The basic principles of health-improving physical culture for the elderly are substantiated. Suggested recommendations for of the preparation of training programs of the health. An example of a complex of exercises for morning hygienic gymnastics is given. **Conclusion:** Age-related changes in the body determine the specifics of health-improving physical culture, which requires an appropriate selection of training loads, methods and means of training. In old age, against the background of an increase in the volume of exercises for the development of general endurance and flexibility, the need for speed-strength loads decreases. The basic rules of health-improving physical culture for the elderly are an individual approach, medical supervision, competent self-control, exclusion of high-speed exercises, sudden movements, gradually increasing the intensity and duration of loads, full recovery of working capacity to the initial level after training.

P13/3- A MULTICOMPONENT EXERCISE INTERVENTION TO IMPROVE PHYSICAL PERFORMANCE IN COMMUNITY-DWELLING MEXICAN OLDER ADULTS: A RANDOMIZED CONTROLLED TRIAL.

De la Vega Cordero Edna Mayela, Rosas Carrasco Oscar, García González Ana Isabel, Castillo Aragón Alejandra, López Teros Miriam Teresa *(Departamento de Salud, Universidad Iberoamericana, Mexico City, Mexico)*

Introduction: the prevalence of a sedentary lifestyle is high in older adults and increased during the COVID-19 pandemic, which can be associated with the development of low physical performance in this population. Several studies have shown physical exercise's effectiveness in improving physical performance in older adults. **Objective:** to evaluate the effectiveness of a multicomponent physical exercise intervention to improve physical performance in a group of older adults in Mexico City during the COVID-19 pandemic. **Methods:** a randomized, single-blind, controlled clinical trial in the population of the FraDySMex cohort (Frailty, Dynapenia, and Sarcopenia in Mexican Adults), residents of three municipalities of Mexico City. Two groups were formed: intervention and control, a 16-week online multi-component physical exercise program was implemented in the intervention group, and educational sessions on health prevention related to physical exercise were given in the control group. Physical performance was evaluated through the short physical performance test (SPPB). Other variables were also evaluated: sociodemographic (sex, age, schooling), health (functional dependence, cognitive impairment, polypharmacy, comorbidity, frailty, sarcopenia, depressive and anxiety symptoms), nutrition (risk of malnutrition, weight, height, body mass index (BMI), calf and waist circumference) and lifestyles (physical activity, alcoholism and smoking). **Results:** a total sample of 68 participants was obtained, 33 in the intervention group and 35 in the control group, of which 70.45% were women, with an average age of 68.5 $\pm$ 5.55 years and 11.07 $\pm$ 4.41 years of schooling. In the comparisons of the means of the baseline characteristics between both groups, we can observe that there was no significant difference in any of the study variables. After 12 weeks of intervention, the intervention group showed a statistically significant improvement from baseline versus final measurement in SPPB total score at (10.24 $\pm$ 1.25 vs 11.57 $\pm$ 0.61, delta: 1.33 $\pm$ 0.64, p=0.000)) the same as in the categorical variable of low physical performance (SPPB $\leq$8) (12.2% vs 0%, delta 12.12, p=0.039), in the tandem balance test (10.57 $\pm$ 1.72 vs 11.66 $\pm$ 2.18, delta: 1.09 $\pm$ 0.4, p=0.028). In conclusion, the results of this study provide information on the effectiveness of a 16-week online multi-component physical exercise program for community-dwelling older adults in improving physical performance and functionality. On the other hand, the feasibility and reproducibility of the implementation of a 16-week online multi-component physical exercise program for older adults living in the community were shown. **Key words:** older adults, multi-component physical

exercise program, physical performance, COVID-19.

P13/4- IMPLEMENTATION CONSIDERATIONS FOR THE NOVEL CEDECOMS MOBILITY-PROMOTING INTERVENTION INITIATED IN THE EMERGENCY DEPARTMENT: A FOCUS ON OLDER ADULTS WITH MINOR INJURIES. Ruheena Sangrar(1), Veronique Provencher(2), Alexandra Kilfiger(3), Laura Cayot(4), Solène Cavalié(5), Audrey Desjardins(5), Sandrine Hegg, Marie-Josée Sirois(7) *((1) Department of Occupational Science & Occupational Therapy, University of Toronto, Canada; (2) Faculté de médecine et des sciences de la santé, Université de Sherbrooke, Canada; (3) Hôtel Dieu de Lévis, Québec, Canada; (4) Clinique Générale de Valence, France; (5) Faculté de médecine, Université Laval, Canada; (6) Centre de recherche du CHU de Québec, Canada; (7) Centre d'Excellence sur le vieillissement de Québec, Canada)*

Background: Most seniors who visit the Emergency Department (ED) due to a minor injury, such as resulting from a fall, are discharged back to the community where they might experience physical and functional decline. Few evidence-based interventions exist to support the ED-to-home transition in this population with the goal of maintaining or improving functional performance. Furthermore, multiple organization- and individual-specific challenges exist in bridging services initiated in the ED with those in the community. **Objectives:** The aim of this study was to identify factors that should be considered in the design and implementation of an intervention facilitating ED-to-home transitions for seniors who have experienced a minor physical injury. **Methods:** In this descriptive qualitative study, semi-structured interviews were conducted between August 2019 and February 2020 with research staff (n = 13) and seniors (n =15) who administered or participated in the 4-site CEDeComS stepped-wedge trial. CEDeComS evaluated the effectiveness of a 12-week exercise program in preventing functional decline among pre-frail and frail seniors with minor injuries discharged back home from the ED. In this end-of-trial study, data collection and analyses were informed by the Diffusion of Innovation Theory and the Consolidated Framework for Implementation Research (CFIR). **Results:** Organized by CFIR domains, key factors that might influence intervention implementation included: 1) Intervention characteristics (e.g., core and adaptable aspects of an exercise program, availability of options for participation in exercise); 2) Community-based factors (e.g., patient-specific factors, relationships with external organizations); 3) ED contextual factors (e.g., interprofessional relationships, administrative and communication processes); and 4) Individuals responsible for delivering the intervention (e.g., personal and professional attributes). **Conclusion:** To support future implementation, protocols of novel exercise programs that bridge clinical settings need to articulate their essential and adaptable elements, clarify the ideal intervention candidate, and describe essential organizational processes and procedures. The most salient recommendations for intervention implementation can also be informed by cost-effectiveness evaluations and interprofessional collaboration principles. Pragmatic interventions, such as at-home or community-based exercise programs for seniors that support ED-to-home transitions following a minor injury might not only prevent physical deconditioning but also facilitate ongoing independence within their communities.

P13/6- FRAILTY PHENOTYPE OF OLDER PEOPLE LIVING ALONE AND IN SOCIAL ISOLATION IN A RURAL COMMUNITY IN PORTUGAL. Catarina F. Martins(2), Lara Carneiro(1,2), Luís Silva(2), Jorge P. Soares(2,3), Luís Cardoso(4,5), Maria Anjos(4,5), Maria Paula Mota(2,3) *((1) Physical Education Department, College of Education, United Arab Emirates University, Al Ain, Abu Dhabi, United Arab Emirates; (2) Research Centre in Sports Sciences, Health, and Human Development (CIDESD); (3) Department of Sport of Science Exercise and Health, School of Life and Environmental Sciences, (ECVA), UTAD; (4) Department of Veterinary Sciences, School of Agrarian and Veterinary Sciences (ECAV), UTAD; (5) Animal and Veterinary Research Centre (CECAV)-AL4AnimalS)*

Background: Life expectancy increase has been associated in rural communities with social isolation (SI), cognitive and functional decline, loss of quality of life, decreased independence, and increasing frailty. The frailty phenotype (FP) can be defined by three of these features: weakness, slow walking speed, unintentional weight loss, exhaustion, and low physical activity (PA). **Objectives:** This study aims to characterize the FP of older people living alone and in SI in a rural community and to examine and determine possible predictors of FP. **Methods:** 59 participants (80.07±6.31 years) who lived alone in rural areas of Vila Real were included. Sociodemographic data (including having a pet) and indicators of SI were collected. Body Mass Index (BMI) and Fried FP were assessed. PA was measured with a GT9X accelerometer and low grip strength was measured with a dynamometer. The Barthel Index (BI), Mini-mental State Examination (MMSE), Lubben Social Network Scale (LSNS-6), Depression Geriatric Scale (DGS), Short Performance Physical Battery (SPPB), and Lifestyle Scale (EEV) were also employed. Data were analyzed using multiple stepwise logistic regression models. **Results:** 81.4% of participants had one or more years of school, a BMI of 27.97±3.77 kg/m^2, several chronic diseases, and 56.9% owns a pet. Subjects were classified: as non-frail (37.3%), pre-frail (45.8%), and frail (16.9%) according to Fried FP. All the participants were independent (BI=99.83±0.91), presented no cognitive impairment (MMSE=27.03±3.86), had a moderated lifestyle (EEV=87.49±11.22), and exhibited 9.19±2.06 points on SPBB. The sample reported on average mild depressive symptoms (12.80±7.19), and 17.24±5.86 in LSNS6. Significant correlations were found between Fried FP and: age (rho=0.309), BI (rho=-0.29), EEV (rho=-0.376), and SPBB (rho=-0.597). Multiple regression analysis models indicated that SSPB (34.5%), LSNS-6 (8.2%), and daily steps (5.8%) predicted 48.5% of the FP variation (0.345<R2<0.485) (Y=4.643 -0.263*SPPB -0.045*LSNS-6 -4.062E-05daily

steps). The remaining variables were not considered for the model. **Conclusion:** Results revealed a prevalence of pre-frail status in individuals living alone in rural areas. In our predictive model, higher functionality, lower SI, and a higher level of daily steps could decrease and prevent FP. Exercise should be part of community intervention programs with older people to prevent and retard de FP development. **Funding:** This work was funded by the R&D&I project "oneHcancer – One health approach in animal cancer", the operation no.: NORTE-01-0145-FEDER-000078, co-funded by the European Regional Development Fund (ERDF) through NORTE 2020 (North Portugal Regional Operational Program 2014/2020). **Key words:** Frailty, Fried phenotype, Older Adults, Accelerometry, Pets.

P13/7- RELATIONSHIP BETWEEN MUSCLE RESPONSE TIME OF KNEE EXTENSION STRENGTH EXERTION AND GAIT IN OLDER ADULTS. Yasuo Suzuki(1,2), Yasumoto Matsui(2), Yuji Hirano(2), Izumi Kondo(2), Tetsuya Nemoto(2), Natsuka Taked (2), Masanori Tanimoto(2), Hidenori Arai(2) *((1) Nihon Fukushi University, Japan; (2) National Center for Geriatrics and Gerontology, Japan)*

Background: We previously developed a method to measure knee extension strength corresponding to a time axis and evaluated its application for motor function in older adults. In addition to maximum muscle strength, the time response of knee extension should influence gait, but this has not yet been adequately examined. **Objective:** To clarify the relationship between the time response of knee extension strength and gait in older adults. **Methods:** We enrolled 327 patients (119 men; average age: 77.5 ± 9.0 years) who visited the Integrated Healthy Aging Clinic. For gait, the walking speed, stride, and cadence were measured. The following indices of knee extension strength were measured: muscle reaction time (RT), time constant to reach maximum force (TC), rate of force development (RFD), and maximum value of the force (MVF). The age-adjusted partial correlation coefficients between knee extension strength indices and gait factors were obtained for both sexes in both legs. **Results:** Walking speed was significantly correlated with RFD ($p=0.019$) and MVF ($p<0.001$) in women's right legs and all indices except TC ($p<0.01$) in women's left legs, while in men, walking speed was correlated with RFD and MVF ($p<0.01$) in the right leg and with all indices in the left leg (RT & TC: $p<0.05$ and RDF & MVF: $p<0.01$). Stride was significantly correlated with MVF ($p<0.001$) in women's right legs and with all indices except TC ($p<0.05$) in women's left legs, while in men, it was correlated with RFD and MVF ($p<0.01$) in the right and with all indices (TC: $p<0.05$ and RT, RDF and MVF : $p<0.01$) in the left. Cadence was significantly correlated with RT, RDF ($p<0.05$), and MVF ($p<0.01$) in women's right legs and RT and MVF ($p<0.05$) in women's left legs, although in men, no index showed a significant correlation. **Conclusion:** Regarding walking speed and stride, RFD and MVF tended to show a correlation in both legs in both sexes, while RT and TC, indices related to time, were correlated to walking speed only in the left leg in both sexes. Cadence tended to be correlated with RT and MVF only in women in both legs.

P13/8- IMPROVED STRENGTH RECOVERY AND REDUCED FATIGUE CORRELATES WITH SUPPRESSED PLASMA MYOSTATIN FOLLOWING SUPPLEMENTATION OF AN ARTIFICIAL INTELLIGENCE DISCOVERED HYDROLYSATE DERIVED FROM VICIA FABA, IN A HEALTHY MALE POPULATION. Alish Kerr(1), Luke Hart(2), Heidi Davis(1), Audrey Wall(1), Seán Lacey(3), Andrew Franklyn-Miller(2), Nora Khaldi(1), Brian Keogh(1) *((1) Nuritas Ltd., Dublin, Ireland; (2) SSC Sports Medicine, Dublin, Ireland; (3) Research Integrity & Compliance Officer, Munster Technological University, Ireland)*

Background: Delayed onset muscle soreness (DOMS) due to intense physical exertion, or a change in physical activity, can negatively impact contractility and performance. Previously, NPN_1 (PeptiStrong™), a Vicia faba derived hydrolysate discovered through artificial intelligence (AI), was preclinically shown to help maintain muscle health, indicating the potential to mediate the effect of DOMS and molecular markers of muscle damage to improve recovery and performance. **Objective:** To assess the effect of NPN_1, on strength recovery and markers of muscle health, injury and function following strenuous resistance type exercise. **Methods:** A randomized double-blind placebo-controlled trial was conducted on 30 healthy male (30 - 45 y) volunteers (NCT05159375). Following initial strength testing on day 0, subjects were administered either placebo or NPN_1 (2.4g/day). On day 14, muscular fatigue and DOMS was induced using resistance exercise. Strength recovery and fatigue were measured on day 16 and 17. Biomarker analysis was performed on blood samples collected prior to DOMS-inducing routine and 0, 2, 48 and 72-hours following completion of the routine. **Results:** NPN_1 supplementation significantly improved strength recovery post-resistance exercise compared to placebo over the 72-hour recovery period ($P=0.027$), measured by peak torque per body weight. Muscle fatigue was significantly reduced at both 48- and 72-hours post-resistance exercise ($P=0.004$), as was myostatin expression ($P=0.006$). A concomitant increase in other acute markers regulating muscle protein synthesis, regeneration and myoblast differentiation was also observed. **Conclusion:** NPN_1, a plant-based ingredient, significantly improves strength recovery and restoration, reduces fatigue, and positively modulates alterations in markers related to muscle homeostasis. There is an opportunity to investigate the effects of NPN_1 in an older patient cohort.

P13/9- PHYSICAL INTERVENTION MODIFIES A PANEL OF INFLAMMATORY AND SENESCENCE MARKERS IN FRAIL OLDER ADULTS. D. Marcos-Pérez(1), I. Vergara(2), A. Matheu(1) *((1) Biodonostia Health Research Institute, group of Cellular Oncology, San Sebastian, Spain; (2) Biodonostia Health Research Institute, group of Primary Care, San Sebastian, Spain)*

Background: Frailty is a multidimensional geriatric syndrome associated with multiple negative health outcomes. Frailty represents a dynamic condition with potential of reversibility after an intervention. In this sense, there is strong evidence associating physical exercise-based interventions and improvement in frailty status. Furthermore, a large body of literature links accumulation of inflammation and senescence markers to age-associated diseases, functional decline, and frailty. Nevertheless, the expression of cellular senescence markers and inflammatory mediators in response to physical exercise and its impact on frailty remains unknown. **Objectives:** To assess the effect of physical intervention at molecular level in frail older adults focusing on inflammation and cellular senescence markers. **Methods:** Twelve frail older patients (71-82 years) were recruited at Primary Care setting in OSI Donostialdea and enrolled on a physical intervention plan. This plan consisted of two supervised training sessions per week of 1 hour during 3 months. Frailty status was assessed by functional capacity using the Short Physical Performance Battery (SPPB) test based on Casas-Herrero et al. 2022 (PMID: 35150086). Peripheral blood mononuclear cells and plasma samples were collected to measure senescence mRNA levels by RT-qPCR and inflammatory marker levels by cytokine arrays, respectively. **Results:** Participants showed a SPPB improvement in 8 out of 12 cases with values increasing from 7.15±0.52 to 8.08±0.51 points after intervention. In addition, the percentage of patients classified as frail decreases (42 to 17%) but prefrail (50 to 58%) and robust (8 to 25%) individuals increase. At molecular level, we found a significant reduction of several inflammatory biomarkers such as CXCL-1, CXCL-10, IL-10, IL-7, GM-CSF as well as the senescence marker p16INK4a after physical intervention in frail individuals. Otherwise, levels of RANTES and IL-4 were significantly increased. **Conclusion:** Our results suggest that physical intervention improves frailty status in our cohort from primary care setting. Additionally, physical intervention reverses inflammation and senescence biomarkers in frail individuals.

P13/10- SEX-SPECIFIC FEATURES OF INDIVIDUAL VASTUS LATERALIS MOTOR UNITS IN OLDER MALES AND FEMALES. Yuxiao Guo(1), Eleanor J. Jones(1), Thomas F. Smart(1), Abdulmajeed Altheyab(1), Nishadi Gamage(1), Jessica Piasecki(2), Bethan E. Phillips(1), Philip J. Atherton(1), Mathew Piasecki(1) *((1) Centre of Metabolism, Ageing & Physiology (COMAP), MRC-Versus Arthritis Centre for Musculoskeletal Ageing Research, National Institute for Health Research (NIHR) Nottingham Biomedical Research Centre, School of Medicine, University of Nottingham, Nottingham, UK; (2) Musculoskeletal Physiology Research Group, Sport, Health and Performance Enhancement Research Centre, Nottingham Trent University, Nottingham, UK)*

Background: Females typically have a longer lifespan than males which is not matched by a greater healthspan, with older females showing higher rates of frailty and falls, characteristic of a sex-specific degradation of the neuromuscular system. Voluntary contraction of muscle relies upon the coordinated activation of individual motor units (MU) which can be recruited based on their size and further modulated via the frequency at which they discharge, referred to as MU recruitment and firing rate (FR), respectively. We have previously shown divergent MU behaviour during mid-level contractions between younger males and females, highlighting a potential influence of hormonal differences which may be amplified in older age. **Objectives:** The purpose of this study was to investigate sex differences in physical performance and MU features of the aged human vastus lateralis. **Methods:** This study included 21 healthy older males (mean±SD, 67.2±7.6 y) and 18 healthy older females (69.8±5.1 y). Vastus lateralis electromyography data were collected by intramuscular needle electrodes during ~12s contractions normalised to 25% of maximal contraction. Force steadiness was quantified via the coefficient of variation (CV) of force, and muscle cross-sectional area (CSA) was determined by ultrasound. Decomposition-based quantitative electromyography (DQEMG) software was used to identify individual MU potentials (MUPs) and their corresponding MUP trains. MUFR was assessed as the rate of MUP occurrences within a MUP train, and MUP duration was utilised as an indicator of MU size. Student t test was used and significance was assumed when $p<0.05$. **Results:** Older males had greater muscle torque (M vs F: 158±38.5 vs 92±23.1 Nm, $p<0.001$), larger CSA (23.1±6.7 vs 12.9±3.8 cm^2, $p<0.001$) and better force steadiness (3.42±0.59 vs 4.53±2.03 CV%, $p=0.036$) than older females. Males had an 8.96% lower MUFR (8.10±0.97 vs 8.86±1.18 Hz, $p=0.037$) and a 14.52% longer MUP duration (9.38±1.69 vs 8.11± 0.93 ms, $p=0.006$) than females. **Conclusion:** Our findings demonstrate that older males have greater muscle strength and size, with greater motor control when compared to older females. In vastus lateralis, older females exhibit markers of smaller MU size and higher MUFR, indicating divergent sex-based MU recruitment strategies to achieve a normalised force

in older age.

P13/11- OPTIMAL RESISTANCE TRAINING INTENSITY FOR OLDER ADULTS WITH SARCOPENIA: A SYSTEMATIC REVIEW AND NETWORK-META-ANALYSIS. Chi Hsien Huang (1,2), Yu Chang Chen(1), Wang-Chun Chen(3), Wei-Yu Huang (1), Chia-Wei Liu(1) *((1) Department of Family Medicine, E-Da Hospital, Kaohsiung City, Taiwan, R.O.C.; (2) School of Medicine for International Students, College of Medicine, I-Shou University, Kaohsiung City, Taiwan, R.O.C.; (3) Department of Pharmacy, E-Da Hospital, I-Shou University, Kaohsiung, Taiwan, R.O.C.)*

Background: Resistance training (RT) and nutritional supplementation are recommended for the management of sarcopenia in older adults. Although moderate-intensity RT is widely suggested and well-tolerated in older population, optimal RT intensity has not been well investigated. Moreover, additional benefits from vigorous-intensity RT remains unclear. This network meta-analysis aimed to determine the comparative effectiveness of interventions for sarcopenia taking RT intensity into consideration. **Methods:** Databases including Pubmed, Embase, CENTRAL and Clinical Trial were searched for clinical randomized controlled trials regarding sarcopenia interventions from the inception of the database until Oct 1, 2022. Two reviewers independently reviewed the literature, extract data, and evaluate the risk of bias of included articles. Sarcopenia parameters including muscle mass, muscle strength, and physical performance are major outcome indicators. Bayesian NMA was performed using continuous outcome data. Interventions were ranked using the surface under the cumulative ranking curve (SUCRA) for individual outcome. RT intensity was classified by ACSM guideline. **Results:** A total of 50 RCTs were included for network meta-analysis after screening of 3485 articles. The results showed that confirmed that combination of RT with/without nutrition were positively associated with improved sarcopenia parameters, including 5 times sit-to-stand test, 30sec timed chair rise test(repetitions), timed up and go test(TUG), gait speed, appendicular skeletal muscle index(ASMI), skeletal muscle mass, hand grip(HGS), and leg press. Regarding RT intensity, light-to-moderate intensity RT(LMRT) only demonstrated desired effects on HGS(AT+LMRT+nutrition: mean difference [MD]=2.88; 95% CrI=0.43, 5.32). Moderate intensity RT (MRT)provided benefits on improvement in 30sec timed chair rise(repetitions)(MD=2.98, 95% CrI:0.35, 5.59), TUG(MD=-1.74, 95% CrI:=-3.34, -0.56), HGS(MD=2.44; 95% CrI= 0.03, 5.70), and leg press(MD=8.36; 95% CrI=1.87, 13.4). Moderate-to-vigorous intensity RT (MVRT) has additional benefits on 30sec timed chair rise (repetitions)(MD=5.64, 95% CrI=0.14, 11.4), GS(MVRT+nutrition: MD=0.21, 95% CrI=0.003, 0.48), ASMI(MVRT+nutrition: MD=0.25, 95% CrI=0.01, 0.5), and leg press(MD=14.7; 95% CrI=5.96, 22.4). **Conclusion:** The combination of RT and nutritional supply improve physical performance, muscle mass, and hand grip strength in older adults with sarcopenia. Compared to MRT, MVRT potentially generated more benefits on muscle mass (ASMI), lower extremity strength (leg press), and physical performance (30sec timed chair rise and gait speed).

P13/12- PREHABILITATION OF CANDIDATES FOR RENAL TRANSPLANTATION (PRECARETX) STUDY: PROTOCOL FOR A HYBRID TYPE I, MIXED METHOD, RANDOMIZED CONTROLLED TRIAL. Evelien E. Quint(1), Avril Haanstra(2), Yvonne van Veen(3), Heleen Maring(4), Stefan Berger(3), Adelita Ranchor(5), Stephan J.L. Bakker(3), Evelyn Finnema(2), Robert A. Pol(1), Coby Annema(2) *((1) Division of Transplantation Surgery, Department of Surgery, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands; (2) Division of Nursing Science, Department of Health Sciences, University Medical Center Groningen, University of Groningen, Groningen, The Netherlands; (3) Division of Nephrology, Department of Internal Medicine, University Medical Center Groningen, University of Groningen, Groningen, the Netherlands; (4) Department of Physical Therapy, University Medical Center Groningen, the Netherlands; (5) Division of Health Psychology, Department of Health Sciences, University Medical Center Groningen, the Netherlands)*

Background: Kidney transplant candidates (KTCs) need to be in an optimal physical and psychological condition to handle the stress of the upcoming transplant surgery and recovery after transplantation. However, the health status of KTCs is often compromised due to chronic kidney disease, comorbidities and/or dialysis. The diminished functional capacity of KTCs can be characterized as frailty. Prehabilitation, the enhancement of a person's functional capacity in order to improve their ability to withstand a future stressor, may be an effective intervention to improve the frailty status of KTCs. **Objectives:** The PreCareTx study aims to examine the effectiveness of a multi-modal prehabilitation program on the overall health status of KTCs, and to explore the potential of implementation of prehabilitation in a real-world setting. **Method and analysis:** The PreCareTx study is a single centre, effectiveness-implementation hybrid type I study design, comprised of a randomized controlled trial and a mixed-methods study. Adult patients (n=128), who are currently on the transplant waiting list or will be waitlisted during the study period, will be randomly assigned to either prehabilitation (intervention) or care as usual (control) groups. The prehabilitation group will undergo a 12-week tailored prehabilitation program consisting of physical, nutritional and/or psychosocial interventions. The prehabilitation program will be followed by a twelve-week consolidation program, in which the intensity and frequency of the interventions will be decreased in order to enhance the incorporation of the interventions into daily life. During the intervention period, the participants will receive counselling by a lifestyle coach. The primary endpoint of this study is change in frailty status, as a proxy for overall health status, as measured by the Tilburg Frailty Indicator. Secondary endpoints include changes in

physical fitness, nutritional status, psychological well-being and quality of life. Tertiary endpoints include the feasibility and acceptability of the prehabilitation program, and the barriers and facilitators for further implementation.

P13/13- EFFECTS OF AN ONLINE EXERCISE PROGRAM ON THE PHYSICAL FITNESS OF OLDER ADULTS. Satoshi Ishizaki(1), Asuka Nakamura(1), Yoshihiko Ishihara(2), Junko Ishizaki(3), Shuichi Machida(4), Hisashi Naito(4) *((1) Shibaura Institute of Technology, Japan; (2) Tokyo Denki University, Japan; (3) Saitama Prefectural University, Japan; (4) Juntendo University, Japan)*

Background: The coronavirus disease 2019 (COVID-19) pandemic has led to restrictions in physical interactions with others. Among older adults in particular, there are concerns regarding secondary damage to health, such as loss of muscle mass, worsening of underlying diseases, and cognitive decline, as a result of reduced opportunities to exercise in public places due to restrictions (Yamada et al., 2020). **Objectives:** This study examined the effects of an online-based exercise program, without in-person interaction, on the physical fitness of older adults. **Methods:** Seventy-four healthy older adults (mean [±SD] age, 72.6±3.9 years) volunteered to participate in this study. Subjects were divided three exercise groups: online ("Zoom" [ZG]); self-exercise (SG); and control (CG). Subjects participated in a two-month exercise program (60 min, 2 times/ week), with classes consisting of stretching (20 min), resistance exercise (25 min), step exercise (10 min), and a cool-down (5 min). The ZG participated in the program online and trained under the guidance of the researcher. In contrast, the SG performed the same training regimen at home with a booklet consisting of instructions and pictures. Before and after the exercise classes, the following physical performance metrics were measured; hand grip strength (HG); chair stand (CS); arm curl (AC); sit-up (SU); chaired sit and reach (CSR); 10 m normal walk (10mNWK); 10 m brisk walk (10mBWK); 10m obstacle walk (10mOWK); and 6 min walk (6MW). **Results:** The mean participation rates among individuals in the two groups was 90.1±10.1% (ZG) and 89.6±19.2% (SG). CS, AC, SU, CSR, 10mNWK, 10mBWK, 10mOWK, and 6 MW demonstrated a main effect after the exercise period ($p<0.05$). The main effect between groups was also observed for 10mNWK, HG, AC, and CSR ($p<0.05$). Interactions were observed for AC, CS, CSR, 10mBWK, 10mOWK, and 6MW ($p<0.05$). Multiple comparisons of the interaction items revealed significant differences for both the ZG and SG, and the differences in mean values before and after the exercise period were all greater for the ZG. **Conclusion:** A two-month online exercise program during COVID-19 restrictions effectively improved the physical fitness of older adults.

P13/14- FEASIBILITY OF REMOTE EXERCISES FOR OLDER ADULTS AT HOME DURING COVID-19 LOCKDOWN. Marie-Josée Sirois(1), Fanny Buckinx(2), Mylène Aubertin-Leheudre(3), Sandrine Hegg(4) *((1) Centre d'Excellence sur le Vieillissement de Québec, Université Laval, Quebec City, Canada; (2) Université de Liège, Unité de recherche Santé publique, épidémiologie et économie de la santé; (3) CRIUGM, Université du Québec à Montréal, Canada; (4) Centre de Recherche du CHU de Québec - Université Laval)*

Background: Physical activities and exercises are known to be key in maintaining function and health in older adults. On another note, the 2020 lockdowns associated with the COVID-19 pandemic has severely limited access to community exercise groups and to individual exercise-based interventions for seniors. In that context, we tested 3 types of remote exercise interventions for Quebec older adults in lockdown at home: interactive-zoom groups, one-on-one with pre-recorded videos and printed booklets with telephone supervision. **Objective:** To assess barriers and facilitators influencing the feasibility of these three remote physical exercise interventions. **Methods:** Questionnaires (n=164) and qualitative interviews with participants (n=44) and exercises providers (n=2) on satisfaction, adherence, facilitators and obstacles to interventions were conducted in Montreal and Quebec City in 2020. **Results:** There was a 40% rate of dropout in pre-recorded video interventions versus 15% in other interventions where adherence was >80%, with 60% of high satisfaction. Respondents reported that the interactive-zoom intervention helped motivation, adherence, understanding of the exercises and maintaining social interactions. The main barriers to zoom interventions were reported to be difficulties with technology, incomplete visuals during sessions and safety issues for frailer seniors. The main facilitators were reported to be ongoing remote support from exercise providers and from relatives at home to help with the technology. **Conclusion:** Remote interventions seem feasible and acceptable by older adults at home and by exercise providers. However, interventions with pre-recorded video show high dropouts. Safety remains a concern for frail older adults.

P13/15- THE EFFECT OF RESISTANCE TRAINING AND AEROBIC TRAINING ON SARCOPENIA PARAMETERS FOR PERSONS WITH SARCOPENIC OBESITY: AN UMBRELLA REVIEW OF META-ANALYSES. Lea Reiter(1), Silvia Bauer(1), Doris Eglseer(1) *((1) Institute of Nursing Science, Medical University of Graz, Graz, Austria)*

Background: Alongside the loss of body fat, the main goal during the treatment of sarcopenic obesity (SO) is the build-up or preservation of muscle mass, strength and function. An optimal exercise intervention to improve sarcopenia parameters in persons with SO has not yet been defined. **Objective:** We

conducted an umbrella review with the aim of providing a comprehensive overview on the effectiveness and certainty of evidence (CoE) of aerobic training (AT) and resistance training (RT) on sarcopenia parameters in adults with diagnosed SO. **Methods:** We conducted a literature search in four databases to identify systematic reviews and meta-analyses analyzing the effect of RT or AT, which were published between May of 2017 and September 2022. Outcomes of interest were skeletal muscle mass index (SMMI), grip strength and gait speed, The methodological quality of the included reviews was assessed using AMSTAR 2 and the certainty of evidence (CoE) for the outcomes was assessed using GRADE. **Results:** Four systematic reviews were identified that studied the effect of RT or AT. The effect of RT on SMMI was studied in two reviews, of which both did not show a significant improvement but were able to preserve muscle mass (CoE moderate to low). A significant effect of RT regarding grip strength was seen in two of four reviews, with improvements from 3.73 kg to 4.52 kg (CoE moderate to very low). Gait speed was studied in three reviews, with all three reviews showing significant improvements ranging from 0.14 to 0.17 m/s (CoE low to very low). Two reviews measured the effect of AT on SMMI and three reviews measured the effect of AT on grip strength. AT did not show a significant improvement in SMMI (CoE low) and grip strength (CoE low to very low). No systematic review measured the effect of AT on gait speed. **Conclusion:** RT is a more promising intervention to improve sarcopenia parameters in persons with SO than AT. Nevertheless, further high quality research is needed to identify the optimal duration and intensity of RT and AT exercises.

P13/16- MUSCULOSKELETAL FITNESS AND PHYSICAL FUNCTIONING IN OLDER WOMEN. Frederico A. Abreu(1), Vera Zymbal(2), Fátima Baptista(1) *((1) Department of Sport and Health, CIPER, Faculdade de Motricidade Humana, Universidade de Lisboa, Lisbon, Portugal; (2) Escola Superior de Saúde, Instituto Politécnico de Setúbal, Setúbal, Portugal; Department of Sport and Health, CIPER, Faculdade de Motricidade Humana, Universidade de Lisboa, Lisbon, Portugal)*

Background: Physical function can be considered the ability of an individual to perform daily tasks, and is a hallmark of independence and autonomy later in life. It is of high relevance to identify those at risk of losing physical independence, as early interventions can be highly effective against low physical functioning. **Aims:** This cross-sectional study aimed to analyze the relevance of musculoskeletal fitness for the identification of low physical functioning in community-dwelling older women. **Methods:** 66 older women (73.62 ± 8.23 yrs old) performed a musculoskeletal fitness assessment of the upper and lower limbs. Upper limb muscle strength was evaluated through a handgrip (HG) test using a handheld dynamometer. Lower limb power and force were assessed from a two-leg countermovement vertical jump (VJ) on a ground reaction force platform. Physical functioning was assessed subjectively using the Composite Physical Function (CPF) questionnaire, objectively through the accumulation of daily steps assessed by accelerometry and through gait speed/agility assessed by the 8 Foot Up & Go (TUG) test. Logistic regressions and ROC curves were carried out aiming to define odds ratios and ideal cut-off values for discriminatory variables. **Results:** Vertical jump power showed the ability to identify low physical functioning when evaluated through the CPF (14 W/kg, 1011 W), agility (15 W/kg, 800 W) or daily accumulated steps (17 W/kg). Considering the relative power of the vertical jump, the increase of 1 W/kg corresponds to a decrease of 21%, 19% or 16% in the chances of low physical functioning when expressed by these variables, respectively. Handgrip strength and vertical jump force did not show capacity to identify low physical functioning. **Conclusion:** The results suggest the vertical jump power as the only marker of low physical functioning when considering the three benchmarks: perception of physical ability, capacity for mobility and actual mobility.

P13/17- IDENTIFICATION OF RISK PHENOTYPES FOR SARCOPENIA IN PEDIATRIC AGES. Ana Isabel Torres-Costoso(1), Vera Zymbal(2,3), Kathleen F. Janz(4) Fátima Baptista(2) *((1) Health and Social Research Center, Universidad de Castilla La Mancha, Cuenca, Spain; Faculty of Physiotherapy and Nursing, Universidad de Castilla-La Mancha, Toledo, Spain; (2) Department of Sports and Health, CIPER, Faculdade de Motricidade Humana, Universidade de Lisboa, Lisbon, Portugal; (3) Escola Superior de Saúde, Instituto Politécnico de Setúbal, Setúbal, Portugal; (4) Department of Health and Human Physiology, Department of Epidemiology, The University of Iowa, Iowa City, IO, USA)*

Background: Pediatric sarcopenia may be among the multifactorial causes of sarcopenia in older people. **Objectives:** The aim of this study was to identify risk phenotypes for sarcopenia in apparently healthy young people based on body composition (BC) and musculoskeletal fitness (MSF). **Methods:** We conducted a cluster cross-sectional analysis of data from 529 youth aged 10-18 yr. BC was assessed using whole-body DXA and the following variables were determined: lean body mass index (LBMI, kg/m^2), fat body mass index (FBMI, kg/m^2), abdominal FBMI (kg/m^2), and LBM/FBM ratio. MSF was assessed using handgrip strength (kg) and vertical jump power (W) tests. Results were presented as absolute values and normalized by body mass. Plank endurance (s) was also assessed. All variables were sex and age in years standardized (Z-score). LBMI or LBM/FBM ratio ≤-1 SD were used to identify participants at risk for sarcopenia. Maturity was estimated as the years of distance from the peak height velocity (PHV) age. **Results:** Using the Z-score means for BC and MSF and having LBMI or LBM/FBM ratio as the categorical variables (at risk vs. not at risk), the cluster analyses indicated three phenotypes (P): P1, risk BC_unfit; P2, non-risk BC_non-fit, and P3, non-risk BC_fit. With the LBMI as a categorical variable, the ANOVA models showed that the values of BMI, FBMI, abdominal FBMI, handgrip strength and vertical jump power in P1 < P2 < P3 and estimated age at PVH of P1 > P3 in both sexes ($p < 0.001$). Having the LBM/FBM as a categorical

variable, higher values of BMI, FBMI, and abdominal FBMI, and lower values of handgrip strength and vertical jump power both normalized for body mass and plank endurance were observed in P1 than in P2 and/or P3 and in the P2 than in the P3 in boys and girls; the LBMI of P1 > P3 was also observed in both sexes while age at PHV in P1 < P3 in boys ($p < 0.001$). **Conclusion:** Two risk phenotypes for sarcopenia were identified in apparently healthy young people: a low BMI phenotype with low LBMI and a high BMI phenotype with high FBMI and low LBM to FBM. In both risk phenotypes MSF was low.

P13/18- SEXUAL DIMORPHISM ON THE PHYSICAL AND METABOLIC RESPONSES TO A 12-WEEK INTERVENTION COMBINING CITRULLINE SUPPLEMENTATION AND HIGH-INTENSITY INTERVAL TRAINING (HIIT) IN OLDER ADULTS. Layale Youssef(1), Bénédicte Guégan(2), Mailys Osmont(2), Eva Peyrusqué(3), Guy Hajj-Boutros(4), Vincent Marcangeli(3), Cédric Caradeuc(5), Nicolas Giraud(5), Gildas Bertho(5), José A. Morais(4), Pierrette Gaudreau(6), Gilles Gouspillou(3), Mylène Aubertin-Leheudre(3), Philippe Noirez(2) *((1) Ecole de kinésiologie et des sciences de l'activité physique, Université de Montréal, Montréal, Canada; (2) PSMS, UFR STAPS, Université de Reims Champagne-Ardenne, Reims, France; (3) Département des sciences de l'activité physique, Université du Québec à Montréal, Montréal, Canada; (4) Research Institute of the McGill University Health Center, Université McGill, Montréal, Canada; (5) UMR8601 CNRS, Université Paris Cité, Paris, France; (6) Centre de Recherche du Centre Hospitalier de l'Université de Montréal, Université de Montréal, Montréal, Canada)*

Background: Aging is associated with a progressive decline in skeletal muscle mass and strength as well as an increase in adiposity altering the health and quality of life. We have suggested that HIIT combined with citrulline (CIT) supplementation was an effective intervention to improve the health status of obese older adults (PMID:35257499). Indeed, the addition of CIT to HIIT results in a greater increase in muscle strength and a significant decrease in body fat. **Objectives:** Our objective is to determine if there is a sexual dimorphism in the response to CIT combined with HIIT in older obese adults. **Methods:** Obese older participants underwent a 12-week HIIT program with or without CIT [HIIT-CIT: 20men/25women, 67.2±5.0years HIIT-placebo: 18men/18women, 68.1±4.1years]. Before (T0) and after (T12) the intervention, 1) grip and quadriceps strength, lower limb muscle power, body composition (Dual-energy X-ray absorptiometry) and functional abilities were assessed, and 2) blood samples were taken. The profile of cholesterol (total, LDL, «LowDensityLipoprotein» and HDL, «HighDensityLipoprotein») was analysed. Metabolomic and lipoprotein profiles were assessed by Nuclear Magnetic Resonance (NMR). **Results:** Total body fat (T0: 39.8+-6.4 vs. T12: 38.6+-6.2, $p<0.01$, %) as well as lower limb fat mass (T0: 11.7+-3.1 vs T12: 11.3+-3, $p<0.05$, in kg) decreased only in women. In contrast, only in men, did gynoid fat mass (T0: 32.9+-5.6 vs T12: 30.9+-5.7, $p<0.05$, in %) and upper limb fat decreased (T0: 29.8+-5.3 vs 28+-5.6, $p<0.01$, in %) whereas gynoid lean mass increased (T0: 8.2+-0.9 vs T12: 8.5+-1, in kg). Total and LDL cholesterol decreased only in women (T0: 5.7+-1 vs T12: 5.4+-0.8, $p<0.05$, and T0: 4.1+-0.9 vs T12: 3.8+-0.7, respectively, in mmol.L-1, $p<0.05$). The metabolomic and lipoprotein profiles were different in women and men. Specifically in men, we also observed an increase in HDL. The increase in VLDL had a much higher weight in the model for women. **Conclusion:** Our results suggests an improvement in the health of obese older participants who followed the program. Nevertheless, the induced adaptations seem to affect differently women and men. Further studies are needed to confirm these results and to understand the mechanisms implicated in the difference between sexes in the responses to the citrulline.

P13/19- SIT-TO-STAND MUSCLE POWER THROUGHOUT THE ADULT LIFESPAN: A COMPARISON BETWEEN SENSOR-DERIVED AND EQUATION-DERIVED POWER. Lien Meulemans(1), Julian Alcazar(2), Luis M. Alegre(2), Sebastiaan Dalle(3), Katrien Koppo(3), Jan Seghers(1), Christophe Delecluse(1), Evelien Van Roie(1) *((1) Department of Movement Sciences, Physical Activity, Sports and Health Research Group, KU Leuven, Leuven, Belgium; (2) GENUD Toledo Research Group, Universidad de Castilla-La Mancha, Toledo, Spain; (3) Department of Movement Sciences, Exercise Physiology Research Group, KU Leuven, Leuven, Belgium)*

Background: Estimating lower-limb muscle power during sit-to-stand (STS) tests can present a feasible method for large-scale implementation. Sensors can obtain detailed information about STS performance and movement strategies. However, a simple formula to estimate STS muscle power might be an alternative. **Objectives:** This study investigated 1) whether age and functional limitations have an influence on the movement strategy during STS; 2) potential differences between STS power estimated with a simple formula and STS power measured with a sensor; 3) whether differences in movement strategy influence the comparison between the two methodologies. **Methods:** 5-repetition STS data of 649 subjects (♂352 ♂297) aged 20 to 93 years were included. Subjects were divided in different age groups (young, middle-aged and older adults) and levels of functioning (well- vs. limited-functioning older adults). A trunk-worn sensor (DynaPort MoveTest, McRoberts, The Hague, NL) measured total duration, sub-durations (sitting, sit-to-stand, standing and stand-to-sit durations), flexion and extension range of the trunk and mean power (P_(sensor)). Additionally, mean power was calculated as follows (P_formula): Body mass (kg) × 0.9 × g × [Height (m) × 0.5 – chair height (m)] / [Total STS duration (s) / repetitions (n)] × 0.5. **Results:** Older adults spent proportionally more time in the sit-to-stand phase, less time in the stand-to-sit phase and performed more trunk flexion than younger

adults (all p<0.001). Limited-functioning older adults spent proportionally more time in the static sit and stand phases than well-functioning older adults, resulting in shorter durations for the sit-to-stand and stand-to-sit phases (all p<0.001). P_formula showed an overestimation of power compared to P_(sensor) in well-functioning adults [mean difference = -0.31 W/kg and -0.22 W/kg for men and women, respectively (both p<0.001)], but not in limited-functioning older adults [mean difference = 0.08 W/kg for men (p=0.878) and 0.09 W/kg (p=0.821) for women]. Differences in movement strategy might partly explain the difference between P_(sensor) and P_formula. **Conclusion:** Movement strategy during STS differs with age and functioning level. It can affect the accuracy of the formula to estimate power. However, errors in estimation of power using the formula appeared limited and its simplicity is still valuable in clinical settings.

P13/20- HOW ACCEPTABLE IS A REMOTELY DELIVERED TELEHEALTH PHYSICAL ACTIVITY INTERVENTION FOR OLDER PEOPLE? EXPLORING THE ATTITUDES AND EXPERIENCES OF OLDER PEOPLE ON PARTICIPATING IN THE REMOTE PHYSICAL ACTIVITY. Lesley-Anne Tanhamira, Gurch Randhawa, David Hewson *(Institute for Health Research, University of Bedfordshire, Luton, Bedfordshire, United Kingdom)*

Background: Physical activity has been widely reported to increase independence and quality of life, as well as improve cognitive and physical functioning. Adapted mind-body interventions, such as yoga and tai chi, are enjoyable, acceptable, and appropriate physical activity for frail older people. During the recent COVID-19 pandemic restrictions, physical activity was able to be delivered remotely to many different populations. **Objectives:** To explore the attitudes and experiences of older people to remotely delivered physical activity. **Methods:** Participants were recruited from Hertfordshire UK, with inclusion criteria of access to a device with internet access, having the capacity to consent, and being physically able to take part in the study. Semi-structured interviews were conducted remotely. Thematic analysis was used to analyse the interviews, including both inductive and deductive analysis to identify the themes. **Results:** Fourteen participants (3 males, 11 females) aged 65-87 took part in the study. The main themes identified were attitudes towards remotely delivered physical activity, the need for adapted mind-body interventions, and the benefits and challenges of participating in a telehealth intervention. One participant referred to the intervention as a 'lifeline' stating that "at the moment we haven't been getting out its either too hot or too wet, and this has been a lifeline [referring to remotely delivered physical activity],". Another participant reported that the intervention provided some social inclusion for her "I wasn't seeing anybody else so taking part in these classes has been wonderful". The findings showed older people were able to participate in remotely delivered physical activity, embraced the use of technology, and became familiar with online platforms to maintain social contact. **Conclusion:** The study highlights that remotely delivered physical activity was acceptable for older people and served as a medium for social inclusion. Going forward, it will be important to consider how to adapt to a hybrid culture of face-to-face and remotely delivered physical activity, while adapted interventions should be developed to encourage participation in physical activity from older adults of all capabilities. Future work will also need to include population groups with different levels of digital inclusion. **Funding:** This research was conducted as part fulfilment of a Ph.D. program of L.-A.T., which is funded by The Letchworth Centre for Healthy Living. **Institutional Review Board Statement:** The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of University of Bedfordshire (IHREC939; 12 May 2020). **Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study. Written informed consent has been obtained from the patient(s) to publish this paper. **Data Availability Statement:** The data presented in this study are available on request from the corresponding author. **Conflicts of Interest:** The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

P13/21- EFFECT OF EXERCISE COUNTERMEASURE ON MUSCLE-PUMP BAROREFLEX OF INDIVIDUAL LEG MUSCLES AFTER BEING BEDRIDDEN FOR FOURTEEN DAYS. F. Sadeghian(1), D. Divsalar(1), A.P. Blaber(1) *((1) Simon Fraser University, Department of Biomedical Physiology and Kinesiology, Burnaby, BC, Canada)*

Background: Post-bedrest orthostatic intolerance is a major concern for bedridden patients. In the first Canadian ageing and inactivity study [1], we found that exercise countermeasure blunted reduction in muscle-pump baroreflex after 14 days of bed rest [2]. But it is still unclear how sex/intervention differences might affect baroreflex activity of individual leg muscles during standing in older adults. Previous research on muscle activity in younger compared to older adults during standing suggests bed rest may affect baroreflex input to lower leg muscles differentially [3]. **Objectives:** To investigate whether muscles in the lower leg will have altered roles in blood pressure regulation following bed rest. We hypothesized that muscle groups would have biological sex or intervention-dependent responses to bedrest. **Methods:** A supine to stand test was performed before and after bed rest with simultaneously acquired continuous electrocardiogram, blood pressure and electromyography (EMG) from four leg muscle groups (tibialis anterior (TA), soleus (SOL), medial (MG) and lateral (LG) gastrocnemius). Baroreflex fraction time active (FTA) and gain values were characterized through wavelet transform coherence between BP and lower leg muscle electromyography, to quantify the muscle-pump baroreflex. **Results:** Following bedrest, LG had a significant reduction in summed beat-to-beat EMG (EMGimp) (p=0.001, 75%), but

not MG (p>0.02, 6%). Post-bedrest LG responses indicated significant exercise intervention effects, with males having greater EMGimp reductions in control vs. exercise groups (p=0.01, 91%), compared to females (p>0.5. 26%). Intervention and biological sex differing muscle-pump baroreflex FTA responses. Significant reductions in FTA response were observed in LG across all sexes and intervention groups after bedrest compared to pre-bedrest (p<0.01, 51%). Males had considerable FTA decrease (p<0.03, 58%) across intervention groups in the TA, while the soleus was only significantly impaired in the female controls (p < 0.001, 42%). **Conclusion:** Following bed rest, individual lower leg muscle responses to standing hypotension were independently altered with sex and intervention related differences. This knowledge will enable us to develop targeted sex- and muscle-specific countermeasures for bedridden patients. **Support:** This work was supported by a Canadian Institutes of Health Research (CIHR) grant (UH1-161691) held by AB. **References:** 1. Hedge, E.T., et al., Implementation of exercise countermeasures during spaceflight and microgravity analogue studies: Developing countermeasure protocols for a bedrest in older adults (BROA). Frontiers in Physiology, 2022;13. DOI=10.3389/fphys.2022.928313. 2. Sadeghian, F., et al., Canadian aging and inactivity study: Spaceflight-inspired exercises during head-down tilt bedrest blunted reductions in muscle-pump but not cardiac baroreflex in older persons. Frontiers in physiology, 2022;13 DOI=10.3389/fphys.2022.943630. 3. Verma, A.K., et al., Effect of aging on muscle-pump baroreflex of individual leg muscles during standing. Frontiers in Physiology, 2019. 10: p. 845.

P13/22- IMPACTS OF COVID-19 RESTRICTIONS ON FUNCTIONAL STATUS AND MOBILITY AMONG COMMUNITY-DWELLING PRE-DISABLED SENIORS: ARE VIRTUAL PHYSICAL EXERCISES AT HOME A SOLUTION? Fanny Buckinx(1,2), Mylène Aubertin-Leheudre(1,2), Raoul Daoust(3,4), Sandrine Hegg(5,6), Dominic Martel(3,4), Marianne Martel-Thibault(6), Marie-Josée Sirois(5,6,7) *((1) Centre de recherche, Institut universitaire de gériatrie de Montréal (IUGM), CIUSSS du Centre-Sud-de-l'Île-de-Montréal, Montreal, Canada; (2)Département des Sciences de l'activité physique, Faculté des sciences, Université du Québec à Montréal, Montréal, Canada; (3) Département de médecine de famille et médecine d'urgence, Université de Montréal, Canada; (4) Centre d'étude en médecine d'urgence, Hôpital Sacré-Cœur de Montréal, CIUSSS NIM, Canada; (5) Centre d'Excellence sur le Vieillissement de Québec, Québec, Canada; (6) Centre de recherche du CHU de Québec-Université Laval, Québec, Canada; (7) Département de réadaptation, Université Laval, Québec, Canada)*

Background: The COVID-19-related lockdowns have imposed sedentariness and limited seniors' mobility and engagement in physical activity, which could precipitate or accelerate loss of functional capacities. **Objective:** To assess if distance-training in physical exercises helped maintain function in daily life, general level of aerobic/flexibility activities, basic mobility abilities and frailty status in pre-disabled seniors during the lockdown. **Methods:** This is an interventional study among 84 pre-disabled seniors. Intervention: 12-week Physical Exercises (PE) program (1 hour/3-times/week) in kinesiologist-guided groups using Zoom (Web-Ex-group, n=11) or phone-supervised individual booklet-based home-program (booklet -group, n=33) vs. Control (n=40). **Measures:** Functional status in daily activities (OARS scale); Level of aerobic/flexibility activities (RAPA); Basic Mobility Abilities (SPPB: balance, lower limbs strength, walking speed; Timed Up and go) and Frailty (SOF index), assessed at baseline and after 3, 6, 9 and 12 months of follow-up. **Results:** The participants' mean age was 78.5 ± 7.2 and 76.5 % were women. There was a group * time effect for the OARS scale (p=0.02), the RAPA aerobic (p=0.06) and the RAPA flexibility (p=0.007) scores. For these outcomes, scores significantly improved during the first 3 months of follow-up and then stabilised in the intervention group while these scores remained constant in the control group over time. There was an overall time effect for the SPPB (p=0.004) and the 4-m walking speed (p=0.02), regardless of the group. No effect was observed for the TUG. Finally, there was a time effect for the SOF index (p=0.004) but no between-group differences were observed. **Conclusion:** Distance training and monitoring of PE programs at home during the lockdown seemed to help maintain seniors' mobility.

P13/24- RELATIONSHIP BETWEEN MUSCLE RESPONSE TIME OF KNEE EXTENSION STRENGTH EXERTION AND PHYSICAL FUNCTIONAL TESTS IN OLDER ADULTS. Yasumoto Matsui(1), Yasuo Suzuki(1,2), Yuji Hirano(1), Izumi Kondo(1), Tetsuya Nemoto(1), Natsuka Takeda(1), Masanori Tanimoto(1), Hidenori Arai(1) *((1) National Center for Geriatrics and Gerontology, Japan; (2) Nihon Fukushi University, Japan)*

Background: We have developed a method, which corresponds knee extension strength to a time axis and evaluated its application for motor function in older adults. **Objective:** This study aimed to clarify the relationship between the time response of knee extension strength and popular motor function tests. **Methods:** We enrolled 327 patients (119 men; average age: 77.5 ± 9.0 years), who visited the Integrated Healthy Aging Clinic. Indices of knee extension strength, such as muscle reaction time (RT), time constant to reach maximum force, rate of force development (RFD), and maximum value of the force (MVF), were measured. Additionally, their physical functional tests, such as timed-up-and-go (TUG), single leg standing time (SLST), and five times chair raise test (5TCRT), were measured. The age-adjusted partial correlation coefficients were obtained between knee extension strength indices and the three physical function tests of both legs. **Results:** Among women, the TUG was significantly correlated with RFD and MVF (p<0.001) in their right legs and with RT, RFD, and MVF (p<0.001, p<0.05, and p<0.01, respectively) in their left legs. For men, the TUG was significantly correlated with RFD and MVF (both: p<0.01) in the right and with RT, RFD, and MVF (p<0.001, p<0.05, and p<0.01, respectively) in the left. Among women, the SLST was significantly correlated with

MVF ($p<0.05$) in the right and with RFD and MVF ($p<0.05$ and $P<0.01$, respectively) in the left. For men, the SLST was observed to be significantly correlated with RT, RFD, and MVF (all $p<0.01$) in the right and with RFD and MVF ($p<0.05$ and $p<0.01$, respectively) in the left. Among women, the 5TCRT was significantly correlated with RFD and MVF ($p<0.01$) in their right legs. A significant correlation was also observed with RT, RFD, and MVF in the left legs of women and the right legs of men ($p<0.01$). **Conclusion:** TUG and 5TCRT were associated, not only with muscle strength, but also time responses (particularly RT). In 5TCRT and SLST, the right side was mainly associated in men, while in TUG there was little difference between men and women, and the difference between the sides was also minimal.

P13/25- RELATIONSHIP BETWEEN SARCOPENIA AND FRAGILITY IN ELDERLY LIVING IN NURSING HOMES. Ethel Machergiany(1), Luís Azevedo(1), Catarina F. Martins(1), Henrique Pinto(1), Sofia Martins(1), Inês Oliveira(1), Jorge Soares(1,2), Catarina Abrantes(1,2), Sofia Monteiro(1,2), Ana Barros(3), Maria Paula Mota(1,2) *((1) Research Centre in Sports Sciences, Health, and Human Development (CIDESD), Vila Real, Portugal; (2) Department of Sport of Science Exercise and Health, School of Life and Environmental Sciences, (ECVA), UTAD, Vila Real, Portugal; (3) Centre for the Research and Technology of Agro-Environmental and Biological Sciences (CITAB), UTAD), Vila Real, Portugal)*

Background: The prevalence of disability and functional dependence is higher in elderly people and is closely associated with a reduction in muscle mass, which even occurs in healthy individuals. Sarcopenia seems to result from the complex interaction of innervation disorders, decrease in hormones, increase in inflammatory mediators and changes in protein-calorie intake that occur in aging. The loss of muscle mass and strength is responsible for reduced mobility and increased functional disability and dependence. **Objetives:** Explore the relation between sacorpenia, level of physical activity, handgrip strength, physical activity, functional tests, and morphological characteristics of institutionalized elderly. **Methods:** Data was collected from 53 institutionalized elderlies (35 women and 18 men) between 65-97 (82.58±1.7) years old that wrist-worn the ActiGraph wGT3X-BT accelerometer for 3 days, collecting total step counts (Activitycounts) and sleep parameters during 3 nights (Minutes of sleep, sleep efficiency). Height, weight, BMI, % of Fat Mass (Taninta 2010), Handgrip strength (Camry model EH101), Barthel Index (BI), and functional capacity measured through the Short Physical Performance Battery (SPPB) were also collected. **Results:** The analysis of the results showed (mean±DP): a IMC of 26.2±1.04; Fat Free Mass of 63.4±2.2 kg; Geminal Girth 33.1±0.6 cm; HandGrip Right 13.4±1.1 kg; Handgrip Left 13.4±1.0 kg; Sarcopenia total 3.3±0.5; SPPB total 6.2±0.7; Step Counts 3533.1±483.9. Preliminary results show that total sarcopenia is significantly associated with age rho=0.467; BMI rho= -0.415; HandGrip Right rho = -0.459; HandGrip Left rho = -0.446; Walking Speed (SPPB) rho= -0.547; SPPB total rho= -0.662; Step Counts rho= -0.569. The regression model revealed that 48.2% sarcopenia is explained by low SPPB values and the number of daily counts (y=6.5-0.344xSPPB+0.000371xStepCounts). **Conclusion:** Increasing functional capacity is likely to delaying the development of sarcopenia. Thus, it may be advisable the increase of the total number of daily steps and the promotion of physical exercise programs in elderly living in nursing homes. **Key words:** Elderly, Sarcopenia, Daily steps, Physical activity. **Funding:** This work was supported by SoilRec4+Health - Soil recovery for healthy food and quality of life (NORTE-01-0145-FEDER-000083).

P13/26- DEPRESSION AND FRAILTY IN ELDERLIES LIVING IN NURSING HOMES. Henrique Pinto(1), Luís Azevedo(1), Catarina F. Martins(1), Ethel Machergiany(1), Sofia Martins(1), Inês Oliveira(1), Jorge Soares(1,2), Catarina Abrantes(1,2), Sofia Monteiro(1,2), Ana Barros(3), Maria Paula Mota(1,2) *((1) Research Centre in Sports Sciences, Health, and Human Development (CIDESD), Vila Real, Portugal; (2) Department of Sport of Science Exercise and Health, School of Life and Environmental Sciences, (ECVA), UTAD; (3) Centre for the Research and Technology of Agro-Environmental and Biological Sciences (CITAB), UTAD), Vila Real, Portugal)*

Background: In the last years, it has been observed an increase in demographic aging in Portugal and in the prevalence of depression in elderlies living in nursing homes. For this reason, it becomes relevant to study the possible factors associated with the depression in this population, namely frailty. **Objectives:** The main goal of the present study was to verify how frailty can predispose the development of depression in elderlies living in nursing homes. **Methods:** Data was collected from 53 elderlies (66% women; between 65-97 years, 83.42±1.18). Mini Mental State Examination (MMSE) was used to evaluate cognitive capacity and to exclude the subjects with cognitive deficits. Subsequently, a test for handgrip strength of the dominant limb (Camry EH101) and frailty test (SPPB) were performed. Finally, questionnaires for functional independence (BI), levels of depression (GDS) and sarcopenia (SARC-F) were applied. The results were analyzed by IBM®-SPSS. **Results:** The mean age of the sample was 83.42±1.18 years old, without cognitive impairment (MMES 20.72±1.01). Regarding functional tests, it was observed an average handgrip strength of 12.43±0.79 kg and SPPB test of 5.06±0.54. In the questionnaires, BI showed a mild functional dependence of the subjects (74.06±3.58); GDS showed a mild depression (7.77±0.60); and SARC-F showed an absence of sarcopenia (3.30±0.39). There were significant correlations between the GDS and the following variables: age (rho= 0.312), handgrip (rho= -0.383), BI (rho= -0.381), SARC-F (rho= 0.449) and SPPB (rho= -0.553). The MMES did not show a significant correlation. Multiple regression analysis model indicated that SSPB predict 30.5% of depression levels in elderlies (Y=10.870 - 0.612*SPPB). The remaining variables were not considered for the model. **Conclusion:** The results revealed that greater frailty is associated with higher levels of depression in elderlies

living in nursing homes. The implementation of physical exercise programs considering the increase in the general physical condition of the elderly and reducing frailty can be one of the most decisive ways to reduce the levels of depression in these elderly people. **Key words:** Depression, frailty, cognitive function, functionality capacity. **Funding:** This work was supported by SoilRec4+Health - Soil recovery for healthy food and quality of life (NORTE-01-0145-FEDER-000083).

P13/27- THE STEPS FOR INDEPENDENCE. Luís Azevedo(1,2), Catarina Freitas Martins(1,2), Henrique Pinto(1,2), Ethel Machergiany(1,2), Sofia Martins, Inês Oliveira, Jorge Pinto Soares(1,2), Catarina Abrantes(1,2), Ana Barros(3), Maria Paula Mota(1,2) *((1) Research Centre in Sports Sciences, Health, and Human Development (CIDESD), University of Trás-os-Montes and Alto Douro, Paços de Ferreira, Portugal; (2) Department of Sport of Science Exercise and Health, School of Life and Environmental Sciences, (ECVA), University of Trás-os-Montes and Alto Douro, Paços de Ferreira, Portugal; (3) Centre for the Research and Technology of Agro-Environmental and Biological Sciences (CITAB), University of Trás-os-Montes and Alto Douro, Portugal)*

Background: Aging is associated with a loss of functionality and increased frailty with repercussions on increased institutionalization, and provision of health care for the elderly. This fragility predisposes to increased dependence on daily activities and loss of quality of life. Taking into account the global aging of the population, it´s necessary to find ways to foment and preserve individual independence in all stages of life. **Objectives:** Understand the contribution of body composition, cognitive and functional capacity, sleep quality, and daily physical activity to the independence of daily basic activities of older adults living in nursing homes. **Methods:** From a total of 160 institutionalized elderly only 47 met the inclusion criteria (walk independently or with auxiliary devices) (61% women; between 65-97 years, 83.77 ±1.26 years), had their Body mass index (BMI) and %fat-free mass (Taninta2010) collected in fasting conditions. Afterward, the handgrip strength test (Camry model EH101), Mini-Mental State Examination (MMSE), Short Physical Performance Battery (SPPB) and Barthel Index (BI) were assessed. In the following 3 days, and 3 nights, stepping counts, total sleep hours and sleep efficiency were measured with an accelerometer (ActiGraph wGT3X-BT) wrist-worn. Descriptive statistics, correlation, and multiple regression for BI was conducted. **Results:** Subjects presented: a BMI of 26.9 (±2.3) kg/m2; 60.52 (±1.94) % of fat-free mass; BI score of 71.91(±3.90); average MMSE of 20.38 (±1.11); functional capacity (SPPB) of 4.85(±0.58); and Handgrip strength of 12.43(±5.72) kg. Data collected from accelerometer showed a daily average of 3564(±375.50) step counts, 10,58.8(±0.25) hours of sleep per night, and sleep efficiency of 92.69(±0.90) %. Statistically significant correlations were found between BI and: SPPB (rho=0.477, p=0.00); MMET (rho=0.309, p=0.025); Step counts (rho=0.530, p=0,00); hours of sleep (rho=-4.05, p=0.005); sleep efficacy(rho=-0.306,p=0.036); and Handgrip strength (rho= 0.294,p=0.033). The stepwise multiple regression analysis identified that daily step counts and SPPB score explained 38.5% (29.1% and 9.4% respectively) of BI score. The remaining variables were not considered for the proposed model, resulting in the final model Y=46.139 +2.279*SPPB+0.004*step counts. **Conclusion:** Our results suggest that independence level of older adults main be counteracted by increasing daily physical activity and increasing functional capacity through adequate physical exercise program implementation. **Key words:** Independence, older adults, exercise, physical exercise. **Funding:** This work was supported by SoilRec4+Health - Soil recovery for healthy food and quality of life (NORTE-01-0145-FEDER-000083) cofinanciado pelo Fundo Europeu de Desenvolvimento Regional (FEDER) através do NORTE 2020 (Programa Operacional Regional do Norte 2014/2020).

P13/28- THE EFFECTS OF 8 WEEKS OF PHYSICAL EXERCISE TRAINING IN SIRT3 AND MTOR IN LYMPHOCYTES, AND IN LIPOPEROXIDATION. Jorge P. Soares(1,2), Ricardo Cardoso(3), Vanessa Almeida(3), Carla Santos(2), Ana F. Pereira(4), Amélia Silva(3,5), Maria Paula Mota(1,2) *((1) Research Centre in Sports Sciences, Health, and Human Development (CIDESD), Vila Real, Portugal; (2) Department of Sport of Science Exercise and Health, School of Life and Environmental Sciences, (ECVA), University of Trás-os-Montes and alto Douro (UTAD), Vila Real, Portugal; (3) Centre for the Research and Technology of Agro-Environmental and Biological Sciences (CITAB), UTAD, Vila Real, Portugal; (4) Polytechnic Institute of Setubal (IPS), Vila Real, Portugal; (5) Department of Biology and Environment, (UTAD), Vila Real, Portugal)*

Background: Mechanistic/mammalian target of rapamycin (mTOR) and Sirtuins are known to play an essential role in the management of metabolic stress and energy balance in mammals. Indeed, these two intracellular molecules has been involved in several processes related with aging, such as cellular senescence, autophagy, immune responses, cell stem regulation, mitochondrial function, and protein metabolism. On the other, it has been largely shown that physical exercise has a modulator positive effect in general health, namely in aging. **Objectives:** This study aims to analyze the effects of 8 weeks of combined physical exercise in lipoperoxidation and in SIRT3 and mTOR in lymphocytes of middle and old man. **Methods:** 9 participants (between 56 and 73 years old) were included, and followed the exercise training, (cardiovascular and high intensity interval training), over 8 weeks, with 3 sessions/wk, of 45-60 min, in non-consecutive days. Before and after the experimental period the tests were applied (pre- and post-training). Physical tests were applied as a control and as an indicator of the physical training program. Thus, Vertical jump, 20meter velocity and aerobic capacity were assessed. Lipoperoxidation (MDA) was measured in plasma as an oxidative stress biomarker, and Sirtuine 3 (SIRT3/β-actina) and mTOR (mTOR/β-actina) were measured in isolated lymphocyte extracted from venous blood. **Results:** Our results showed

that after the exercise training period, aerobic capacity (pre-training 615.4±45,3 m; post-training 687.2±34.6 m; t=-2.521; p=0.012) and 20meter velocity (pre-training 4.6±0.5 s; post-training 4.3±0.3 s; t=-2.023; p=0.04) improved significantly. Regarding blood variables, mTOR decreased significantly (pre-training 0.857±0.593; post-training 0.214±0.097; t=-2.547; p=0.011), and no changes in SIRT3 (pre-training 0.608±0.404; post-training 0.516±0.390; t=0.533; p=0.594) and MDA (pre-training 8420±4615; post-training 8800±3163; t=-0.533; p=0.594) were observed. **Conclusion:** Our main findings showed a significant decrease in mTOR in lymphocytes after 8 weeks of physical training, which could express some of the known anti-inflammatory effects of regular physical exercise, namely in older people. Also, these results revealed that 8 weeks of physical exercise improved physical function, such as in aerobic capacity and walking velocity. Regarding MDA, our results showed that physical exercise program did not induce any significant change on lipoperoxidation in plasma. As well, SIRT3 had no change after the physical exercise training.

P13/29- SEDENTARY BEHAVIOR AND THE BIOLOGICAL HALLMARKS OF AGING. Jérémy Raffin(1), Philipe de Souto Barreto(1,3), Anne Pavy Le Traon(2), Bruno Vellas(1,3), Mylène Aubertin-Leheudre(4) Yves Rolland(1,3) *((1) Gérontopôle de Toulouse, Institut du Vieillissement, Centre Hospitalo-Universitaire de Toulouse, Toulouse, France; (2) Institute for Space Medicine and Physiology (MEDES),- Neurology department CHU Toulouse, INSERM U 1297, Toulouse, France; (3) CERPOP UMR 1295, University of Toulouse III, Inserm, UPS, Toulouse, France; (4) Centre de recherche, Institut universitaire de gériatrie de Montréal (IUGM), CIUSSS du Centre-Sud-de-l'Île-de-Montréal, Montreal, Canada; Département des Sciences de l'activité physique, Faculté des sciences, Université du Québec à Montréal, Montreal, Canada)*

Background: A lack of regular physical activity (PA), defined as not achieving the weekly amount of moderate to vigorous PA recommended by the WHO is a well-known risk factor for accelerated biological aging. However, the effects of sedentary behavior (SB), distinct from PA and defined as any waking behavior spent lying or sitting at an intensity ≤ 1.5 metabolic equivalents of task (METs) have been less investigated although the recent literature has shown that it may induce detrimental effects on health, even in physically active people. **Objectives:** To summarize the current literature on the effects of several models of extreme SB on the biological hallmarks of aging. **Methods:** Published articles investigating the effects of different models of SB such as bedrest studies, unilateral limb suspension interventions and spaceflights studies were scrutinized for narrative review (published in Raffin et al., Ageing Research Reviews, 2023. https://doi.org/10.1016/j.arr.2022.101807). The biological hallmarks of aging were defined as genomic instability, telomere attrition, epigenetic alterations, loss of proteostasis, deregulated nutrient sensing, mitochondrial dysfunction, cellular senescence, stem cell exhaustion, and altered intercellular communication. **Results:** This review indicates that SB mainly affects skeletal muscle protein homeostasis, nutrient sensing, mitochondrial function and stem cell content, which all together contribute to muscle atrophy and dysfunction. In addition, it appears that factors such as age, muscle type, and duration of SB modulate the impact of SB. Although other hallmarks such as altered intercellular communication and cellular senescence seem also promoted by SB, further work is needed to draw robust Conclusion regarding genomic instability, telomere attrition and epigenetic alterations. **Conclusion:** SB promotes most of the hallmarks of aging within skeletal muscle cells. Further research is required to better understand how factors such as age, sex, genetic variations, diet, or concomitant exercise training may moderate the responses to prolonged SB.

P13/33- MULTIDIMENSIONAL FACTORS ASSOCIATED WITH THE SEDENTARY BEHAVIOR AMONG CHINESE ELDERLY PATIENTS WITH GASTRIC CANCER UNDERGOING SURGERY: A CROSS-SECTIONAL STUDY. Lingyu Ding Cui Yao *(Department of Colorectal Surgery, the First Affiliated Hospital of Nanjing Medical University, Nanjing, China)*

Background: Affected by different factors such as fatigue, gastrointestinal symptoms, and low willingness to be active, sedentary behavior is significant among patients with gastric cancer undergoing surgery, which has been proved to be an important risk factor of adverse outcomes. **Objective:** We intended to comprehensively examine the multidimensional (demographic, physiological, and psycho-social) factors associated with the sedentary behavior among Chinese elderly patients with gastric cancer undergoing surgery, so as to provide important evidence support for the targeted sedentary behavior intervention in such patients. **Methods:** A cross-sectional study was conducted to select 393 elderly patients who would undergo gastric cancer surgery at a tertiary hospital. Sedentary behavior was assessed using International physical activity questionnaire-short form (IPAQ-SF). Univariate and multivariate analysis were utilized to determine the the relationship between multidimensional (demographic, physiological, and psycho-social) factors and the sedentary behavior among Chinese elderly patients with gastric cancer undergoing surgery. **Results:** In our study, the prevalence of preoperative sedentary behavior is prevalent, up to 30.5% among elderly gastric cancer patients. Importantly, it is found that the factors related to sedentary behavior are multidimensional, including high-density lipoprotein (OR=0.197, 95%CI: 0.053-0.740, P=0.016), female (OR=0.455, 95%CI: 0.235-0.881, P=0.019), depression (OR=4.837, 95%CI: 1.572-14.880, P=0.006), co-morbidity (OR=1.751, 95%CI: 1.031-2.971, P=0.038), high school(OR=0.237, 95%CI: 0.085-0.659, P=0.006), middle school(OR=0.402, 95%CI: 0.175-0.926, P=0.032), primary school and below(OR=0.381, 95%CI: 0.170-0.855, P=0.019). **Conclusion:** In our study, it is found that preoperative sedentary behavior is prevalent among elderly gastric cancer patients. Furthermore, the factors related to sedentary behavior are multidimensional. In clinical

practice, medical staff need to pay attention to the influence of physiological, psycho-social and demographic indicators on sedentary behavior, and precisely reduce the sedentary behavior of patients according to these multidimensional factors, to improve the physical function and overall prognosis of patients.

P13/34- ULTRASOUND QUANTITATIVE EVALUATION OF MORPHOMETRIC CHANGES IN RECTUS FEMORIS AFTER A 16-WEEK SUPERVISED EXERCISE PROGRAMME IN ELDERLY FRAIL SUBJECTS. Naiara Virto(1), Xabier Río(1), Garazi Angulo(1), Rafael García Molina(2,3), Almudena Avendaño Céspedes(2,3,4), Elisa Belen Cortés Zamora(2,3), Elena Gómez Jiménez(2), Pedro Abizanda Soler(2,3,5), Leocadio Rodríguez Mañas(3,6), Ander Matheu(3,7,8), Uxue Lazcano(7), Itziar Vergara(7,9,10), Laura Arjona(11), Morelva Saeteros(11), Aitor Coca(12), Sergio J Sanabria(8,11) *((1) Department of Physical Activity and Sport Science, Faculty of Education and Sport, University of Deusto, Bilbao, Spain; (2) Department of Geriatrics, Complejo Hospitalario Universitario de Albacete, Albacete, Spain; (3) CIBER de Fragilidad y Envejecimiento Saludable (CIBERfes), Instituto de Salud Carlos III, Madrid, Spain; (4) Facultad de Enfermería de Albacete, Universidad de Castilla-La Mancha, Albacete, Spain; (5) Facultad de Medicina de Albacete, Universidad de Castilla-La Mancha, Albacete, Spain; (6) Geriatrics Department, University Hospital of Getafe, Spain; (7) Biodonostia, Health Research Institute, Donostia, Spain; (8) IKERBASQUE, Basque Foundation for Science, Bilbao, Spain; (9) Osakidetza, Health Care Department, Research Unit. APOSIs, Gipuzkoa, Spain; (10) Research Network in Chronicity, Primary Care and Health Promotion (RICAPPS), Spain; (11) Deusto Institute of Technology, University of Deusto, Bilbao, Spain; (12) Department of Physical Activity and Sports Sciences, Faculty of Health Sciences, Euneiz University, Vitoria-Gasteiz, Spain)*

Background: Frailty derived from muscle mass and quality loss in the elderly can be delayed through early detection and exercise interventions (1,2). Affordable tools are needed for the objective evaluation of muscle quality, in both cross-sectional and longitudinal assessment (3,4). Quantitative analysis of ultrasound data captures morphometric and microstructural muscle properties (5), which have shown mild to moderate associations with frailty (6). We hypothesize that longitudinal follow-up of ultrasound parameters with a standardized examination protocol may reveal effects associated with interventions. **Objectives:** Evaluate ultrasound morphometric ultrasound parameters to monitor muscle quality changes associated with supervised exercise programs. **Methods:** 18 patients over 70 years were prospectively recruited in the hospital environment with a 85%/15% frail/robust ratio. A basal ultrasound examination was performed with a point-of-care B-mode ultrasound device (L7HD3, Clarius Mobile Health Corp.). The midpoint of both thighs was examined in transverse and longitudinal view and the rectus femoris was quantified. Then patients were assigned to a supervised 16-week exercise program consisting in two weekly 45 minute sessions of strength, power and coordination exercises aimed at preventing weakness and fall risk (7). After program completion a second ultrasound was performed -post-. **Results:** The cross-section (3.0-7.4cm^2) and thickness (10.4-18.7mm) of rectus femoris did not show significant variations in means (paired t-test, p=0.97,p=0.49) between left and right thighs (-0.01cm2,0.27mm). An increase in means between post and basal was observed (0.37cm2/8.4%,0.48mm/3.3%), although the effect was not statistically significant (p=0.25,p=0.44). The variance in post/basal showed a significant increase (255%,256%), with respect to anatomical variance between left and right thighs (f-test, p=0.06,p=0.06). The intra-examiner variability of repeated measurements was (0.34cm^2, 0.67mm). **Conclusion:** Supervised exercise interventions in the elderly led to a significant increase of variance in ultrasound quantitative measures with respect to physiological variations between left and right thighs. The effect was not consistent in means for all patients. Automated evaluation of morphometric parameters should be considered to improve reproducibility of quantitative ultrasound examination. **References:** 1. Chen X, Mao G, Leng SX. Frailty syndrome: an overview, Clinical interventions in aging 2014;9:433. https://doi.org/10.2147%2FCIA.S45300; 2. Casas-Herrero A, de Asteasu MLS, Antón-Rodrigo I, et al. Effects of Vivifrail multicomponent intervention on functional capacity: a multicentre, randomized controlled trial, Journal of cachexia, sarcopenia and muscle 2022;13:884-93; https://doi.org/10.1002/jcsm.12925; 3. Oviedo-Briones M, Laso AR, Carnicero JA, et al. A comparison of frailty assessment instruments in different clinical and social care settings: the frailtools project, Journal of the American Medical Directors Association 2021;22:607-12; 4. Wang J, Wu W, Chang K, et al. Ultrasound Imaging for the Diagnosis and Evaluation of Sarcopenia: An Umbrella Review, Life 2021;12:9. https://doi.org/10.3390/life12010009; 5. Perkisas S, Baudry S, Bauer J, et al. Application of ultrasound for muscle assessment in sarcopenia: towards standardized measurements, European geriatric medicine 2018;9:739-57. https://doi.org/10.1007/s41999-018-0104-9; 6. Benton E, Liteplo AS, Shokoohi H, et al. A pilot study examining the use of ultrasound to measure sarcopenia, frailty and fall in older patients, Am J Emerg Med 2021;46:310-6. https://doi.org/10.1016/j.ajem.2020.07.081; 7. Izquierdo M. Multicomponent physical exercise program: Vivifrail, Nutricion Hospitalaria 2019;36:50-6. https://doi.org/10.20960/nh.02680

INTEGRATED CARE (ICOPE)

P14/1- ASSESSMENT OF INTRINSIC CAPACITY IN A COHORT OF SPANISH OLDER PEOPLE USING ICOPE HANDBOOK APP AND ASSOCIATION WITH ADVERSE HEALTH EVENTS. Sergi Blancafort-Alias(1), Montse Vergara-Duarte(2), Antoni Salvà Casanovas(1) *((1) Fundació Salut i Envelliment UAB, Barcelona, Spain; (2) Parc Sanitari Sant Joan de Déu, St. Boi de Llobregat, Spain)*

Background: Integrated Care of Older People (ICOPE)

strategy includes the measurement of "intrinsic capacity" (IC) defined as "the composite of all the physical and mental attributes on which and individual can draw». IC include five domains: cognition, vitality/nutrition, sensory, psychology, and mobility. World Health Organization (WHO) developed the ICOPE Handbook App, as a screening tool for the assessment of IC. There have been some initiatives to test this App and assess the association between IC and the incidence of health adverse events, but to our knowledge no experience has been carried out in Spain. **Objectives:** To explore the association between losses of IC measured by the ICOPE App at baseline, the incidence of adverse health events (social frailty, functional decline, health adverse outcomes, and deterioration of quality of life) and needs and resources for daily life in community-dwelling older adults during 6-month follow-up. Secondarily, to explore the usability of ICOPE App among primary care professionals and caregivers. **Methods:** Protocol for a pilot cohort study of community-dwelling adults, 70 years or more, autonomous for basic activities of daily living (Barthel≥90), with the following exclusion criteria at baseline: (1) being considered frail (Rockwood's clinical frailty scale, CFS score≥4); (2) previous diagnosis of dementia; or (3) advanced chronic condition and a life expectancy <12 months. IC, health events, needs and resources for daily life will be assessed at baseline, and 6-month follow-up. For the association between IC and health events we will use the STROBE statement. Usability of the ICOPE Handbook App will be assessed by the Spanish version of a validated System Usability Scale (SUS). The pilot study will be conducted in Sant Boi de Llobregat (Barcelona). 50 older adults and their healthcare professionals and/or formal/informal caregivers will be recruited from three primary care centres. **Results:** We expect association among the decrease in IC and higher risk of adverse health events during 6-year follow-up. We expect an acceptable usability of ICOPE App Handbook among health care professionals and formal/informal caregivers (SUS≥70). **Conclusion:** ICOPE App might be used as a screening tool in primary care settings to a higher risk of frailty, functional decline, and other health adverse events among older people. Its implementation might contribute to more efficient person-centred care plans.

P14/2- FEASIBILITY OF AMICOPE MULTI-DOMAIN GROUP-BASED INTERVENTION FOR OLDER PEOPLE WITH LOSSES IN INTRINSIC CAPACITY.

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Background: AMICOPE multi-domain group-based intervention was developed during the European APTITUDE project (2018-2022) funded by POCTEFA. This intervention was built upon the ICOPE framework and aimed to improve and/or maintain IC through the promotion of physical activity, healthy nutrition, and psychological wellbeing in older people. The effectiveness of AMICOPE is being assessed in the EFICIS randomized clinical trial. According to the MRC framework for developing and evaluating complex interventions, the acceptability and feasibility of AMICOPE should be assessed in an intermediate step. **Objectives:** The objectives of this study were to examine the feasibility of implementation in practice (primary) and the feasibility of study methods and potential effectiveness (secondary) of the AMICOPE multi-domain group-based intervention addressed to older people with losses in intrinsic capacity. **Methods:** This study used a prospective one-group pre-test/post-test design. 12 participants were recruited from the Ageing & Health Service of the Andorran Healthcare System at the community level. They received the AMICOPE intervention which consisted in twelve weekly sessions aimed to promote healthy nutrition, emotional wellbeing and physical exercise. The sessions were conducted by professionals of the ageing department of the city council previously trained and observed by health professionals. The primary outcome was the feasibility of the intervention (acceptability, fidelity, implementation barriers/facilitators). Secondary outcomes included the feasibility of the study procedures (recruitment, screening, data collection and analysis methods), the adherence of participants and potential effectiveness of the intervention based on 3-month changes in cognitive, nutritional, mobility and psychological domains of intrinsic capacity. Analysis of feasibility outcomes was primarily based on qualitative analysis of observation guide and interviews to facilitators, observers and participants. The potential effectiveness of the program was explored using different tests (GPCOG, PHQ9, MNA, SPPB). **Results:** In total, 12 persons (8 women, 4 men) consented to participate (median age: 75.3). Of these, 7 (58.3 %) completed the 3-month follow-up. Adherence was >50% for almost all sessions. Participants, facilitators, and observers considered the intervention as acceptable and feasible. We did not find any problems measuring the outcomes for nutritional status, mobility and psychological domains. **Conclusion:** The study offered promising outcomes related to the implementation and suggested that AMICOPE intervention was feasible to deliver and acceptable to participants and facilitators, although minor adaptations were identified. Potential effectiveness in the domains of intrinsic capacity should be assessed in a randomized clinical trial as stated in the MRC framework for complex interventions.

P14/3- THE WORLD HEALTH ORGANIZATION'S INTEGRATED CARE FOR OLDER PEOPLE (WHO'S ICOPE) LATEST UPDATES: A SCOPING REVIEW. Vitor Pelegrim de Oliveira(1,2), Eduardo Ferrioli(4), Roberto Alves Lourenço(5), Emmanuel González-Bautista(3), Philipe Souto Barreto(3), Renato Gorga Bandeira de Mello(1,2) *((1) Geriatric Unit – Internal Medicine Division, Hospital de Clínicas de Porto Alegre, Brazil; (2) Post Graduation Program in Medical Sciences: Endocrinology, Faculty of Medicine, Universidade Federal do Rio Grande do Sul, Brazil; (3) Gérontopôle de Toulouse, Institut du Vieillissement, Centre Hospitalier-Universitaire de Toulouse, Toulouse, France; (4) Division of Internal Medicine and Geriatrics, Department of Medicine, Ribeirao Preto Medical School, University of Sao Paulo, Brazil; (5) Faculty of Health Sciences, Internal Medicine Department, Human Aging Research Laboratory, Universidade do Estado do Rio de Janeiro, Brazil)*

Background: The World Health Organization (WHO) developed a public health strategic approach to maintain older adults' functional abilities and promote healthier aging: the Integrated Care for Older People (ICOPE). In 2017, the first edition of the ICOPE Guidelines was released aiming to achieve these goals. The approach is composed of a 5-step pathway: 1. Screening; 2. In-depth evaluation; 3. Development of an individual care plan; 4. Provision of adequate treatment and follow-up, and 5. Initiatives to engage communities and support caregivers. Although being constructed on evidence-based concepts, data regarding the application, the diagnostic performance of the ICOPE's screening tool (ST), and the prevalence of loss of intrinsic capacity (IC) in different populations are scarce. Moreover, an updated and broad literature review on these topics is needed, to better understand the actual state of the art, helping to guide upcoming ICOPE's implementation initiatives across heterogeneous health systems. **Aims:** To perform a scoping review regarding the prevalence of positive screenings for loss of IC detected by the ICOPE ST, and currently available data on its sensitivity, specificity, and diagnostic accuracy. **Methods:** A systematic search was conducted in representative literature databases (PubMed, Cochrane, Embase, and SciElo), the medRxiv platform, and recent human aging scientific events, looking for research analyzing the ICOPE's screening instrument. The main inclusion criterion was the application of the ICOPE ST, as it was conceived by WHO, at any time in the study. **Results:** A total of 7 publications were included. Most of the studies were based on convenience samples. The prevalence of at least one decline detected by the instrument varied from 17.1 to 94.3%. Different sensitivity and specificity results were found for each domain of IC. The quality of data assessed by the JBI Critical Appraisal Checklist indicated a high risk of bias in 5 studies and a moderate risk in 2 publications. **Conclusion:** There is still scarce evidence on the ICOPE ST's prevalence of positive screenings and its diagnostic accuracy. The currently available data are heterogeneous, with a moderate to high risk of bias, and the studied samples might not properly represent the initiative's target population.

P14/4- EFFECTS OF VIVIFRAIL EXERCISE MULTICOMPONENT EXERCISE PROGRAM ON THE INTRINSIC CAPACITY OF OLDER ADULTS IN PRIMARY CARE UNDER THE INTEGRATED CARE FOR OLDER PEOPLE (ICOPE) SCOPE. PROTOCOL FOR A RANDOMIZED CLINICAL TRIAL. Juan Luis Sánchez-Sánchez(1), Marina Castel-Sánchez(2), Alberto Bermejo-Franco(2), Federico Salniccia(2), Ismael Sanz Esteban(2), Javier López-Ruiz(2), Pablo César García-Sánchez(2), Cecilia Estrada Barranco(2), Raquel García Valenzuela(3), María José Giménez-Mestre(2) *((1) Department of Health Sciences, University of Navarre, Pamplona, Spain; (2) Department of Physical Therapy, European University of Madrid, Villaviciosa de Odón, Spain; (3) Centro de Salud Nª Señora de Fátima, Dirección Asistencial Centro, Servicio Madrileño de Salud, Madrid, Spain)*

Background: The Integrated Care for Older People (ICOPE) guidelines by World Health Organization (WHO) represent a framework for intrinsic capacity (IC, a novel function-based marker of older adult's health comprising mental and physical capacities of the individual) screening, assessment and intervention. Vivifrail multicomponent physical exercise (MCE) has been suggested as the elective intervention for individuals presenting with declines in IC locomotion domain (Short Physical Performance Battery <10), with potential for positively impacting other IC domains (cognitive, vitality and psychology), but so far, evidence around its effectiveness for promoting IC increases in the real clinical scenario for which ICOPE was designed is lacking. **Objectives:** To explore the effectiveness of the Vivifrail multicomponent exercise program on the IC of older adults presenting with declines in the locomotion domain in Primary Care, the setting for which ICOPE was conceived. **Methods:** This study will be a three-branch multi-center randomized clinical trial to be conducted in 6 Primary Care centers located in the city of Madrid (Spain), belonging to the Public Health System. 180 older adults (≥70 years old) presenting with declines in the IC locomotion domain will be recruited in the participating centers. They will be randomized in a 1:1:1 ratio to a center-based supervised Vivifrail MCE, a home-based non-supervised Vivifrail MCE program or to a control group. The intervention consist of a thrice-a-week exercise sessions encompassing strength, aerobic, flexibility and balance and gait training tailored to the individual's baseline functional ability. IC will be assessed through its operational domains following ICOPE guidelines (SPPB for IC locomotion, Montreal Cognitive Assessment for IC cognitive, 15-item Geriatric Depression Scale for IC depression, Mini-Nutritional Assessment for IC vitality, and WHO optometry/hear WHO) for IC sensory at baseline and 6 and 12 weeks after the start of the intervention. **Results:** This study has been approved by the Research Ethics Committee of the 12 Octubre Hospital in Madrid, Spain and recruitment is expected to start by January of 2023. Training of the staff (primary care physician, physical therapists, nurses) in the

participating centers have been performed. **Conclusion:** This study might bring evidence around the ICOPE recommendation on the Vivifrail MCE for management of IC locomotion declines in Primary Care for the first time. Gaining insight on exercise interventions for IC promotion/maintenance will reinforce current recommendations and contribute to the development real-world strategies for healthy ageing promotion.

P14/5- GERONTOLOGICAL INTERVENTION IN A CASE OF NEUROCOGNITIVE DISORDER IN A TRADITIONAL MEXICAN HOME: FOLLOW-UP OF A CASE. Valeria Ugalde-Zanella *(Universidad de Guanajuato, Celaya Guanajuato, Mexico)*

Background: It is estimated at the national level that 11% of the population over 60 years of age suffers from some degree of cognitive impairment (Salud, Bienestar y Envejecimiento, 2018). The high prevalence of cognitive impairment in the Mexican population is significantly related to frequent chronic diseases in old age (diabetes mellitus, hypertension, brain disease, and depression). Although there is no treatment for neurocognitive disorder, addressing the risk factors can slow the progression of the disease. The new guidelines of the World Health Organization provide the knowledge base for health personnel as a strategy to reduce the burden of the problem in public health. The interventions that are aimed at reducing the problem are of a psycho-pedagogical type, under the physiotherapeutic model, and the gerontology consultation model. **Objectives:** 1. To evaluate the efficacy of a gerontological intervention in an older adult with neurocognitive disorder. 2. Establish the level of cognitive impairment. 3. Design a physical rehabilitation plan. **Methods:** It was the follow-up of a case [Empirical inquiry that investigates a contemporary phenomenon within its context in real life (Yin, 2009)] of an adult over 91 years of age, with polypharmacy, hypertension, and a diagnosis of neurocognitive disorder. In a follow-up period of 1 year. Gerontology sessions were held twice a week for the first month and were spaced out as time passed. The patient's progress was recorded and care tasks were left to the person who spent the night with the older adult. **Results:** The patient obtained a 3 in the Functional Assessment Questionnaire (FAQ), (at the beginning she had a 1), and the evaluation of the cognitive state by means of the Mini Mental State Assessment (MMSE) yielded 15 points, of which the patient recovered her language and visuospatial orientation, compared to the first visit in which the MMSE indicated 5 points. **Conclusion:** The gerontological intervention met the proposed objectives and a new line of research is added with the variable of the main caregiver in the rehabilitative potential.

P14/6- ASSOCIATION BETWEEN INTRINSIC CAPACITY AND MORTALITY RISK IN OLDER ADULTS. Fernando M. Runzer-Colmenares(1), M. Alejandra Rodriguez- Cuba(1), Estefano A. Ballesteros- Zamalloa(2), José F. Parodi(3) *((1) CHANGE Research Working Group, Carrera de Medicina Humana, Universidad Científica del Sur, Lima, Perú; (2) Facultad de Ciencias de la Salud, Universidad Peruana de Ciencias Aplicadas, Lima, Perú; (3) Centro de Investigación del Envejecimiento, Facultad de Medicina Humana, Universidad de San Martín de Porres, Lima, Perú)*

Background: Intrinsic capacity has been found to decline progressively in older adults and is associated with negative health outcomes, such as incident impairment in activities of basic or instrumental daily living and mortality. Regular monitoring of intrinsic capacity can provide a holistic method for tracking the health of elderly individuals, and studies have also shown that is associated with gender, socio-economic status, nutrition, mortality, and falls risk. The WHO Guidelines on Integrated Care for Older People (ICOPE) provide evidence-based recommendations for effective interventions to address mortality risk in older adults. Public health programs implementing the ICOPE healthcare pathway could offer evidence-based direction on the comprehensive assessment of health status in an older person, as well as interventions to reduce the risk and incidence of falls among older people. **Objective:** The main objective of this study was to determine the association between intrinsic capacity and mortality risk in older adults in outpatient services at the Naval Medical Center, Peru. **Methods:** Observational, analytical, and retrospective design. Data from the participants belong to a previous study carried out on older adults at the Naval Medical Center (Callao, Peru) during 2010-2015. This database consisted of 1896 people, but the final sample was 1683 when the selection criteria necessary for the objectives of this study were applied. We defined an altered intrinsic capacity when at least four criteria were positive, and mortality was assessed with a monthly follow-up considering epidemiology office reports. **Results:** We found that 13.49% of participants had an altered intrinsic capacity (n=227), and 10.64% of the older adults did not survive at the end of follow-up (n=179). The mortality risk of participants with an altered intrinsic capacity (at least four criteria) was 7.67 (RR) higher than those with an adequate intrinsic capacity (CI 95% 5.85-10.06), in a model adjusted by functional impairment, age, comorbidities, gender, education, and falls. **Conclusion:** In a Poisson regression model considering functional impairment, age, comorbidities, gender, education, and falls, a low intrinsic capacity increases the mortality risk. The ICOPE approach could be useful to reorient health and social services towards a more person-centered model of care and has been proposed as a pathway to improve the quality of care for older people, reduce costs, and increase efficiency in health care systems, and considering our results, could be a reliable tool to predict mortality risk in outpatient elderly population.

BODY COMPOSITION

P15/2- EFFECTS OF DIFFERENT DEFINITIONS OF LOW MUSCLE MASS ON ITS ASSOCIATION WITH METABOLIC SYNDROME IN OLDER ADULTS: A KOREAN NATIONWIDE STUDY. Yerim Jeon(1), Ki Young Son(1) *((1) Department of Family Medicine, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea)*

Background: Different diagnostic criteria of LMM could alter the association between sarcopenia and insulin resistance. The association between low muscle mass (LMM) and metabolic syndrome (MetS) prevalence has been inconsistent in previous studies on young and older adults. **Objectives:** We aimed to investigate the association between low muscle mass (LMM) and metabolic syndrome (MetS) according to the definition of LMM. **Methods:** This study used data from the Korean National Health and Nutrition Examination Survey conducted from 2008 to 2011. We used appendicular skeletal muscle adjusted for height (ASM/Ht2) and weight (ASM/Wt) as definitions of LMM. Class I and Class II LMM were defined as ASM/Ht2 or ASM/Wt from 1 to 2 standard deviations (SDs) or 2 SDs below the mean for young adults, respectively. **Results:** A total of 6,370 participants were included in analysis: 58.5% were women. The mean age of participants in this study sample was 72.3 ± 4.8 years. In the fully adjusted model, ASM/Ht2 was inversely related to MetS prevalence (adjusted odds ratio [OR] (aOR) 0.770 (95% confidence interval [CI], 0.600-0.988) for Class I, aOR 0.473 (95% CI, 0.327-0.684) for Class II). In contrast, MetS prevalence increased in Class I (aOR 1.902, 95% CI, 1.510-2.396) and Class II LMM (aOR 2.831, 95% CI, 2.194-3.655) using ASM/Wt. ASM/Ht2 was proportional to the waist circumference (WC) and the number of metabolic features, whereas ASM/Wt was inversely proportional in both sexes. Stratified analysis revealed that the association was robust regardless of the cardiovascular risk factors. **Conclusion:** In Korean older adults, ASM/Wt is positively associated with MetS prevalence, whereas ASM/Ht2 is inversely associated, regardless of the cardiovascular risk factors. WC and the number of metabolic features were directly proportional to ASM/Ht2, but inversely proportional to ASM/Wt. **Key words:** Low muscle mass, Sarcopenia, Metabolic syndrome, Waist circumference.

P15/3- THE EFFECT OF VITAMIN D SUPPLEMENT ON MUSCLE MASS IN ELDERLY SPINAL CORD INJURY PATIENTS-PILOT STUDY. Hea-Eun Yang, Byeong Wook Lee *(Department of Physical Medicine and Rehabilitation, Veterans Health Service Medical Center, Seoul, South Korea)*

Background: Vitamin D deficiency is a common health problem worldwide, in particular among older people. Also, skeletal muscle atrophy is a hallmark of chronic spinal cord injury(SCI). The effect of vitamin D on the muscle has been suggested that this hormone can stimulate the proliferation and differentiation of skeletal muscle fibers, maintaining and improving muscle strength and physical performance. **Objectives:** In this study, we tried to know the change of body composition and laboratory finding in elderly SCI patient with vitamin D deficiency after vitamin D supplement. **Methods:** Thirteen SCI patients with vitamin D deficiency (vitamin D <30ng/ml) were enrolled. We divided the patients into two groups; (A) under 60 years (n=6) and (B) more 60 years (n=7). The 800IU of cholecalciferol was taken daily for 3 months. Assessments were performed before and 3 months after the treatment. We used the laboratory finding to evaluate hormonal changes related to vitamin D (vitamin D, calcium, testosterone, insulin, protein and sex hormone binding globulin), and InBody S10 to evaluate the body compositions (protein, skeletal muscle mass and soft lean mass). **Results:** There was no significant difference between groups in vitamin D, calcium, testosterone, insulin, sex binding hormone. The skeletal muscle mass, soft lean mass, serum protein and protein measured by InBody were significantly higher in group A than group B before the treatment. The skeletal muscle mass and protein measured by InBody of group B were improved after the treatment and difference between the groups disappeared. This result suggests that vitamin D supplement is more effective in elderly than young adult in aspect of skeletal muscle mass and protein level. There was no severe adverse event for entire period. **Conclusion:** In this study, we examined the effects of vitamin D supplement in SCI patients according to age. We confirmed a significant differences in musculoskeletal health between two groups at before and after the treatment. Also, we found increase in musculoskeletal health in elderly groups than young adult group. Consequently, vitamin D supplement cab be proposed as a management of maintaining skeletal muscle mass especially in elderly SCI patient with vitamin D deficiency.

P15/4- ASSOCIATION BETWEEN SKELETAL MUSCLE MASS TO VISCERAL FAT AREA RATIO (SVR) AND COGNITIVE FUNCTION IN TYPE 2 DIABETES. Serena Low(1,2,3), Angela Moh(1), Keven Ang(1), Su Chi Lim(1,2,3,4) *((1) Khoo Teck Puat Hospital, Singapore; (2)Admiralty Medical Centre, Singapore; (3) Lee Kong Chian School of Medicine, Singapore; (4) Saw Swee Hock School of Public Health, Singapore)*

Background: Skeletal muscle mass to visceral fat area ratio (SVR) is a risk factor of metabolic syndrome, type 2 diabetes (T2D) and arterial stiffness which confer higher susceptibility to cognitive dysfunction. Given the shared pathways of insulin resistance, inflammation and oxidative stress in visceral obesity, sarcopenia and cognitive dysfunction, it is plausible that lower SVR, indicative of reduced muscle mass and increased visceral fat area, is associated with lower cognitive function. **Objectives:** We aimed to study the association between SVR and cognitive function. **Methods:** We conducted a study on 1326 patients with T2D recruited from diabetes centre and primary care polyclinics. 596 of these patients were followed up longitudinally for cognitive function. Muscle mass and

visceral fat area were quantified using bio-electrical impedance analysis (BIA) and used to calculate SVR. We used Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) to assess cognitive function. Change in RBANS score was calculated as follow-up RBANS score minus baseline RBANS score. The association between SVR in quartiles with baseline RBANS score and change in RBANS score was examined using linear regression, adjusting for demographics, education, clinical covariates and presence of APOE ε4 allele. **Results:** The mean age of patients was 61.3±8.0 years. In unadjusted cross-sectional analysis, Quartile 1 SVR (lowest SVR group) and Quartile 2 SVR were associated with lower baseline RBANS total score compared to Quartile 4 SVR. In fully adjusted analysis, the negative associations for Quartiles 1 and 2 SVR with baseline RBANS total score remained with coefficients -3.79 (95%CI -5.39 to -2.19;p<0.001) and -1.47(95%CI -2.86 to -0.07;p=0.039) respectively. Quartile 1 SVR was negatively associated with baseline RBANS score in domains of immediate and delayed memory, visuo-spatial/ construction, language and attention in fully adjusted analysis. Longitudinal analysis revealed that Quartiles 1 and 2 SVR were associated with decline in RBANS score in visuo-spatial/ construction with fully adjusted coefficients -5.00(95%CI -8.49 to -1.51; p=0.005) and -3.37 (95%CI -6.30 to -0.44; p=0.024) respectively. **Conclusion:** BIA-derived lower SVR is independently associated with lower cognitive function globally and in multiple domains. SVR may be considered as a potentially useful indicator for cognitive function monitoring and prevention in patients with T2D.

P15/5- ASSOCIATION BETWEEN BODY COMPOSITION AND DEPRESSIVE SYMPTOMS IN OLDER ADULTS. Justina Kilaite, Egle Sadauskaite, Asta Mastaviciute *(Clinic of Internal Diseases, Family Medicine and Oncology, Institute of Clinical Medicine, Faculty of Medicine, Vilnius University; Vilnius, Lithuania)*

Background: Studies have reported conflicting results regarding the relationship between depression and body composition. **Objective:** The aim of this study was to investigate the association between body composition and depressive symptoms in community-dwelling older people. **Materials and methods:** A cross-sectional study was performed in outpatient clinic in Vilnius, Lithuania. Inclusion criteria were: age 60 or more years, MMSE ≥ 21. Sarcopenia was defined according to European Working Group on Sarcopenia in Older People criteria made in 2018. Muscle mass was measured by dual-energy x-ray absorptiometry (iDXA, GE Lunar, USA), muscle strength was evaluated measuring handgrip strength (JAMAR, Patterson Medical, UK), and physical performance was evaluated by the Short Physical Performance Battery test. Participants were classified as obese depending on the percentage of the body fat measure by DXA. Sarcopenic obesity was diagnosed if both sarcopenia and obesity were present. Based on body composition participants were classified into four groups: normal, sarcopenic, obese and sarcopenic obesity. Depressive symptoms were examined using the 15-item Geriatric Depression Scale (GDS), a total score of ≥ 5 was used to define the presence of depressive symptoms. Associations between body composition and depressive symptoms were assessed using multinomial logistic regression. **Results:** The study was performed on 246 subjects: 87 (35.4%) men and 159 (64.6%) women. Mean age was 79.27±6.48 years. Ninety-one (37%) participants had normal body composition, 22 (8.9%) had sarcopenia, 115 (46.7%) were classified as obese and 18 (7.3%) had sarcopenic obesity. Ninety-one (37%) participants had no depressive symptoms, 106 (43.1%) participants scored between 5 and 10 points and 49 (19.9%) subjects scored more than 10 points on GDS. Logistic regression analysis showed that sarcopenia an sarcopenic obesity increased the risk of depressive symptoms (OR: 2.3 (1.61-3.26) and 1.67(1.24-2.26), respectively). No association was found between obesity and depressive symptoms (p=0.24). **Conclusion:** Our study showed that in older adults sarcopenia and sarcopenic obesity increased the risk of depressive symptoms. **Disclosure:** All authors state that they have no conflicts of interests.

P15/6- GENDER DIFFERENCE OF OBESITY PARADOX IN FRAIL ELDERLY. Seok-Min Kang(1), Chan Joo Lee(1), Kwang Joon Kim(2) *((1) Division of Cardiology, Department of Internal Medicine, Heart Failure Center, Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea; (2) Division of Geriatrics, Department of Internal Medicine, Yonsei University College of Medicine, Seoul, South Korea)*

Background: An inverse relationship between overweight and mortality (the «obesity paradox») is well documented, but there are scarce data on the gender difference. **Background:** The purpose of this study was to explain the obesity paradox in frail elderly and to identify the sex difference. **Methods:** Frailty was investigated using the K-FRAIL questionnaire in patients (N=204) who visited a tertiary medical institution. The handgrip test and knee extensor muscle strength test were performed to measure muscular fitness. Bioelectrical impedance analysis of body composition was done using the In Body 720 body composition scale. Aerobic exercise capacity was assessed using the cardiopulmonary exercise test and 6-minute walk test (6MWT). Participants were divided into four groups as follows: normal body mass index (BMI) with low skeletal muscle mass (NL group); normal BMI with high skeletal muscle mass (NH group); obese BMI with low skeletal muscle mass (OL group); and obese BMI with high skeletal muscle mass (OH group). **Results:** In men, the propotyion of NL group, the NH group, the OL group, and the OH group were 28 (30.1%), 15 (16.1%), 18 (19.4%), and 32 (34.4%), respectively. The OL group was the eldest and had the highest proportion of participants judged as frail by K-frail score (3.7% vs 20% vs 33% vs 15.6%). Also, compared to other groups, the OL group had the lowest knee extensor muscle power, the lowest hand grip strength and showed the lowest aerobic exercise capacity. In women, NL group, NH group, OL group, and OH group were 33 (29.7%), 19 (17.1%), 21 (18.9%), and 38 (34.3%), respectively. The OL group was the eldest, but the proportion

of frail participant was not different from the other groups. Knee extensor muscle fitness of the OL group were lower than that of the other groups, and hand grip strength was like that of the NL group. The peak VO2 of the OL group was the lowest compared to the other groups, and the 6-minute walking test showed a low tendency, but it was not statistically significant. In the age-adjusted logistic regression analysis in males, the OL group showed a statistically significant association with frailty (p=0.024) compared to the other groups, but not in the female logistic model. **Conclusion:** Participants with obese and low skeletal muscle mass showed low physical fitness and were associated with frailty in men but not in women. The reason of sex difference of obesity paradox in frail elderly warrants further study.

P15/7- COMPARISON OF BODY COMPOSITION AND SARCOPENIC PARAMETERS AMONG SARCOPENIC OBESE AND SARCOPENIC NON-OBESE OLDER ADULTS: A CROSS-SECTIONAL STUDY. Prabal Kumar(1), N. Girish(1), Shashikiran Umakanth(2) *((1) Department of Physiotherapy, Manipal College of Health Professions, Manipal, Manipal Academy of Higher Education, Manipal-Karnataka, India; (2) Dr. TMA Pai Hospital, Udupi, Manipal Academy of Higher Education, Manipal-Karnataka, India)*

Background: Sarcopenic obesity (SO), considered a unique clinical condition, different from obesity or sarcopenia due to the existence of bidirectional, pathogenic interaction between body fat mass accumulation and loss of skeletal muscle mass and function. However, the effect of obesity on muscle mass, muscle strength and physical performance is not clearly understood. **Objectives:** To find out the difference in muscle mass, muscle strength and physical performance among sarcopenic non obese and sarcopenic obese older adults. **Methods:** The cross-sectional study was conducted among community-dwelling older adults. The participants were included as per the inclusion criteria: (a) either gender, (b) ≥ 60 years. The participants were excluded, if: (a) wheelchair/ bed bound, (b) pacemaker or any metal implant, (c) history of tumour, heart surgery, stroke, chronic liver disease, and (d) any acute onset of orthopedic, neurological, cardiopulmonary or renal events. After obtaining the informed consent, participants were screened for eligibility as per the criteria. The included participants were categorized into two group: (1) Sarcopenic obese: Sarcopenia as per Asian Working Group for Sarcopenia criteria and Body Mass Index ≥25 Kg/m2; (2) Sarcopenic non-obese group. Participants in both groups were assessed for their Skeletal Muscle Index (SMI), Hand Grip strength (HGS), and Physical performance. Demographic information was summarised using descriptive statistics. Independent sample t test was used to compare the means among the two groups. The level of significance was set at $p < 0.05$. **Results:** Fifty-nine (n=59) subjects (age 71.44 ± 6.80) were included, with (n=17; 28.8%) being sarcopenic obese (Male: n=8; Female: n=9) and (n=42; 71.2%) being sarcopenic non obese (Male: n=28; Female: n=14). A significant difference between obesity parameters: fat % (p= 0.009), visceral fat % (p= 0.001), and whole body subcutaneous fat % (p= 0.003) were found respectively. Among the sarcopenic parameters, no statistically significant difference between the groups for HGS (p= 0.51) and 5-STS (p= 0.26) was observed. However, a significant difference in SMI was found between sarcopenic obese and sarcopenic non-obesity (p=0.014). **Conclusion:** The muscle strength and physical performance did not differ among the sarcopenic obese and sarcopenic non obese individuals, however, body composition parameters differed.

P15/8- RELATIONSHIP BETWEEN BODY COMPOSITION AND FUNCTIONAL CAPACITY IN PERSONS WITH FRAILTY SYNDROME. Justė Baranovskienė, Rūta Dadelienė *(Medical faculty, Vilnius University Vilnius, Lithuania)*

Background: According to the World Health Organization, the number of people aged 60 and over will increase to 1.4 billion by 2030. With higher numbers of older people, common health conditions associated with ageing, the frailty syndrome among them, become more frequent. The frailty syndrome increases the risk of falls, disability, hospitalization, and mortality. Frailty negatively affects the quality of life, increases dependence on other persons. **Objectives:** to evaluate the relationship between body composition and functional capacity in persons with Frailty Syndrome. **Methods:** A total of 71 older persons participated in this study. The participants were examined using the frailty questionnaire. We measured body weight, height, the thickness of fat skinfolds, body volume, and handgrip strength. The Barthel index was used to assess independence and Short Physical Performance Battery was used to assess functional capacity. **Results:** Statistically significant positive correlations between the handgrip strength and the chest circumference were found in the male group. A positive correlation was also found between the right handgrip strength and the lumbar and hip circumferences. Thick abdominal skinfold is associated with both handgrip strength and hip skinfold. In the female group, statistically significant positive correlations were found between the independence and both the waist and the right thigh circumferences. **Conclusion:** Men have a higher body mass index and women have a higher percentage of body fat. Mental condition, physical capacity and arm strength are better in men than in women, but independence is better in women. In the male group, a moderate correlation was found between chest, lumbar and hip circumferences and handgrip strength. Moderate correlation was found between the abdominal and hip skinfolds and handgrip strength. In the female group, a moderate correlation was found in both the waist and the right thigh circumferences and independence.

P15/9- ASSOCIATION BETWEEN ABDOMINAL CT MEASUREMENTS OF BODY COMPOSITION AND WAITLIST MORTALITY IN KIDNEY TRANSPLANT CANDIDATES. Evelien E. Quint(1), Yi Liu(2), Omid Shafaat(3), Robert A. Pol(1), Dorry L. Segev(2), Clifford Weiss(3),Mara A. McAdams DeMarco(2) *((1) Department of Surgery, UMCG, Groningen, The Netherlands; (2) Department of Surgery, NYU, New York, NY, USA; (3) Department of Radiology, JHU, Baltimore, MD, USA)*

Background: Obesity is considered a risk factor for developing adverse outcomes in the kidney transplant (KT) population, however, there are inherent limitations of BMI measurements. Objective measures of body composition, measured using abdominal CT scans, may improve pre-transplant risk stratification. **Objectives:** To determine the association between various CT-based body composition measurements and waitlist mortality in KT candidates. **Methods:** We leveraged a perspective cohort of adult first-time KT candidates (n=836) from 20010 to 2022 who underwent abdominal CT scans during KT evaluation, including L3 vertebral level, at Johns Hopkins Hospital. Body composition measurements were obtained, including skeletal muscle index (SMI) and skeletal muscle radiation attenuation (SM-RA). Sarcopenia was defined as an SMI< 50 cm2 /m2 for males and an SMI<39 cm2 /m2 for females. Myosteatosis was defined as an SM-RA<41 mean HU for recipient with a BMI< 25 kg/m2 and an SM-RA<33 mean HU for recipient with a BMI≥ 25 kg/m2. Sarcopenic obesity was defined as a BMI≥ 30 kg/m2 for sarcopenic recipients. Fine and Gray proportional subhazard models were used to quantify the associations of each measurement with waitlist mortality. P values <.05 were considered significant. **Results:** Among 836 KT candidates, the mean age was 55.3 years (SD, 12.8 years) and 38.8% were women. The 1- and 5-year cumulative incidence of mortality were 1.8% and 14.5% respectively. For myosteatosis, cumulative incidence of waitlist mortality was higher among those with myosteatosis (cSHR=1.95, 95%CI: 1.29-2.94, p=0.002). Regarding patients with sarcopenic obesity, cumulative incidence of waitlist mortality was higher when compared to their non-sarcopenic obese counterparts (cSHR=1.55, 95%CI: 1.01-2.39, p=0.047). None of the body composition profiles carried a higher risk of waitlist mortality after adjusting for potential confounders. **Conclusion:** Cumulative incidence of waitlist mortality is higher among kidney transplant candidates with myosteatosis and those with sarcopenic obesity. Transplant centers should consider using body composition metrics, when a CT scan is available, to improve risk stratification at KT evaluation.

P15/10- DXA DERIVED ADIPOSITY MEASURES AND PRE-FRAILTY/FRAILTY AMONG NORWEGIAN ADULTS: THE TROMSØ STUDY 2007–16. Shreeshti Uchai, Lene Frost Andersen, Anette Hjartåker *(Department of Nutrition, Institute of Basic Medical Sciences, University of Oslo, Norway)*

Background: Ageing is associated with changes in body composition, including adiposity level and its distribution. Excess adiposity worsens the age-associated decline in physical functioning. It has also been linked with various metabolic syndromes. Limited studies have explored the association between direct measures of total and central adiposity and frailty longitudinally. **Objective:** To examine the association of total and central adiposity with the risk of pre-frailty/frailty among Norwegian adults after eight years of follow-up. **Methods:** Total and central adiposity was assessed using Dual-energy x-ray absorptiometry (DXA) derived fat mass index (FMI) and visceral adipose tissue (VAT) mass, respectively. Frailty status was assessed using Fried's frailty phenotype definition. Pre-frail and frail individuals at baseline were excluded. Participants comprised 380 robust participants, including 234 women (mean age 68 years) and 146 men (mean age 69 years) from population-based Tromsø Study in 2007–2008 (Tromsø6) who also attended Tromsø7 (2015–2016). Sex-stratified multivariable logistic regression models, adjusted for smoking status, alcohol intake and self-perceived health, were used to assess the association. **Results:** 25.6% of women and 27.4% of men were pre-frail/frail. Compared to women in the lowest tertile of FMI at baseline, those in the highest tertile had higher odds of becoming pre-frail/frail at follow-up (OR 3.87, 95% CI 1.72–8.70). Similarly, women in the highest tertile of VAT mass had increased odds of pre-frailty/frailty at follow-up (OR 2.31, 95% CI 1.08–4.98). No significant association was observed between baseline FMI or VAT mass and pre-frailty/frailty among men. When examining the association with each frailty indicator individually, baseline FMI was found to be associated with slow walking speed and low physical activity level at follow-up among both women and men. Further, baseline VAT mass was significantly associated with low physical activity among women and slow walking speed among men. **Conclusion:** Our results suggest a positive association between increased fat mass and VAT mass during adulthood and a higher likelihood of pre-frailty/frailty in later years among women. Further larger longitudinal studies are required to confirm these findings and understand the impact of sex differences on the association between excess adiposity and the development of frailty.

P15/11- BODY COMPOSITION AND FALLS AMONGST PRE-FRAIL OLDER ADULTS WITH POOR PHYSICAL PERFORMANCE. S Nachammai Vidhya, Alexa Lai, Denishkrshna.A, Reshma Aziz Merchant *(National University Health System, Singapore)*

Background: Poor physical performance, sarcopenia and obesity are known to be associated with increased risk of falls. Aging is associated with ectopic fat deposition. **Objectives:** In this study, we investigated the body fat composition amongst fallers with poor physical performance. **Methods:** A cross sectional study of 328 pre-frail older adults aged 60 and above was conducted. Data was collected on participant demographics, physical function and body composition. Physical function tests included assessment of gait speed, 5x chair stand time and short physical performance battery (SPPB). Poor physical performance was defined by SPPB score ≤ 9, 5x chair stand time ≥ 12 seconds or gait speed < 1m/s. InBody S10 was used to measure body composition. **Results:** A total of 257 (78.4%) had poor performance, 56.4% (185) females, mean age 73.3 $\pm$ 5.8 and 82.5% (212) of Chinese ethnicity. Amongst them, 68 (26.5%) had at least 1 fall in the past year. Fallers with poor performance had lower SPPB scores (8.3 $\pm$ 2.3 vs 9.2 $\pm$ 2.0, p 0.003), higher body fat percentage (33.7 $\pm$ 11.7 vs 28.0 $\pm$ 7.0 p=0.047) and fat mass index (9.2 $\pm$ 4.7 vs 6.9 $\pm$ 2.2 p=0.004). In the fully adjusted model, higher body fat percentage (OR 1.11 (1.01-1.21), p=0.029), obesity (OR 4.47 (1.22-16.31), p=0.023), higher fat mass index (OR 1.64 (1.11-2.41), p=0.12) and higher fat mass to fat free mass ratio (OR 69.23 (1.8-26665.29), p=0.023) were all significantly associated with falls in participants with poor performance. **Conclusion:** Pre-frail older adults with poor physical performance and falls had higher body fat indices. Future longitudinal population-based studies are required to validate the association of body fat and obesity with falls amongst older adults.

P15/12- A 5 YEAR-PROSPECTIVE OBSERVATIONAL STUDY IN YOUNG WOMEN AFTER DELIVERY: CAN APPENDICULAR SKELETAL MUSCLE MASS CHANGE PREDICT ANY FUTURE HEALTH OUTCOMES? Saori Harada(1,2), Uta Ferrari(1), Andreas Lechner(1), Kristina Busygina(1), Eleni Pappa(1), Michael Drey(1), Jochen Seissler(1) *((1) Medizinische Klinik und Poliklinik IV, Klinikum der Universität München, München, Germany; (2) Institute for Medical Information Processing, Biometry, and Epidemiology, Pettenkofer School of Public Health, Ludwig-Maximilians-Universität München, München, Germany)*

Background: The development of sarcopenia begins earlier in life, and the age of 30 years is suggested as a turning point. Women in their 30s experience a diverse change of body composition especially after delivery. However, the link between postpartum muscle mass change and future health outcomes is still uncovered. **Objectives:** To get insight of postpartum muscle mass change and to evaluate its association with future glucose metabolism and physical fitness, via different parameters of body composition. **Methods:** Our prospective observational study enrolled 296 postpartum women (mean age 35 years, mean time after delivery 9 months, mean BMI 25 kg/m2) between 2011 and 2015 and followed them after 5 years. For body composition, appendicular skeletal muscle mass (ASM) and fat mass (FATM) were estimated by bioelectrical impedance analysis (BIA). We added muscle mass measurements by magnetic resonance imaging (MRI) to confirm the validity of our ASM estimation by BIA. For health outcomes, glucose metabolism was identified by 75g oral glucose tolerance test, and physical fitness was diagnosed by maximal oxygen uptake (VO2max) through spiroergometry. Insulin resistance and inflammatory blood markers were also measured at baseline. **Results:** At 5 year-follow up, 165 postpartum women participated in the body composition measurement, and 11 (7%) showed more than 5% decrease of ASM from baseline. The 5 year-ASM change was diverse (from -1.7kg to +4.7kg), regardless of baseline ASM (measured by BIA or MRI), BMI, blood markers, history of gestational diabetes or of impaired glucose metabolism. This ASM change was not significantly associated with physical fitness or glucose metabolism at follow-up. In contrast, lower ASM standardized by FATM at baseline led to pathologic glucose metabolism after 5 years on logistic regression (OR 5.3, 95%CI 1.9 to 15.0), which also reflected insulin resistance and higher inflammatory markers. ASM by FATM increase showed VO2max improvement over time on linear regression (β= 9.0, 95%CI 3.9 to 14.0). **Conclusion:** We detected more than 5% decrease of ASM over 5 years among some postpartum women. To capture the development of pathologic glucose metabolism or physical fitness over time, ASM standardized by FATM is a promising index.

P15/13- EFFECT OF AN ONLINE TAI CHI PROGRAM ON BODY COMPOSITION IN OLDER ADULTS. Nayeli Vaquero, Jimena Aguilar, Jessica Gutiérrez, Lizbeth Medina, Wendy Rodríguez, Mariana Valdés, Aurora Ramírez, Víctor Mendoza *(Universidad Nacional Autonoma de México, Mexico City, Mexico)*

Background: Aging is an individualized, gradual and adaptive process, characterized by a decrease in the reserve and biological response. Its onset begins after reaching biological, psychological, and social maturity because of what happens over time, but not because of the passage of time. It is accompanied by biological changes such as increased fat mass, decreased muscle mass and strength. In addition to this, in Mexico the prevalence of Chronic Noncommunicable Diseases is high and together with a high proportion of fat puts the possibility of healthy and successful aging at risk. **Objectives:** To evaluate the effect of an online Tai Chi program on body composition in older adults from Mexico City. **Methods:** A quasi-experimental study in 83 older adults, with controlled comorbidities; without contraindications to exercise. The intervention had a frequency of 4 times a week with a total of

48 Tai Chi sessions; adherence to the program was recorded by a physical activity monitor. Anthropometric measurements were taken before and after 3 months, including weight, height, and bioelectrical impedance analysis (BIA). **Results:** 77% of the population were women, the average age was 63 years, after the intervention the percentage of fat mass decreased (pre 48.2 ± 7 - post 44.5 ±7.5 p=0.010) and the appendicular skeletal muscle mass increased (pre 7.68 ± 1.3- post 8.5 ± 1.3 p=0.010). **Conclusion:** Performing Tai Chi 4 times a week for 3 months produces statistically significant changes in body composition.

P15/16- DEFINING INSULIN RESISTANCE AMONG PATIENTS WITH OBESITY: A CHALLENGE IN CLINICAL PRACTICE. Francesco Frigerio, Claudia Piciocchi, Federico Ricci, Maria De Marinis, Carla Lubrano, Lucio Gnessi, Andrea Lenzi, Eleonora Poggiogalle, Lorenzo Maria Donini *(Department of Experimental Medicine, Sapienza University, Rome, Italy)*

Background: Being a turning point from metabolically healthy obesity (MHO) to metabolic syndrome, insulin resistance needs to be correctly identified by a suitable tool in clinical practice. The hyperinsulinemic euglycemic clamp, HEC) being both invasive and time-consuming, several surrogate markers of insulin sensitivity have been developed. **Objectives:** The primary scope of this study is to evaluate the concordance between HOMA-IR, HOMA2-IR and ISI-Matsuda in identifying insulin-resistant patients in a large cohort of Italian patients with and without metabolic syndrome. The secondary aims are to propose new cut-off values of the abovementioned indices for identifying metabolic syndrome. **Methods:** Participants were recruited among subjects admitted to the Day Hospital Service of the Experimental Medicine Department, Sapienza University, Rome, Italy. Inclusion criteria were: age ≥ 18 years, body mass index (BMI) ≥ 18.5 kg/m2, ethnicity Caucasian Italian subjects, no current diagnosis of type 2 diabetes mellitus and no current pregnancy. Fasting and 2h-OGTT timed venous blood samples were drawn. Visceral adipose tissue (VAT), appendicular lean mass (ALM) and related indices were obtained by dual X-ray absorptiometry (DXA) imaging. Insulin resistance status was evaluated adopting ISI-Matsuda <2.5. As for HOMA-IR, we used three different models: A) HOMA-IR>4.65) or (HOMA-IR>3.60 and BMI>27.5 kg/m2); B) (HOMA-IR>5.9) or (2.8<HOMA-IR<5.9 and HDL<51 mg/dL); C) HOMA-IR > 2. Agreement between ISI-Matsuda and each model was assessed by Cohen's ϰ. ROC curve analysis of ISI-Matsuda, HOMA-IR and HOMA2-IR was performed using metabolic syndrome as state variable. Correlation between VAT area and IR indices was also evaluated. **Results:** A total of 665 patients (females, n=528, 79.4%) were included; metabolic syndrome (MetSyn) was diagnosed in 39.3% of patients. Agreement with ISI-Matsuda was good-to-very good for model A, moderate-to- good for model B and fair-to-moderate for model C. Using ROC curve analysis, we identified new cut-points for metabolic syndrome: ISI-Matsuda< 3.1373 (AUROC= 0.703), HOMA-IR > 3.356 (AUROC= 0.690), HOMA2-IR> 1.489 (AUROC=0.675). Finally, we demonstrated a linear dependence of insulin resistance on VAT area by DXA. **Conclusion:** Using dynamic, more physiological indices and integrating clinically meaningful with HOMA-IR provides aid in identifying insulin-resistant patients at higher cardio-metabolic risk.

P15/17- REPLACING SEDENTARY TIME FOR PHYSICAL ACTIVITY: DOES INTENSITY MATTER FOR BODY COMPOSITION IN OLDEST-OLD ADULTS? Megan Hetherington-Rauth(1), Katey Webber(1), Jane Cauley(3), Andrew Hoffman(4), Deborah Kado(4), Lisa Langsetmo(5), Peggy Cawthon(1,2) *((1) California Pacific Medical Center Research Institute, San Francisco, CA, USA; (2) University of California, Department of Epidemiology and Biostatistics, San Francisco, CA; USA; (3) Department of Epidemiology, University of Pittsburgh, Pittsburgh, PA, USA; (4) Department of Medicine, Stanford University School of Medicine, Stanford, CA; (5) Center for Care Delivery and Outcomes Research, VA Health Care System, Minneapolis, MN, USA)*

Background: Increasing sedentary time (ST) is of concern among older adults, as ST may exacerbate the deleterious age-related alterations in body composition. Physical activity (PA) guidelines highlight the importance of replacing ST with PA, with an emphasis on engaging in PA of moderate to vigorous intensity (MVPA) for certain health benefits. However, the effect of replacing ST for light-intensity PA (LPA) on body composition, particularly that of skeletal muscle mass (SMM), in the oldest-old adult population has not been fully examined. **Objective:** Examine the associations of exchanging objectively measured ST with different intensities of PA on body composition components assessed using dual-energy x-ray absorptiometry (DXA) (fat-FM and appendicular lean-ALM mass) and D3-creatinine (D3Cr) dilution, a novel more direct measure of SMM, in a cohort of community-dwelling older men. **Methods:** 1,047 men participating in the year 14 visit of the prospective Osteoporotic Fractures in Men (MrOS) cohort study with complete measures on accelerometry, DXA, and D3Cr were included in the analysis (84.0 ± 3.8 yrs.). Isotemporal substitution models were used to assess the interrelationships between PA intensities and ST and the body composition measures while controlling for relevant confounders. **Results:** Replacing 30-min of ST with 30-min of MVPA was associated with lower FM (β=-0.21, p=0.003) and higher D3Cr SMM (β=0.20, p=0.005). Similar favorable findings were observed for DXA ALM (β=0.11, p=0.007). Replacing 30-min of ST for LPA was associated with lower FM (β=-0.32, p=0.023) and higher ALM (β=0.23, p=0.004). For D3Cr SMM, there was a borderline association of replacing ST with LPA, yet this did not reach statistical significance (β=0.23, p=0.10). **Conclusion:** Exchanging ST with any intensity of PA is associated with benefits for the body composition of oldest-old adult males, although substitution with MVPA may be more beneficial than LPA for maintaining/improving SMM.

P15/18- BODY COMPOSITION CHANGES FROM WEIGHT LOSS USING 2 COMMON INTERVENTIONS IN INDIVIDUALS WITH TYPE 2 DIABETES. Oluwaseun Anyiam, Shelby Bollen, Bethan Phillips, Daniel Wilkinson, Kenneth Smith, Philip J Atherton, Iskandar Idris *(Centre Of Metabolism, Ageing & Physiology, University of Nottingham, Royal Derby Hospital Centre, Royal Derby Hospital, Derby, United Kingdom)*

Introduction: Type 2 diabetes (T2D) is characterised by chronic hyperglycaemia resulting from insulin resistance and pancreatic beta cell failure. Weight loss interventions improve both insulin resistance and beta cell function, thus are recommended for management of T2D. However, loss of lean body mass (LBM) with such interventions is gaining increasing attention, with suggestions of up to 60% of total weight lost arising from skeletal muscle. This is particularly relevant to individuals with T2D who are already at risk of accelerated age-related sarcopenia. **Objectives:** To investigate the body composition and muscle function outcomes of two commonly used interventions – very-low calorie diets (VLCD) and the glucagon-like peptide-1 (GLP-1) agonist Semaglutide – in people with T2D. **Methods:** Nineteen individuals diagnosed with T2D were randomly allocated to receive either 800 kilocalorie/day VLCD (n=7), once weekly Semaglutide titrated up to 1mg (n=7), or both in combination (n=5) for 12 weeks. Dual-energy X-ray absorptiometry scanning was performed at baseline and 12 weeks, along with hand grip strength (HGS) and maximal voluntary contraction of knee extension (MVC) for functional assessment of arm and leg strength. Mitochondrial function was also analysed from fresh muscle samples using high-resolution respirometry. **Results:** Weight and fat mass reduced significantly in all groups ($p<0.01$). LBM significantly reducted in the VLCD and Semaglutide groups ($p<0.01$ and $p=0.0137$ respectively), and trended towards significant reduction in the Combined group ($p=0.0521$). In all groups, the reduction in fat mass was greater than the reduction in LBM, thus LBM percentage increased significantly (3.6±2.0% VLCD, 1.4±1.0% Semaglutide, 4.3±2.2% Combined, $p<0.05$). The increase in LBM percentage was significantly greater in the Combined group than the Semaglutide group ($p<0.05$). HGS and MVC showed no significant change. Mitochondrial function significantly reduced in the Semaglutide group, however this difference became non-significant when adjusted for baseline levels. **Conclusion:** Reductions in LBM occurred with all studied interventions, however reductions in fat mass were greater, thus LBM percentage increased. This increase was significantly higher in the Combination group than the Semaglutide group, suggesting benefit in combining both interventions together. Despite these changes in LBM, functional assessments and mitochondrial function remained unchanged.

BIOLOGY OF FRAILTY, SARCOPENIA

P16/1- THE ROLE OF AMMONIA IN PATHOGENESIS OF SARCOPENIA. Milan Holeček *(Department of Physiology, Charles University, Faculty of Medicine, Hradec Králové, Czech Republic)*

Introduction: Several studies have reported that increased levels of ammonia play a role in protein-energy wasting and increased morbidity and mortality in patients with liver disease, congestive cardiac failure, sepsis, gastrointestinal bleeding, urinary infection, haematological malignancies, and medications used for therapy of epilepsy and cancer. Ammonia levels in the blood are often elevated in old age and are likely to be involved in the development of sarcopenia. **Objectives:** To examine the role of increased levels of ammonia in pathogenesis of sarcopenia. **Methods:** A literature review. **Results:** Studies performed under in vitro conditions have demonstrated that muscle wasting due to increased levels of ammonia is associated with its increased ammonia detoxification to glutamine (GLN) in reaction catalysed by GLN synthetase (GLU + NH3 + ATP → GLN + ADP + Pi) in muscles. The increased needs of glutamate (GLU) for GLN synthesis are covered by the drain of α-ketoglutarate (α-KG) from citric acid cycle (cataplerosis) and increased catabolism of branched-chain amino acids (BCAA; valine, leucine, and isoleucine) to form GLU and branched-chain keto acids (BCKA) (BCAA + α-KG → BCKA + GLU). The consequence of cataplerosis is decreased flux through citric acid cycle and impaired synthesis of NADH and ATP in mitochondria. The increased needs of the BCAA for GLU synthesis are fulfilled by enhanced breakdown of muscle proteins and from extracellular fluid by exchange with GLN produced by GLN synthetase reaction via L-transport system. Hence, it has been suggested that alterations in amino acid and nucleotide metabolism due to increased ammonia detoxification to GLN in muscles play a role in fatigue, mitochondrial dysfunction, and muscle wasting observed constantly in individuals with increased levels of ammonia. Various recommendations have been postulated to use the BCAA, BCKA, dimethyl-alpha-ketoglutarate or GLU administration to reduce the harmful effects of ammonia on muscles. **Conclusion:** Ammonia and plasma amino acid concentrations should be monitored in elderly, especially in individuals with diseases in which ammonia levels are often elevated.

P16/2- RELATIONSHIP BETWEEN BIA-HYDRATION INDICATORS AND MUSCLE FUNCTION IN COMMUNITY-DWELLING AGED POPULATION: AN OBSERVATIONAL CROSS-SECTIONAL STUDY. Mateu Serra-Prat, Isabel Lorenzo, Mateu Cabré, Jessica Martínez, Elisabet Palomera, Emili Burdoy *(Consorci Sanitari del Maresme, Hospital de Mataró, Mataró, Spain)*

Background: With age, there is a progressive decline in

water content of the body, mainly explained by a relative decrease in lean mass. However, a low-grade chronic dehydration in aged population has been speculated and a relative decrease in intracellular water (ICW) has been related with poor muscle strength, poor functional capacity, and higher risk of frailty. **Objectives:** To assess hydration status and intracellular hydration of the lean mass of the lower extremities in community-dwelling aged population, and to assess its relationship with muscle function of the thigh, sarcopenia and frailty. **Methods:** Design: observational cross-sectional study of subjects aged 70 years and older. Measures: body composition and hydration status was assessed by bioelectrical impedance analysis (BIA; InBody s10 multifrequency device). Total body water (TBW), intracellular water (ICW), TBW/fat free mass (FFM) ratio, and ICW/FFM of the right leg were main indicators of hydration used. Isokinetic test was used to measure flexion and extension strength (in N), work (in J), and power (in W) of the right knee. Sarcopenia was established according to the EWGSOP-2 criteria and Frailty status according to Fried criteria. **Results:** 117 subjects completed assessment with BIA and isokinetic test (mean age 75.0 ±4.1 years, 50.4% women). Women presented more fat mass and less TBW and phase angle (PA) than men. TBW and PA decrease with age. In both sexes muscle strength and power was correlated with TBW (L), ICW (L), FFM (kg) and protein (kg) content but was not correlated with ICW (as % of TBW) and TBW/FFM and ICW/FFM ratios. In men TBW (as percentage of body weight) was related with frailty (50% in non-frail vs 42% in frail; p=0.030) and PA was related with sarcopenia (5.4 in non-sarcopenic vs 5.0 in sarcopenic; p=0.044). **Conclusion:** Muscle strength is related with muscle mass and muscle mass is related with TBW and ICW (in absolute terms). This study failed to demonstrate a correlation between muscle function (strength, power and work) and BIA hydration indicators. More studies are required to assess the hydration role in muscle function in aged population.

P16/4- STUDY OF GUT MICROBIOTA IN SARCOPENIC AND NON-SARCOPENIC OLDER ADULTS.
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Background: The current state-of-the-art literature backs up the idea that gut bacteria may play a role in the initiation and progression of sarcopenia. The gut microbiota could be at a physio-pathological crossroads between nutrition and muscle metabolism. **Objective:** The aim of the study was to compare the gut microbial profile of sarcopenic and non-sarcopenic older adults. **Material & Methods:** A cross sectional study was conducted from January 2020 to November 2021 during which 15 healthy controls and 15 patients with sarcopenia (according to Asian Working Group for Sarcopenia 2019 Guidelines) were enrolled at AIIMS Delhi, India. Faecal samples of 15 healthy controls and 15 sarcopenic individuals were collected and analysed the intestinal microbiota using 16S rRNA sequencing. In both groups, Operational Taxonomic Units (OTUs), and relative abundance of bacteria were analysed using the pre-processed consensus V3-V4 sequences. The taxonomy classification was done at phyla, order, family, genera and species levels. Group-wise analysis t-Test was done. Alpha & beta diversity and rarefaction analysis were also computed for the samples. **Results:** The overall mean age of study participants was 73.27±5.96. A total of 251315 high-quality sequences were generated from 30 fresh human faecal samples. High-quality sequences were clustered into 830 OTUs corresponding to 672 genera, 254 families, 139 orders, 63 classes, and 25 phyla. The dominant phylum from the non-sarcopenic group was Firmicutes (41.22 %), followed by Bacteroidetes (36.00 %) whereas in sarcopenic group was Bacteroidetes (39.24 %) followed by Firmicutes (37.83 %). Genus Lactobacillus, Prevotella, Bacteroides, Faecalibacterium were predominantly found in all samples. A decrease in OTUs of genus Bifidobacterium (2.21% vs 3.71%), Bacteroides (8.50% vs 11.11%) were observed in sarcopenic group. An increase in OTUs of genus Faecalibacterium (10.64% vs 8.23%) in sarcopenic group were observed. Alpha-diversity index Chao1, Shannon were reduced in sarcopenic population. **Conclusion:** The study provides a preliminary perspective on the influence of gut microbial variations on sarcopenia in individuals in a cohort of older Indian adults. The composition of the gut microbiota was altered in older individuals that met diagnostic criteria for sarcopenia when compared to healthy controls. Future studies are necessary to establish causal relationships.

P16/5- STREPTOCOCCAL QUORUM SENSING PEPTIDES CONTRIBUTE TO MUSCLE WASTING.
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Background: There is emerging evidence for a microbiome-muscle axis. We previously showed that Quorum Sensing

Peptides (QSPs) are bacterial metabolites potentially mediating microbiome-muscle interactions in the context of muscle wasting diseases. **Objective:** In this study, we explored the muscle wasting effects of streptococcal QSPs. **Methods:** The in vitro inflammatory muscle effects of competence stimulating peptides (CSPs) CSP-7 (S. mitis), and CSP-21 (S. mutans) were investigated, using murine and human muscle cell lines. Moreover, cell-specificity as well as structure-activity were assessed with other cell lines (HCT-8, BV-2, splenocytes) and alanine scans respectively. The in vitro findings were further translated to the in vivo setting by administering both CSPs to C57Bl6/j mice intraperitoneal. The main outcomes were grip strength, tibialis weight and several gene expression levels (TNFa, IL-6, MyD88, atrogin, MuRF1). Finally, to indicate the clinical relevance, we studied the presence of CSP-7 in human plasma (n=85; 54% female), applying an optimized UHPLC-TQ-MS/MS method. **Results:** CSP-7 and CSP-21 induced a concentration-dependent IL-6 response in both murine and human muscle cells. This effect was not observed in HCT-8, BV-2 or spleen cells, indicating muscle specificity. Alanine scans demonstrated the hydrophobic amino acids of CSP-7 and CSP-21 to be most important for their IL-6 activity in vitro. In mice, CSP-7 decreased muscle strength and tibialis mass relative to placebo after daily i.p. administration for 14 and 28 days respectively. Finally, in a cohort of 85 community-dwelling adults, CSP-7 was detected in eight of them (9.4%), while a bio-active metabolite of CSP-7 (IILDFLFQR) was observed in two (2.4%) plasma samples, demonstrating the presence of streptococcal QSPs in human plasma. **Conclusion:** Our results provide first evidence that streptococcal Quorum Sensing Peptides can be involved in muscle wasting diseases.

P16/6- SARCOPENIA IN PATIENTS WITH NEWLY DIAGNOSED MULTIPLE MYELOMA. Paula Sobrini-Morillo(1), Lucía Pérez-Lamas(2), Celia Corral-Tuesta(1), María Belén Escudero-González(1), María Jesús Blanchard-Rodríguez(2), Carmen Sánchez-Castellano(1), Alfonso J. Cruz-Jentoft(1) *((1) Servicio de Geriatría. Hospital Universitario Ramón y Cajal, IRYCIS. Madrid, Spain; (2) Servicio de Hematología. Hospital Universitario Ramón y Cajal, IRYCIS. Madrid, Spain)*

Background: Cancer and its treatment are underlying causes of sarcopenia and cachexia. Prevalence of sarcopenia in older patients with multiple myeloma (MM) is still unclear. Sarcopenia is associated with increases in mortality, toxicity of treatments and disability. Sarcopenia assessment may be important in the MM old patients' treatment decision process. **Objectives:** To describe the prevalence of sarcopenia according to the revised European consensus diagnostic criteria (EWGSOP2) in patients with newly diagnosed MM, and to analyze possible associations with other geriatric syndromes. **Methods:** Prospective, single-center observational study that included patients ≥ 65 years old with newly diagnosed MM between 2019 and 2022. Patients' general and cancer-related data were collected. Frailty (FRAIL scale), malnutrition (GLIM criteria), cognitive impairment (MMSE) and polypharmacy (≥5 drugs) were assessed. Probable sarcopenia (grip strength <16 Kg for women and <27 Kg for men) and its severity based on physical performance (TUG, SPPB, gait speed) were evaluated. **Results:** We included 35 patients (51.4% women, median age 77 ± 5.4 years). 19 (54,3%) had probable sarcopenia, of which 68.4% had a low gait speed (≤8 m/s), 57.9% SPPB ≤8 and 31.6% TUG ≥ 20s. In the sarcopenic group (52.6% women, median age 78 ± 6 years), 11 (57.9%) were malnourished, 7 (36.8%) were frail (FRAIL ≥3), 5 (26.3%) showed cognitive impairment (MMSE≤23), and 18 (94.7%) had polypharmacy. In the non-sarcopenic group (50% women, median age 75 ± 4 years), 4 (25%) had malnutrition, frailty or polypharmacy and none had cognitive impairment. Nevertheless, no significant association was found between sarcopenia and the other geriatric syndromes studied. **Conclusion:** Some 50% of newly diagnosed older patients with MM had probable sarcopenia, and in most cases, sarcopenia was associated with a low performance status. Many sarcopenic patients showed malnutrition and polypharmacy.

P16/7- MULTI-OMIC ANALYSIS ON THE ROLE AND MOLECULAR MECHANISMS OF METABOLIC DYSREGULATION IN SARCOPENIA. Qiao Xiang(1), Rui Liang(1), Miao Dai(2), Taiping Lin(1), Lunzhi Dai(3), Jirong Yue(1) *((1) Department of Geriatrics and National Clinical Research Center for Geriatrics, West China Hospital of Sichuan University, Chengdu, China; (2) Jiujiang First People's Hospital, Jiujiang, Jiangxi, China; (3) Department of State Key Laboratory of Biotherapy, West China Hospital of Sichuan University, and Collaborative Innovation Center of Biotherapy, Chengdu, China)*

Background: Sarcopenia is a systemic, progressive skeletal muscle disease closely related to aging. Characterized by decline in skeletal muscle strength, quality or quantity and physical performance, sarcopenia can lead to various adverse outcomes, including severe impact on life quality and increased risk of falls, fractures, poor prognosis from underlying diseases and even death. Sarcopenia is a common geriatric syndrome with a prevalence of about 10% in people over 60 years old, but its molecular mechanisms are still unclear. Predisposing factors of sarcopenia include metabolic dysregulation, oxidative stress, chronic inflammation, mitochondrial dysfunction, lack of exercise and malnutrition, among which metabolic dysregulation is closely related to other factors, supporting its role as one of the leading contributors in the occurrence and development of sarcopenia. In this study, we aimed to jointly analyze the integration of high-throughput transcriptomic and proteomic data along with preliminary experimental validation to further unravel the role and molecular mechanisms of metabolic dysregulation in sarcopenia. **Method:** We collected skeletal muscle tissue samples and clinical information of 113 orthopedic non-fracture patients based on our established inclusion and exclusion criteria. We also measured their handgrip strength or appendicular skeletal muscle mass (ASMI) before surgery by the myometer EH101 or Inbody 770, respectively. Sarcopenia was diagnosed according to

the 2019 AWGS consensus. RNA sequencing and proteomic profiling based on TMT-LC-MS/MS was performed on samples of all the subjects (n=113 consisting of 15 with sarcopenia and 98 with non-sarcopenia) and a subset of them (n=26 consisting of 8 with sarcopenia and 18 with non-sarcopenia), respectively. Logistic regression and/or linear regression adjusting for potential confounders was applied to screen for differentially expressed genes (DEGs) and proteins (DEPs) between sarcopenia and non-sarcopenia. Gene ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) enrichment analyses were performed for the DEGs and DEPs to explore metabolism-related pathways. We identified potential metabolism-related key genes by screening out genes related to metabolic regulation from DEGs or DEPs according to the MSigDB database, and we validated expression of the potential target genes using transcriptomic data pooled from 3 GEO series. We then established the D-galactose (D-GAL)-induced accelerated aging mouse model with targeted inhibition of our interested metabolism-regulating target gene. The growth rate of grip strength relative to baseline and weight of quadriceps femoris (QF) muscle was assessed at the end of the experiment. Changes in skeletal muscle morphology were observed using HE staining. Gene or protein expression of protein degradation regulators (MAFbx, MURF1), muscle satellite cell markers (PAX7 and MYOD1), apoptosis marker (cleaved caspase-3) and satellite cell differentiation marker (Myf5) in QF was examined by qPCR or immunohistochemistry. **Results:** The DEGs which were up-regulated in sarcopenia and negatively associated with ASMI or grip strength were enriched in cell cycle, ubiquitin mediated proteolysis and spliceosome; instead, the genes which were down-regulated in sarcopenia and positively associated with ASMI or grip strength showed enrichment in skeletal muscle contraction and oxidative phosphorylation. The DEPs up-regulated or down-regulated in sarcopenia were enriched in spliceosome or muscle strength, respectively. DEGs and DEPs showed many shared enriched GO terms or KEGG pathways including spliceosome, lysosome, gene silencing by RNA and muscle contraction. The pooled public data included 33 and 62 subjects with sarcopenia and non-sarcopenia, respectively. We identified 30 metabolism-related key genes, with NNMT chosen as the interested target gene for in vivo experiment. After targeted inhibition of NNMT, the growth rate of grip strength relative to baseline, the relative wet weight index of QF and mean cross-sectional area of muscle fibers were significantly higher in the interference group compared with the model group. Expression of MAFbx, MuRF1, cleaved-caspase-3 was down-regulated and PAX7 expression was up-regulated by NNMT inhibition compared with the model group. **Conclusion:** Reduced skeletal muscle contractility, insufficient oxidative phosphorylation and activation of pathways including spliceosome, cell cycle, metabolic pathways, ubiquitin mediated proteolysis may contribute to the transition from physiological skeletal muscle to pathological skeletal muscle (sarcopenia), which is partially supported by proteomic findings. Inhibiting expression of the metabolism-related target gene NNMT in aging-accelerated mice can delay age-related decline of muscle mass and function possibly by promoting muscle production and inhibiting muscle atrophy.

P16/11- EVIDENCE FOR SEX-SPECIFIC INTRAMUSCULAR CHANGES ASSOCIATED TO PHYSICAL WEAKNESS IN ELDERLY. Jelle CBC de Jong(1,2), Lars Verschuren(3), Martien PM Caspers(3), Marjanne D van der Hoek(1,4,5), Feike R van der Leij(4,6), Robert Kleemann(2), Anita M van den Hoek(2), Arie G Nieuwenhuizen(1), Jaap Keijer(1) *((1) Human and Animal Physiology, Wageningen University, Wageningen, The Netherlands; (2) Department of Metabolic Health Research, The Netherlands Organization for Applied Scientific Research (TNO), Leiden, The Netherlands; (3) Department of Microbiology and Systems Biology, The Netherlands Organization for Applied Scientific Research (TNO), Zeist, The Netherlands; (4) Applied Research Centre Food and Dairy, Van Hall Larenstein University of Applied Sciences, Leeuwarden, The Netherlands; (5) MCL Academy, Medical Centre Leeuwarden, Leeuwarden, The Netherlands; (6) Research and Innovation Centre Agri, Food & Life Sciences, Inholland University of Applied Sciences, Delft and Amsterdam, the Netherlands)*

Background: Physical weakness is a key component of frailty, and is more frequently observed in females compared to males. However, sex differences in the development of aging-related muscle weakness are hardly studied. **Objectives:** To gain insight in potential sex differences in the development of aging-related muscle weakness. **Methods:** Elderly males (n=28, 79.7 ± 3.5 yrs) and females (n=26, 80.2 ± 3.1 yrs) with varied fitness levels (Fried frailty index ranging from 0 to 4) were recruited. The male and female participants were subsequently ranked according to three frailty-related physical performance criteria to identify the weakest (n=8) and fittest (n=8) participants. Vastus lateralis muscle biopsies were used for RNA-sequencing and immunohistochemistry, and weakest vs. fittest groups were compared for each sex separately. **Results:** In weak vs. fit elderly females 344 differentially expressed genes (DEGs) were found, and 299 DEGs in weak vs. fit elderly males. Strikingly, only 7 of these DEGs were shared between the two sexes, indicating highly sex-specific muscle weakness associated changes in the muscle transcriptome. Pathway analysis revealed that weak elderly females were characterized by an increased expression of inflammatory pathways. Immunohistochemical analysis confirmed an increased infiltration of NOX2 expressing immune cells, concomitant with an increased VCAM1 expression. Weak elderly males were characterized by a shrinkage of type 2 (fast) myofibers and decreased expression of PRKN, of which the expression tended to positively correlate with average mitochondrial branch length. **Conclusion:** We conclude that the intramuscular changes associated to muscle weakness in elderly are highly sex specific, which can have a major impact on the development of (pharmaceutical) interventions for frailty and strongly suggests that sex should be taken into account whilst performing research on frailty.

P16/12- BLOOD-BASED BIOMARKERS FOR EARLY DIAGNOSIS OF FRAILTY ARE SEX SPECIFIC: VALIDATION OF A COMBINED IN SILICO PREDICTION AND DATA-DRIVEN APPROACH. Jelle CBC de Jong(1,2), Martien PM Caspers(3), Remon Dulos(3), Jessica Snabel(1), Marjanne D van der Hoek(2,4,5), Feike R van der Leij(4,6), Robert Kleemann(1), Arie G Nieuwenhuizen(2), Jaap Keijer(2), Anita M van den Hoek(1), Lars Verschuren(3) *((1) Department of Metabolic Health Research, The Netherlands Organization for Applied Scientific Research (TNO), Leiden, The Netherlands; (2) Human and Animal Physiology, Wageningen University, Wageningen, the Netherlands; (3) Department of Microbiology and Systems Biology, The Netherlands Organization for Applied Scientific Research (TNO), Zeist, The Netherlands; (4) Applied Research Centre Food and Dairy, Van Hall Larenstein University of Applied Sciences, Leeuwarden, the Netherlands; (5) MCL Academy, Medical Centre Leeuwarden, Leeuwarden, the Netherlands; (6) Research and Innovation Centre Agri, Food & Life Sciences, Inholland University of Applied Sciences, Delft and Amsterdam, the Netherlands)*

Background: Frailty is characterized by loss of physical function, and its progression can be attenuated by means of life-style interventions. Preferably, frailty is diagnosed at an early stage, however, sensitive tools that can aid to diagnose frailty in an early phase are lacking. Blood-based biomarkers could be excellent candidates for early-detection of frailty, since they are accessible, cost-effective and easily implementable in a variety of clinical settings. **Objectives:** To verify in silico-predicted candidate biomarkers for early diagnosis of frailty in male and female elderly. **Methods:** Candidate biomarkers were identified by a mechanism-based biomarker prediction approach which integrates a priori defined biological disease pathways and database-derived clinical biomarkers. These in silico identified candidate biomarkers were analyzed on gene expression level in vastus lateralis muscle tissue of fit and pre-frail males (n=28) and females (n=24). Sex-specific correlation analysis was performed using individual gene expression and three frailty-related physical parameters. A dedicated evaluation of the top 40 correlating genes was made based on their role in physical parameters. Serum biomarker concentrations of selected biomarkers were measured using ELISA. **Results:** The top 40 predicted biomarkers per physical parameter were all sex-specific, except for one biomarker. In males, cathepsin B serum levels were significantly lower in the slowest walking individuals (fourth quartile 42.6 ± 3.1ng/ml) compared to the fastest ones (first quartile, 63.5 ± 7.3ng/ml). A similar difference was observed in thrombospondin-4 serum concentrations, which were higher in males with fastest gait speed (first quartile, 666.4 ± 88.4 ng/ml) compared to slower males (third quartile 429.1 ± 35.6 ng/ml). In females, myostatin, insulin growth factor binding protein-5 and galectin-1 were selected to be important biomarkers based on our prediction workflow. Currently serum concentrations are being measured. **Conclusion:** We conclude that the in silico selected biomarkers for early frailty diagnosis were highly sex-specific. While the top candidate male-specific biomarkers were validated, the female specific biomarkers are currently being analyzed. In all, these results might serve the opportunity of these biomarkers to be used as a biomarker panel for early frailty diagnosis.

P16/13- DNA DAMAGE AND REPAIR ARE ASSOCIATED WITH CYTOKINE LEVELS AND FRAILTY IN MIDDLE-AGED ADULTS. Jessica T. Smith(1), Nicole Noren Hooten(1), Nicolle A. Mode(1), Alan B. Zonderman(1), Ngozi Ezike(1), Simran Kaushal(2), Michele K. Evans(1) *((1) Laboratory of Epidemiology and Population Sciences, National Institute on Aging, National Institutes of Health, Baltimore, MD, USA; (2) Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA)*

Background: Frailty is an age-related syndrome usually studied in those over 65 years. Our previous work showed that frailty is present in midlife and a risk factor for premature mortality in midlife. We identified altered gene expression patterns and biological pathways associated with inflammation in frailty. It is believed that oxidative DNA damage related to inflammation accumulates with age, and that DNA repair capacity (DRC) declines with age and age-related conditions like frailty. **Objectives:** We aimed to investigate whether inter-individual differences in oxidative DNA damage and DRC were associated with frailty status, and if these differences would be associated with social determinants of health or biomarkers of inflammation. **Methods:** The study consisted of 52 frail and non-frail, middle-aged, African American and White individuals living above and below poverty. Using the CometChip assay, which is a recently developed, high-throughput version of the well-established comet assay, we assessed baseline and hydrogen peroxide (H2O2)-induced oxidative DNA damage as well as DRC. Serum cytokine levels were measured using a Meso Scale multiplex immunoassay. **Results:** Analysis of baseline oxidative DNA damage showed no associations with frailty, poverty, race, or sex. However, we identified an interaction between frailty and poverty in H2O2-induced oxidative DNA damage. We also identified interactions between sex and frailty as well as sex and poverty with DRC. The social determinant of health, poverty, associates with DRC in men living below poverty. Baseline DNA damage, H2O2-induced DNA damage as well as DRC were influenced by cytokine levels. IL-10 levels were inversely correlated with baseline DNA damage as well as H2O2-induced DNA damage, DRC was altered by IL-4 levels and sex, and by TNF-α levels in the context of sex and poverty status. This is the first evidence that DRC may be influenced by poverty status at midlife. Our data shows that social determinants of health should be considered in examining biological pathways through which disparate age-related health outcomes become manifest.

P16/14- OXIDATIVE STRESS AND AGE-RELATED LOSS OF PHYSICAL AND COGNITIVE FUNCTION. Maria Paula Mota(1,2), Luís Azevedo(1,2), Catarina Freitas Martins(1,2), Henrique Pinto(1,2), Sofia Martins(1), Inês Oliveira (1), Ethel Machergiany(1,2), Nelson Fernandes(3), Ana Barros(3), Jorge Pinto Soares(1,2) *((1) Research Centre in Sports Sciences, Health, and Human Development (CIDESD), University of Trás-os-Montes and Alto Douro, Vila Real, Portugal; (2) Department of Sport of Science Exercise and Health, School of Life and Environmental Sciences, (ECVA), University of Trás-os-Montes and Alto Douro, Vila Real, Portugal; (3) Centre for the Research and Technology of Agro-Environmental and Biological Sciences (CITAB), University of Trás-os-Montes and Alto Douro, Vila Real, Portugal)*

Background: Fragility has been accepted as multidimensional based on the interplay of genetic, biological, physical, psychological, social and environmental factors. Literature refers that oxidative stress play an important role in the development of neurodegenerative disorders, sarcopenia and several other age-related diseases. **Objectives:** To analyze the relationship between age, oxidative stress, fragility and cognitive decline in older adults. **Methods:** 54 subjects (75.4 ± 13.2 years; 48 to 97 yr) took part in this study. SARC-F was used to detect the risk of sarcopenia, the Short Performance Physical Battery (SPPB) was used to characterize fragile states particularly in the older adults, and Mini-mental State Examination (MMSE) to identify cognitive disfunction. Non-specific lipid peroxidation levels in plasma were measured by determining the levels of lipid peroxides as the amount of thiobarbituric acid reactive substances (TBARS) (Gower and Wills, 1987). Descriptive statistics and correlation (Spearman test) were used. **Results:** Subjects were classified as having serious limitations (31.5%), moderate limitations (7.4%), slight limitations (11.1%), and minimal limitations (50.0%) according to the SPPB. 17.5% presented risk of sarcopenia. Average values in MMSE (25.3±7.3) revealed that 16.7% have mild cognitive disfunction. TBARs values were 0.039±0.038 nmol.mg-1protein. Significant correlations were found between TBARS and: age (rho=.746), sarcopenia (rho=.597), higher physical limitations (rho=.578), and lower cognitive function (rho=.690). **Conclusion:** Our results confirm the existing literature that indicates the relationship between oxidative stress, physical and cognitive decline. In this regard, more studies are needed, especially focusing interventions that assess whether the modification of physical fitness and/or intake of antioxidants could delay and attenuate the age-related loss of functionality and independence. **Key words:** Fragility, oxidative stress, older adults, cognitive function. **Funding:** This work was supported by SoilRec4+Health - Soil recovery for healthy food and quality of life (NORTE-01-0145-FEDER-000083) cofinanciado pelo Fundo Europeu de Desenvolvimento Regional (FEDER) através do NORTE 2020 (Programa Operacional Regional do Norte 2014/2020).

P16/15- LATE-LIFE PLASMA PROTEINS ASSOCIATED WITH PREVALENCE AND INCIDENT FRAILTY: A PROTEOMIC ANALYSIS. Fangyu Liu(1), Thomas R. Austin(2), Jennifer Schrack(1,3), Jeremy Walston(4), Rasika A. Mathias(1,4), Michelle Odden(5), Anne Newman(6), Bruce M. Psaty(7), Diego Ramonfaur(8), Amil Shah(8), B. Gwen Windham(9), Josef Coresh(1), Keenan A. Walker(10) *((1) Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; (2) Department of Epidemiology, University of Washington, Seattle, WA, USA; (3) Center on Aging and Health, Johns Hopkins University, Baltimore, MD, USA; (4) Department of Medicine, Johns Hopkins University, Baltimore, MD, USA; (5) Department of Epidemiology and Population Health, Stanford University School of Medicine, Stanford, CA, USA; (6) Department of Epidemiology, University of Pittsburgh, PA, USA; (7) Cardiovascular Health Research Unit, Departments of Medicine, Epidemiology, and Health Systems and Population Health, University of Washington, Seattle, WA, USA; (8) Brigham and Women's Hospital, Harvard Medical School, Cardiovascular Medicine, Boston, MA, USA; (9) Department of Medicine, MIND Center, University of Mississippi Medical Center, Jackson, MS, USA; (10) Laboratory of Behavioral Neuroscience, National Institute on Aging, Baltimore, MD, USA)*

Background: Proteomics approach has unique advantages in understanding the biological mechanisms of frailty, a syndrome that is common in older adults and predictive of adverse health outcomes. However, large-scale proteomics studies of frailty are still limited. **Objectives:** Using 4,955 plasma proteins, we aimed to identify proteins associated with prefrail and frail status, respectively, among 3,838 older adults aged ≥65 years in the Atherosclerosis Risk in Community (ARIC) study, and replicate discovered proteins in the Cardiovascular Health Study (CHS). **Methods:** Base on the physical frailty definition, participants were categorised to robust, prefrail, or frail status, respectively, if they met 0, 1-2, or 3-5 of the following criteria: weight loss, slow gait speed, low grip strength, exhaustion, and low physical activity. The relative concentrations of the proteins were measured using the SOMAscan, an aptamer-based platform. Protein-specific multinomial logistic regression models were used to examine which proteins (log 2-transformed and standardized) were differentially expressed among prefrail or frail individuals compared to robust individuals. All models were adjusted for demographics, BMI, drinking, smoking, eGFR, cholesterol, and comorbidities. Proteins associated with prefrail or frail status at Bonferroni level ($p<1.01x10-5$) were examined in CHS using the same multinomial models. **Results:** A total of 136 and 186 proteins were cross-sectionally associated with prefrail and frail status, respectively, at Bonferroni level in the ARIC study. A total of 6 prefrail proteins and 26 frail proteins were replicated in CHS at Bonferroni level ($p<2.34x10-4$). The top replicated proteins included proteins related to bone

and muscle health, such as growth hormone receptor (GHR, βdiscovery/prefrail=-0.36, βdiscovery/frail=-0.75, βreplication/prefrail=-0.19, βreplication/frail=-0.58) and insulin-like growth factor-binding protein 2 (IGFBP2, βdiscovery/prefrail=0.36 βdiscovery/frail=0.73, βreplication/frail=0.60), and proteins related to inflammation and senescence, such as transgelin (TAGLN, βdiscovery/prefrail=0.36, βdiscovery/frail=0.89, βreplication/frail=0.46) and tumor necrosis factor receptor superfamily member 1B (TNFRSF1B, βdiscovery/prefrail=0.30, βdiscovery/frail =0.59, βreplication/frail=0.57). **Conclusion:** We found several proteins that were differentially expressed among prefrail individuals as well as among frail individuals. Future studies should further elucidate how these proteins and the pathways they are involved in may contribute to frailty development and whether interventions on these proteins/pathways could prevent frailty.

P16/16- ASSOCIATION OF METFORMIN EXPOSURE WITH LOW RISKS OF FRAILTY AND ADVERSE OUTCOMES IN PATIENTS WITH DIABETES. Pan Liu, Yiming Pan, Yu Song, Yaru Zhou, Wanshu Zhang, Xiaojun Li, Jiatong Li, Yun Li, Lina Ma *(Department of Geriatrics, Xuanwu Hospital Capital Medical University, National Clinical Research Center for Geriatric Diseases, Beijing, China)*

Background: Diabetes is an independent risk factor of frailty, which increases adverse outcomes in patients with diabetes. Metformin is a common anti-diabetic drug in clinical practice. Insulin resistance and chronic inflammation are the two common mechanisms of diabetes and frailty, as well as the main targets of metformin. Research suggested that metformin has anti-aging potential. However, few studies focus on the relationship between metformin and frailty. Thus, we aimed to explore whether metformin was associated with a low risk of frailty and other adverse outcomes in diabetic patients. **Methods:** A total of 422 patients (≥ 40 years old) with type 2 diabetes were recruited. Frailty was defined by the Fried phenotype. General information and metformin exposure data were collected, and comprehensive geriatric assessment and laboratory tests were performed. Follow-up was conducted after 4.5 years. The primary outcome was the combined endpoint of cardiovascular events, cerebrovascular events, readmission, and death. Binary logistic regression analysis was used to analyze the association of metformin with frailty. Survival analysis was performed using Cox proportional hazards models. **Results:** The total prevalence of frailty was 19.4% among the participants with diabetes. 13.1% of patients in the metformin group and 28.2% in the non-metformin group had frailty. Metformin was inversely associated with frailty after adjusting for age, sex, duration, blood glucose levels, target organ damage, comorbidities, and polypharmacy. Further longitudinal analysis showed that metformin was also independently associated with a low risk of combined primary outcomes after adjusting for multiple covariables, while frailty was related to an increased risk of the combined primary outcomes. In the non-frail group, metformin was associated with a decreased risk of combined primary outcomes after adjustment for age and sex. However, the protective effect of metformin on adverse outcomes was not found in frail participants with diabetes **Conclusion:** Metformin use is associated with a reduced risk of frailty. In addition, frailty may attenuate the protective effects of metformin on adverse outcomes in diabetic patients. The early identification and prevention of frailty progression may help enhance the benefits of metformin in patients with diabetes. **Key words:** metformin, frailty, diabetes, aging, adverse outcomes.

P16/17- SARCOPENIC SYNDROME PHENOTYPE IN OLDER ADULTS FROM AMAZONAS, BRAZIL. Alex Barreto de Lima(1), Duarte Henriques-Neto(2), Ana Torres-Costoso(3), Vera Zymbal(1,4), Élvio Rúbio Gouveia(5,6), Fátima Baptista(1) *((1) CIPER, Faculdade de Motricidade Humana, Universidade de Lisboa, Portugal; (2) Research Center in Sports Sciences, Health Sciences and Human Development, Maia University, Maia, Portugal; (3) Health and Social Research Center, Universidad de Castilla La Mancha, Cuenca, Spain; Faculty of Physiotherapy and Nursing, Universidad de Castilla-La Mancha, Toledo, Spain; (4) Escola Superior de Saúde, Instituto Politécnico de Setúbal, Setúbal, Portugal; (5) Department of Physical Education and Sport, University of Madeira, Funchal, Portugal; (6) LARSYS, Interactive Technologies Institute, Funchal, Portugal)*

Background: There are several markers for the suspicion, identification, and confirmation of sarcopenia. **Objectives:** The main objective of this study was to analyze the relevance of markers for a sarcopenia risk phenotype based on five domains: symptomatology, muscle function, muscle quantity, physical performance, and physical function. **Methods:** The sample consisted of 312 elderly people (200 women), aged 72.6±7.8 yrs from Amazonas, Brazil. Sarcopenia symptoms were determined with the SARC-Calf; muscle function was assessed using the 30-Chair Stand test (CST), 30-CST power, and handgrip strength (HGS) with and without normalization for body mass/height; the skeletal muscle mass index (SMMI) was estimated from anthropometry; performance was determined through the 4-m gait speed (GS) and 6-min walking test (6MWT); physical function was determined with the Composite Physical Function Scale (CPF). A two-step cluster analysis was performed by sex to rank profiles with respect to sarcopenia risk. For the selection of variables, a bivariate correlation analysis was previously performed. To validate the clustering solution, the prevalence of sarcopenia risk in each domain was compared with T-tests. **Results:** Cluster analysis revealed two phenotypes (at risk vs. not at risk for sarcopenia) and the contribution of each marker (from 0 to 1); in men: 1 for SARC-Calf, 0.18 for SMMI, 0.09 for 30-CST power and 0.06 for HGS; in women: 1 for SARC-Calf, 0.25 for 30-CST power, 0.22 for SMMI, 0.06 for GS, 0.04 for HGS, and 0.03 for CPF. Considering the cutoff values proposed by Rikli and Jones (2013) for physical function and Cruz-Jentoft et al. (2019) for the other domains, the risk group for sarcopenia had a higher prevalence of high SARC-Calf in both sexes (men:51.8 vs. 3.6%, $p<0.001$; women:71.2 vs.

1.1%, p<0.001), and low SMMI (men:73.2 vs. 44.6%, p<0.002; women:44.1 vs. 23.6%, p=0.002); in women, low GS (38.7 vs. 12.4%, p<0.001) and low CPF (29.7 vs. 15.7%, p=0.020) were observed, with no differences in HGS between groups in both sexes. **Conclusion:** SARC-Calf, SMMI, and 30-CST were shown to be more relevant for sarcopenia risk in elderly men and women and, additionally, GS and CPF in women. **Key words:** Sarcopenia, muscle function, muscle quantity, physical performance, physical function.

P16/18- POINT-OF-CARE AUTOMATIC ASSESSMENT OF MUSCLE MORPHOMETRY FOR SARCOPENIA MONITORING IN COMMUNITY CARE BASED ON AUTOMATIC U-NET SEGMENTATION OF RECTUS FEMORIS. Morelva Saeteros(12), Laura Arjona(12), Naiara Virto(1), Xabier Río(1), Rafael García Molina(2,3), Almudena Avendaño Céspedes(2,3,4), Elisa Belén Cortés Zamora(2,3), Elena Gómez Jiménez(2), Esther López Jiménez(14), Marta Neira Álvarez(15), Raquel Ramírez Martín(16), Cristina Alonso Bouzón(17), Concha Grau Jiménez(18), Patricia Pérez Rodríguez(19), María Alcantud Ibánez(20), Carmen Rosa Hernández Socorro(21), Diego López-de-Ipiña(12), Pedro Abizanda Soler(2,3,5), Leocadio Rodríguez Mañas(3,6), Ander Matheu(3,7,8), Itziar Vergara(7,9,10), Aitor Coca(11), Sergio J Sanabria(8,2,13) *((1) Department of Physical Activity and Sport Science, Faculty of Education and Sport, University of Deusto, Bilbao, Spain; (2) Department of Geriatrics, Complejo Hospitalario Universitario de Albacete, Albacete, Spain; (3) CIBER de Fragilidad y Envejecimiento Saludable (CIBERfes), Instituto de Salud Carlos III, Madrid, Spain; (4) Facultad de Enfermería de Albacete, Universidad de Castilla-La Mancha, Albacete, Spain; (5) Facultad de Medicina de Albacete, Universidad de Castilla-La Mancha, Albacete, Spain; (6) Geriatrics Department, University Hospital of Getafe, Spain; (7) Biodonostia, Health Research Institute, Donostia, Spain; (8) IKERBASQUE, Basque Foundation for Science, Bilbao, Spain; (9) Osakidetza, Health Care Department, Research Unit. APOSIs, Gipuzkoa, Spain; (10) Research Network in Chronicity, Primary Care and Health Promotion (RICAPPS); (11) Department of Physical Activity and Sports Sciences, Faculty of Health Sciences, Euneiz University, Vitoria-Gasteiz, Spain; (12) Deusto Institute of Technology, University of Deusto, Bilbao, Spain; (13) Stanford Medicine, Department of Radiology, Stanford, CA, USA; (14) Complejo Hospitalario Universitario de Albacete, Albacete, Spain; (15) Hospital Universitario Infanta Sofía, San Sebastián de los Reyes, Madrid, Spain; (16) Hospital Universitario La Paz, Madrid, Spain; (17) Hospital Universitario de Getafe, Getafe, Madrid, Spain; (18) Hospital Universitario de Getafe, Getafe, Madrid, Spain; (19) Hospital Universitario Puerta de Hierro, Majadahonda, Madrid, Spain; (20) Hospital Universitario Infanta Leonor, Madrid, Spain; (21) Hospital Universitario de Gran Canaria, Doctor Negrín, Las Palmas de Gran Canaria, Spain)*

Background: Aging results in a progressive loss of muscle quality associated with functional decline. There is a need for affordable tools for early detection of muscle quality loss and monitoring interventions. Ultrasound B-mode images assess muscle mass and morphology, yet they are highly operator-dependent. Computer-assisted muscle assessment can improve accuracy and allow for timely exploration of large multi-dimensional image sets. We propose a novel artificial intelligence approach to objectively quantify cross-section and thickness of rectus femoris in elderly frail subjects. **Objetive:** To automatically delineate rectus femoris muscle in ultrasound B-mode images through a supervised deep learning approach. **Methods:** Ultrasound B-mode images of transverse rectus femoris cross-section were collected at mid-thigh with a point-of-care ultrasound system (ECO2, Chison Medical Technologies) collected in a frail population of 96 patients with age from 72-99 years (Poster presentation at the SEGG's II Virtual Conference, June 2-4, 2021). A total of 550 images were retrospectively analyzed with quantitative ultrasound methods. A 39-layer U-Net neural network architecture was trained with ultrasound images annotated by two ultrasound readers. Image augmentation was applied to the images (horizontal mirroring, vertical and horizontal scaling, and brightness reduction), leading to a total training set of 13,750 images. K-fold cross-validation (with k=5) was used to train and validate the model to ensure that each fold of the dataset has the same proportion of observations with a given label. Different patient datasets were used in validation and training. 10% of the images were reserved for independent testing. **Results:** The proposed network generates segmentation masks with high accuracy, obtaining an average over the test data (55 images and masks not used for training nor validating the mode) of 0,18 for Dice coefficient loss and 95,56% for the model accuracy, over the k=5 models. The groundtruth masks correspond to manually segmented labeled images by expert knowledge. **Conclusion:** Automatic identification and delineation of rectus femoris in B-mode ultrasound images in elderly patients is feasible with segmentation neural networks. This technology may contribute to standardization of muscle morphometry measurements and increase throughput of muscle quality assessment in both hospital and primary care environments.

P16/19- COMPARISON OF SARCOPENIA DEFINED BY AWGS 2014 AND 2019 ON PREDICTION FOR 6-YEAR MORTALITY. Chih-Kuang Liang(1,2), Wei-Ju Lee(2,3), Liang-Kung Chen(2,4,5) *((1) Center for Geriatrics and Gerontology, Kaoshiung Veterans General Hospital, Kaohsiung, Taiwan; (2) Center for Healthy Longevity and Aging Sciences, National Yang Ming Chiao Tung University, Taipei, Taiwan; (3) Department of Family Medicine, Taipei Veterans General Hospital Yuanshan Branch, Yi-Lan County, Taiwan; (4) Center for Geriatrics and Gerontology, Taipei Veterans General Hospital, Taipei, Taiwan; (5) Taipei Municipal Gan-Dau Hospital, Taipei, Taiwan)*

Background: The AWGS defined sarcopenia in 2014 and 2019 using different cut-off points. However, whether the two definitions have different effects on mortality remains

to be determined. **Objectives:** Comparison of the impact of AWGS 2014 and 2019 on predicting 6-year mortality. **Methods:** A prospective population-based cohort study, the I-Lan Longitudinal Aging Study, recruited community-living middle-aged and older adults since 2011. Information of demographic characteristics, anthropometric measurements, functional assessments, and self-report chronic conditions were collected through face-to-face interviews. Blood samplings were collected after 10-hour overnight fast. Smedlay's Dynamo Meter measured grip strength and a timed 6-meter walk test as usual paces determined participants' walking speed. Muscle mass was measured by a dual-energy X-ray absorptiometry scan. Sarcopenia was defined according to the criteria of AWGS 2014 and 2019. Medical records were used to identify death information for deceased participants. Research nurses confirmed death information over the phone between 2018/01 and 2019/12. The Cox regression model was used to explore the association between sarcopenia defined by AWGS 2014 or 2019 and mortality. **Results:** This study extracted the data of 731 older participants aged ≥65 years. The percentages of sarcopenia AWGS 2014 and 2019 were 6.8% and 8.5%, respectively. 135 deaths (18.5%) occurred during a mean follow-up period of 5.9 years. Participants with sarcopenia, whether using the AWGS 2014 or 2019 definitions, were significantly older, male-dominated, had a higher proportion of alcohol drinkers, had lower BMI, higher CCI, and higher testosterone levels. Of the 681 AWGS 2014 participants without sarcopenia, 12 met the AWGS 2019 definition. Compared with people who did not meet the AWGS 2014 and 2019 definitions of sarcopenia, the 12 new cases were significantly older, male-dominated, with lower BMI and higher testosterone levels. Using the Cox regression model to adjust for covariates, sarcopenia as defined by AWGS 2014 (HR: 2.3; 95%CI: 1.4-3.9) and 2018 (HR: 2.3; 95%CI: 1.4-3.8) both significantly predicted 6-year mortality. There is no significant difference in c-statistics between both definitions (p =0.670). **Conclusion:** AWGS 2019 can identify more cases than AWGS 2014. However, there was no difference in the predictive power of the two criteria for long-term mortality.

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