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SUPPLEMENT

PROGRAM BOOK | RESEARCH ABSTRACT

ACFS 2024

10th Asian Conference for Frailty and Sarcopenia

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ACFS 2024

10th Asian Conference for Frailty and Sarcopenia

SUPPLEMENTARY ISSUE

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WELCOME MESSAGE

Dear Esteemed Guests,

A warm welcome to the 10th Asian Conference for Frailty and Sarcopenia (ACFS 10th), hosted by Siriraj Medical School, right here in the vibrant city of Bangkok, Thailand, on 10th-11th October 2024.

On behalf of Siriraj Medical School, it is our honor to be the host institution for this prestigious event. We eagerly anticipate the exchange of knowledge that will undoubtedly lead to innovative solutions and advancements in our understanding of these critical issues.

We are delighted to mark this occasion by celebrating the inauguration of the Siriraj Academic Center for Geriatrics in Samut Sakorn Province, a signicant milestone driven by our vision in the field of geriatrics.

May this conference be a source of inspiration, fostering meaningful connections and sparking ideas that will resonate long after our time together. Thank you for your dedication to the well-being of our aging population, and I wish you all a fruitful and enlightening conference.

Let us embark on these days of shared knowledge with enthusiasm and a collective commitment to making a positive impact in the held of gerontology.

The entire Siriraj community and I are looking forward to welcoming you all to Bangkok this October.

Warm regards,

Prof.Apichat Asavamongkolkul, M.D.
Dean and Professor (Orthopaedic Surgery)
Faculty of Medicine Siriraj Hospital, Mahidol University
Organizing Chair of the 10th ACFS

WELCOME MESSAGE

Dear Esteemed Participants,

Welcome to the 10th Asian Conference for Frailty and Sarcopenia. As the President of the Asian Association for Frailty and Sarcopenia and co-lead of the Asian Working Group for Sarcopenia, it is my honor to extend a warm welcome to all of you.

This conference is a testament to our collective commitment to advancing research and interventions in frailty and sarcopenia. It is a platform where we share knowledge, foster collaborations, and inspire each other to push the boundaries of what we know and can do. Over the years, we have made significant strides in understanding and managing frailty and sarcopenia. However, there is still much to be done. The challenges we face are complex, but I am confident that with our combined efforts, we can overcome them. Let us use this conference as an opportunity to learn from each other, to challenge our thinking, and to forge new paths in our quest to improve the lives of those affected by frailty and sarcopenia.

The Asian Working Group for Sarcopenia (AWGS) has made significant contributions to the field of sarcopenia research. The AWGS 2019 consensus update on sarcopenia diagnosis and treatment has been particularly impactful. AWGS is working on the update of AWGS in 2024 and is planning to move from sarcopenia diagnosis and treatment towards muscle health promotion.

Once again, welcome to the 10th Asian Conference for Frailty and Sarcopenia. I look forward to the fruitful discussions and the innovative ideas that will undoubtedly emerge from this gathering.

Prof. Liang-Kung Chen, M.D., Ph.D.
President, Asian Association for Frailty and Sarcopenia

WELCOME MESSAGE

Dear esteemed friends,

On this remarkable milestone of the 10th anniversary of the Asian Conference for Frailty and Sarcopenia, I extend my heartfelt congratulations to all participants, organizers, and contributors. Your dedication to advancing research and clinical practice in the field of frailty and sarcopenia is commendable and invaluable.

As we convene in Bangkok, a city renowned for its rich culture and vibrant energy, let us seize this opportunity to foster collaboration, exchange knowledge, and inspire innovation. The challenges for frailty and sarcopenia demand our collective attention and concerted efforts. Through interdisciplinary discussion and shared expertise, we can enhance our understanding of frailty and sarcopenia and refine strategies for prevention, diagnosis, and management.

Let us also congratulate on the progress we have made over the past decade and celebrate the milestones achieved. Yet, let us remain vigilant in our pursuit of excellence, recognizing that much work lies ahead.

I am confident that the insights gained from this conference will propel us towards greater advancements for healthy longevity and improve the quality of life for millions affected by frailty and sarcopenia across the globe.

Wishing you a productive and inspiring conference experience. I am looking forward to seeing you all in Bangkok in October.

Warmest regards,

Prof. Hidenori Arai, M.D., Ph.D.
President of National Center for Geriatrics and Gerontology, Japan

WELCOME MESSAGE

"Frailty and sarcopenia, the most studied geriatric syndromes within the community of geriatrics and gerontology, are created with the ambitions of healthy aging by academic scholars and health care providers."

Over the past 9 Asian conferences for frailty and sarcopenia have witnessed the progressively continuing success by increasing participations of all sectors. Thailand, one the most visited countries in the world, is much honored to host the 10th Asian conference 2024 at Faculty of Medicine Siriraj Hospital, Bangkok.

Apart from the active participants from many world renown scientists in the field, the participants would have a great opportunity to be involved in the upcoming AWGS Consensus Update on diagnosis and treatment. The ultimate goals, therefore, are to uplift the standard of research, diagnosis and treatment for the whole region.

Indulge yourself to the Thai hospitality and Thai cuisine during a very memorable stay in Thailand.

See you all in Bangkok this October 2024.

Emeritus Prof. Prasert Assantachai, M.D.
President, Thai Society of Gerontology and Geriatric Medicine.

WELCOME MESSAGE

"On behalf of the organizing committee of the 10th Asian Conference of Frailty and Sarcopenia (ACFS), it's our pleasure to invite you to the conference in Bangkok."

The conference, with the theme "Make it possible to reverse frailty and sarcopenia toward healthy aging", will be the onsite platform containing keynote speakers, symposia, parallel session, oral and poster presentation of the research.

This upcoming conference welcomes delegates, experts and faculties interested in the field of aging health including geriatrician/ gerontologist, orthopedist, rehabilitation doctor, nutritionist, family medicine doctor, internist, physical therapist, dietitian, and others from all over the world. The 10th ACFS will feature the most up-to-date scientific programs and memorable events for all attendees. We are looking forward to welcoming you to the conference. Please save the date in advance to visit us in Bangkok.

Best regards,

Prof. Weerasak Muangpaisan, M.D.
Scientific Chair, 10th ACFS

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PROGRAM BOOK

Thursday - 10 October 2024

Rajthevee Grand Ballroom (3rd floor)			Kingpetch Room (3rd floor)		
Time	**Topic**	**Speaker**	**Time**	**Topic**	**Speaker**
07:30-08:30 am	**Registration**				
08:30-09:00 am	**Opening Ceremony**				
09:00-10:30 am	Update AWGS Guideline for sarcopenia in 2024.	• Chair: Hidenori Arai (Japan) • Co-Chair: Jean Woo (Hong Kong) • Presenter: Liang-Kung Chen (Taiwan) Panel discussion			
10:30-11:00 am	**Coffee break**				
11:00-12:30 am	Integrated Care for Older People, Selfcare towards Sarcopenia Prevention.	• Moderator: Prasert Assantachai (Thailand) • Amrita Kansal (WHO)			
12:30-01:00 pm	**Exhibition and Poster Session (6 posters presentation) (3rd floor)**				
01:10-02:00 pm	Sponsored symposium 1 (with lunch): Abbott Laboratories Ltd. The Clinical Benefits of HMB in Muscle Health Outcomes.	•Moderator: Weerasak Muangpaisan (Thailand) • Veeradej Pisprasert (Thailand)	**01:10-02:00 pm**	Sponsored symposium 2 (with lunch): Furuno Electric Co., Ltd. A new method for Sarcopenia diagnosis using quadriceps cross-sectional area measurement device.	•Moderator: Hidenori Arai (Japan) •Yasumoto Matsui (Japan) •Ken Shimmura (Japan)
02:00-03:30 pm	Oral presentation Group 1	Research Committee Chair: Panita Limpawattana (Thailand)	**02:00-03:30 pm**	Oral presentation Group 2	Research Committee Chair: Varalak Srinonprasert (Thailand)
O01-	Muscle-derived α-amylase is age-variable myokine and useful for the frailty biomarker.	Presenter: Tohru Hosoyama (Japan)	**O02-**	Physical functionality, metabolic and bone health in women with steosarcopenia: A cross-sectional study from Western India.	Presenter: Gauri Virendra Bhat (India)
O08-	Association between physical activity and swallowing function in patients with hip fracture.	Presenter: Kenichiro Maekawa (Japan)	**O03-**	Sarcopenia among Older Adults Fallers with Increased Body Mass Index.	Presenter: Maw Pin Tan (Malaysia)
O06-	Megestrol Acetate as Appetite Stimulant in Geriatric patients: A Systematic Review and Meta-analysis.	Presenter: Marie Gene D. Cruz-Tantoco (Philippines)	**O14-**	Frailty phenotype predicts the onset of depressive symptoms among community-dwelling older adults: the Otassha study.	Presenter: Takahisa Ohta (Japan)
O13-	Ability of sarcopenia, frailty, previous fracture and high fracture risk determined by FRAX in identifying those with high hip fracture risk	Presenter: Sarath Lekamwasam (Sri Lanka)	**O07-**	Association of Obesity Indicators with All-Cause Mortality in Asian Community-Dwelling Older Adults: A Systematic Review and Meta-Analysis.	Presenter: Hyung Eun Shin (South Korea)

Rajthevee Grand Ballroom (3rd floor)			Kingpetch Room (3rd floor)		
Time	**Topic**	**Speaker**	**Time**	**Topic**	**Speaker**
O04-	Associations of antiretroviral therapy with body composition and metabolic profiles in older with HIV.	Presenter: Daylia Thet (Thailand)	**O09-**	Association between Soy Isoflavone Intake and Sarcopenia in Community-Dwelling Older Adults: The Itabashi Longitudinal Study on Aging.	Presenter: Narumi Kojima (Japan)
03:30-04:00 pm.	**Coffee break**				
04:00-05:00 pm	Frailty prevention in primary care setting.	•Kenji Toba (Japan)	**04:00-05:30 pm**	Frailty and Sarcopenia research collaboration in Thailand. (in Thai language)	•Chair: Panita Limpawattana (Thailand) •Chalobol Chalermsri (Thailand) •Veeradej Pisprasert (Thailand) •Jirapa Champaiboon (Thailand) •Pojchong Chotiyarnwong (Thailand)
06:00-08:30 pm	**Welcome dinner (for speakers and ACFS committees) - King Thong Room (2nd floor)**				

*04.00–05.00 pm AWGS Annual Meeting - Payathai Room (2nd floor)

PROGRAM BOOK

Friday - 11 October 2024

Rajthevee Grand Ballroom (3rd floor)			Kingpetch Room (3rd floor)		
Time	**Topic**	**Speaker**	**Time**	**Topic**	**Speaker**
07:30-08:00 am		**Registration**			
08:00-08:45 am	Collaboration ANZSSFR and ASIAN association of Frailty and Sarcopenia.	•Solomon Yu (Australia) •Liang-Kung Chen (Taiwan)			
08:45-09:30 am	Special concerns of drug use in older people with frailty.	•Masahiro Akishita (Japan)	**08:45-09:30 am**	Diabetes and geriatric syndromes. •Atsushi Araki (Japan)	•Atsushi Araki (Japan)
09:30- 10:00 am	Current and emerging biomarkers of sarcopenia and frailty	Shosuke Satake (Japan)	**09:30- 10:30 am**	Oral presentation Group 3	Research Committee Chair: Orapitchaya Sriwannopas (Thailand)
			O05-	Serum Creatinine and Cystatin C-Derived Index as an Indicator of Sarcopenia Onset and Progression in Community-Dwelling Older Adults: Results from a Longitudinal Study.	Presenter: Ryota Matsuzawa (Japan)
			O10-	A technology-driven evolution in physical performance test: Hidden parameters in Short Physical Performance Battery.	Presenter: Seongjun Yoon (South Korea)
			O11-	Effects of square-stepping exercise on physical and cognitive performance in older adults with cognitive frailty.	Presenter: Yin-Hsiang Wang (Taiwan)
			O12-	Blood-Based DNA Methylation Signatures: Predictors and Reversal Strategies for Frailty.	Presenter: Chanachai Sae-Lee (Thailand)
10:00- 10:30 am	**Coffee break**				
10:30- 12:00 am	What is the update for frailty diagnosis in clinical practice and community service in Asia?	• Moderator: Chang Won Won (Korea) •Li-Ning Peng (Taiwan) •Katsuya Iijima (Japan) •Varalak Srinonprasert (Thailand) •Reshma Merchant (Singapore)	**10:30-11:30 am**	Osteosarcopenia	•Moderator: Prasert Assantachai (Thailand) •Wee Shiong Lim (Singapore)

Rajthevee Grand Ballroom (3rd floor)			Kingpetch Room (3rd floor)		
Time	**Topic**	**Speaker**	**Time**	**Topic**	**Speaker**
12:00-01:15 pm	**Exhibition and Poster Session (6 posters presentation) (3rd floor)**				
12:25-01:15 pm	LUNCH		**12:25-01:15 pm**	Sponsored symposium 3 (with lunch): InBody Co., Ltd. Battling Hidden Epidemics: Sarcopenic Obesity in Older and Young Adults – Prevalence, Pitfalls, and Pathways to Prevention	•Chan Yoke Mun (Malaysia)
01:15-02:00 pm	Sarcopenia and AI	•Liang-Kung Chen (Taiwan)			
02:00-02:45 pm	Rehabilitation, nutrition and oral care in sarcopenic dysphagia	•Moderator: Hidetaka Wakabayashi (Japan) •Varanya Techasukthavorn (Thailand) •Sirima Kulvanich (Thailand)	**02:00-02:45 pm**	Oral frailty - A new concept from Japan with preventive strategies -Trends in Oral Frailty and its Association with Healthy Longevity -Decline of oral function in old population -Social implementation of comprehensive oral frailty prevention program in Japan	•Katsuya Iijima (Japan) •Hirohiko Hinano (Japan) •Kazunori Ikebe (Japan) •Koichiro Matsuo (Japan)
02:45-03:00 pm	**Coffee break**				
03:00-04:30 pm	Sarcopenic obesity: diagnosis in Asian context, treatment and outcomes	• Moderator: Wee Shiong Lim (Singapore) Keisuke Maeda (Japan) •Chang Won Won (Korea)			
04:30-05:00 pm	Award presentation ceremony and closing address				

Committee for research presentation (Oral/Poster) October 10-11, 2024

1. Jean Woo
2. *Liang-Kung Chen*
3. Hidenori *Arai*
4. Chang Won Won
5. Wee Shiong Lim
6. Prasert Assantachai
7. Hidetaka Wakabayashi
8. Reshma Merchant
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10. Varalak Srinonprasert
11. Panita Limpawattana
12. Orapitchaya Sriwannopas
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14. Veeradej Pisprasert
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16. Ornicha Thititagul

SPEAKER ABSTRACT

SPONSOR SYMPOSIUM 2

Usefulness of a newly developed ultrasound system for estimating skeletal muscle mass and muscle strength in community-dwelling older adults: Cross-sectional analysis from the FESTA study

Ken Shinmura[1], Masaaki Onishi[2]
[1]Department of General Internal Medicine, Hyogo Medical University School of Medicine, Nishinomiya, JAPAN
[2]Department of Orthopedic Surgery, Hyogo Medical University School of Medicine, Nishinomiya, JAPAN

Objectives: For patients receiving home care service or those with implanted devices, conducting BIA and DXA to measure skeletal muscle mass index (SMI) is difficult.Therefore, we investigated whether the quadriceps cross-sectional area (QCSA) measured using an ultrasonic muscle imaging system developed by Furuno Electric Co.,Ltd. could serve as a diagnostic tool for sarcopenia in community-dwelling older adults.
Methods: This cross-sectional study included 510 almost independent older adults (181 men and 329 women, median age 75 years). The QCSA of the dominant leg was measured three times and the average value was analyzed for its correlation with SMI measured by BIA and the values of physical function test.
Results: The QCSA showed a good correlation with SMI (R=0.78), handgrip strength (R=0.70), and knee extension strength (R=0.68), but not with walking speed or 5-times chair-stand test. These results were similar to correlations between SMI and muscle strength. When subjects were divided into two groups based on the SMI sarcopenia criteria, the low SMI group had significantly lower QCSA than the normal group for both men and women, with AUC values of 0.81 for men and 0.76 for women.
Discussion: The QCSA showed a strong correlation with SMI, handgrip strength, and knee extension strength. The AUC for predicting low SMI was favorable and the correlations between QCSA and muscle strength was equal to those between SMI and muscle strength. These findings suggest that measuring QCSA using this system could be an alternative method to BIA and DXA for diagnosing sarcopenia.

SPONSOR SYMPOSIUM 2

Muscle mass and quality evaluation using quadriceps femoris cross-sectional images by a novel ultrasound apparatus

Yasumoto Matsui
National Center for Geriatrics and Gerontology, Japan

The current diagnosis of sarcopenia needs skeletal muscle mass and performance, where problems still remain in the method of evaluating muscle mass; thus, quality measurement is a topic for future research. We focused on the quadriceps muscle, which plays a major role in daily life when standing up and moving upstairs and shows the greatest decline with age. We have been working on the evaluation methods for this muscle. In this lecture, we report the results of our research on mid-thigh cross-sectional images obtained using CT and the new ultrasound diagnostic equipment. In an epidemiological study using CT (NILS-LSA), we reported that not only muscle mass, but also muscle quality significantly decreased with age in both sexes, that muscle mass and quality were independently related to knee extensor strength, and that the quadriceps cross-sectional area (CSA) is useful for diagnosing sarcopenia. Additionally, a hospital registry study showed that the CSA had the strongest correlation with muscle strength, whereas muscle quality tended to have a stronger correlation with motor function. Despite its usefulness, CT has disadvantages such as radiation exposure, cost, measurement locations, and the need for specialized technicians. Therefore, we developed an Ultrasonic Muscle Imaging System that can visualize a similar range to that of CT. This device has a very good correlation with CT images in quadriceps femoris muscle cross-sectional area, and also enables evaluation of muscle quality from image brightness. Therefore, it is expected to be used as a screening device for sarcopenia diagnosis in the future.

ORAL PRESENTATION

O-01

Muscle-derived α-amylase is age-variable myokine and useful for the frailty biomarker.

Tohru Hosoyama[1], Minako Kawai-Takaishi[1], Marie Takemura[2], Tsuyoshi Watanabe[2], Keisuke Sekine[3], Daichi Shigemizu[4], Shosuke Satake[5].

[1]Geroscience Research Center, National Center for Geriatrics and Gerontology.
[2]Center for Frailty and Locomotive Syndrome, National Center for Geriatrics and Gerontology.
[3]Laboratory of Cancer Cell Systems, National Cancer Center Research Institute.
[4]Medical Genome Center, National Center for Geriatrics and Gerontology.
[5]Center for Gerontology and Social Science, National Center for Geriatrics and Gerontology.

Background: Myokine, a physiologically active substance secreted from skeletal muscle, is involved in organ communications and potentially useful as a disease biomarker. Recently, we found in two types of transcriptome analysis that Amy1, which encodes α-amylase, was an age-variable humoral factor in mouse skeletal muscle.
Objectives: In this study, we aimed to investigate whether muscle-derived α-amylase was useful for the frailty biomarker.
Methods: Expression and secretory capacity of AMY1 and α-amylase were verified using a human myogenic cell line, Hu5KD3. To determine what conditions affect AMY1 expression, Hu5KD3 cells were cultivated with atrophy-inducing factors and/or inflammatory cytokines. Usefulness as disease biomarkers was further examined by analysis of human muscle tissue and blood samples from frailty patients (58 frailty, 49 non-frailty; 65-89 years old). The correlation of blood α-amylase levels to clinical data and J-CHS evaluation items was also analyzed.
Results: AMY1 was highly expressed in human myotubes and secreted into the culture supernatant as α-amylase with biological activity. AMY1 expression was increased under atrophic culture conditions while decreased under inflammatory conditions. Furthermore, we confirmed in analysis of human samples that AMY-1 was increased in the skeletal muscle of older adults and that blood α-amylase levels also increase with age. Two of the five J-CHS evaluation items, slowness and low activity, were correlated with blood α-amylase levels. Interestingly, frailty patients' blood α-amylase levels were significantly decreased (p=0.0024).
Conclusion: This study demonstrated that α-amylase was an age-variable myokine and a useful biomarker for frailty.

O-02

Physical functionality, metabolic and bone health in women with osteosarcopenia: A cross-sectional study from Western India.

Gauri Bhat[1], Alex Ireland[2], Nikhil Shah[3], Ketan Gondhalekar[3], Anuradha Khadilkar[3]

[1]Savitribai Phule Pune University, Department of Health Sciences
[2]Manchester Metropolitan University, Research Centre for Musculoskeletal Science and sports medicine
[3]Hirabai Cowasji Jehangir Medical Research Institute, Jehangir Hospital, Pune, India

Background: Sarcopenia and osteoporosis are increasing with ageing population and incur high risk of falls/fractures with functional decline. Muscle function and metabolic parameters in osteosarcopenia are relatively less explored. Hence, we aim to study physical functionality, metabolic and bone health in women with osteosarcopenia.
Methods: Our study included 398 women (age 40-70 yrs) (mean age 52±7 yrs, Urban=182 & Rural=216) residing in Pune city and nearby villages (India). Assessments included, height, weight, BMI, socio-demography, diet, muscle mass (by Dual Energy X-ray Absorptiometry), grip strength (JAMAR hand-dynamometer) and muscle function (SPPB score). Sarcopenia was diagnosed using Asian Working Group of Sarcopenia and osteoporosis by WHO-guidelines. Osteosarcopenia was defined as presence of both.
Results: Osteosarcopenia was higher in rural (19.6%) than urban (2.9%) women. Based on DXA results women were categorized as Osteosarcopenic (OS,N=33), Sarcopenic (SP,N=15), Osteopenic (OP,N=92) and Healthy Controls(CO,N=258). The OS group had lowest grip strength, slowest gait speed, highest chair rise time and lowest bone mineral density at spine & femur indicating adversely affected muscles and bone. Biochemical analysis (n=106) showed high prevalence of dyslipidemia (89%) and insulin resistance (66%), serum vit D lower in OS group and serum PTH higher in OP group. Regression analysis revealed women with SP had almost 6-times (OR=6.2, 95% CI 3.2-11.9) risk of developing OP. Older age (OR=1.16, 95% CI=1.07-1.26), lower BMI (OR=0.56,95% CI-0.45-0.70) were independently associated with osteosarcopenia.
Conclusion: OS women showed significantly reduced muscle function and bone density. Higher dyslipidemia and insulin resistance indicated poor metabolic health. Studies with larger sample size are needed to confirm links between biochemical measures and osteosarcopenia.

O-03

Sarcopenia among Older Adults Fallers with Increased Body Mass Index

Nurul Nabilah Akmal Hashim[1], Sumaiyah Mat[2], Maw Pin Tan[1]
[1]Department of Medicine, Faculty of Medicine, Universiti Malaya.
[2]Centre of Physiotherapy Studies, Faculty of Health Sciences, Universiti Kebansaan Malaysia.

Background: Falls and sarcopenia are among the features of frail in older adults which usually accompanied with reduced lean mass. These frailty criteria however are no longer limited to individuals with low body weight, but also potentially affect those with increased fat mass.

Objectives: To explore the relationship between sarcopenia and older adults with higher body mass index (BMI) and falls in the past twelve months.

Methods: A total of 604 community-dwelling adults aged ≥ 60 years old were recruited. Falls history, BMI, bio-impedance analysis, handgrip strength (HGS) and gait speed (GS) were assessed. Sarcopenia was defined as the lowest quintile of sex-specific muscle-to-fat ratio with presence of poor HGS or GS. Logistic regression was conducted with model adjustment for age, gender, educational level, comorbidities, and physical activity level.

Results: Participants recruited were aged 69.5 (6.1) years, 338 (56.0%) women, and 230 (38.1%) had BMI ≥25 kg/m2. Individuals within BMI ≥25 kg/m2, both non-fallers (odds ratio (OR)= 7.42) and fallers (OR= 12.73), have increased risk of sarcopenia compared to the non-fallers with BMI <25 kg/m2. This relationship in individuals with BMI ≥25 kg/m2 for both non-fallers and fallers remained significant after adjustment for all potential confounders with aOR (95% CI) of 6.42 (3.14-13.10) and 11.60 (5.05-26.63), respectively.

Conclusion: Individuals within BMI ≥25 kg/m2 are more likely to have sarcopenia compared to those within BMI <25 kg/m2, with the fallers BMI ≥25 kg/m2 having the highest odds for sarcopenia. Detecting sarcopenia alongside intervention for older adults with BMI ≥25 kg/m2 are therefore necessary for early frailty prevention.

O-04

Associations of antiretroviral therapy with body composition and metabolic profiles in older with HIV

Daylia Thet[1], Sawitee Lappichetpaiboon[1], Chidchanok Trakultritrung[1], Nongnapas Sotangkur[1], Supalak Phonphithak[2], Hay Mar Su Lwin[2], Tanakorn Apornpong[2], Win Min Han[2], Anchalee Avihingsanon[2,3] and Tippawan Siritientong[1,4]
[1]Department of Food and Pharmaceutical Chemistry, Faculty of Pharmaceutical Sciences, Chulalongkorn University, Bangkok 10330, Thailand.
[2]The HIV Netherlands Australia Thailand Research Collaboration (HIV-NAT), Thai Red Cross AIDS Research Centre, Bangkok 10330, Thailand
[3]Center of Excellence in Tuberculosis, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand
[4]Center of Excellence in Burn and Wound Care, Chulalongkorn University, Bangkok 10330, Thailand

Background: Antiretroviral therapy (ART) can impact fat-free mass (FFM) and fat mass (FM) of people with HIV (PWH). Individual evaluation and monitoring of metabolic complications are crucial for optimizing outcomes.

Objectives: We aimed to assess muscle and fat composition, as well as metabolic conditions related to ART in older PWH at HIV-NAT, Thai Red Cross AIDS Research Centre, in Bangkok, Thailand.

Methods: Bioelectrical impedance analysis was employed to measure appendicular skeletal muscle mass index (ASMI), FM, FFM and basal metabolic rate (BMR). Low ASMI was defined as <7 kg/m2 for males and <5.7 kg/m2 for females. Demographic information, clinical characteristics, and recent laboratory metabolic data were extracted from the electronic health records.

Results: The study included 177 virally suppressed older Thai PWH aged >50 years. Twenty-eight (15.8%) PWH had low ASMI. Factors negatively associated with ASMI included lamivudine (3TC) (p=0.002), high-density lipoprotein, age and female gender (all p<0.001). FM and visceral fat rating were negatively associated with 3TC, while FFM and BMR were negatively associated with efavirenz (EFV). Emtricitabine had positive association with FFM and BMR (both p<0.001). There was a positive association of hyperlipidemia with ritonavir (aOR, 4.177, p=0.001) and abacavir (aOR, 2.894, p=0.012), respectively. EFV was positively linked to low-density lipoprotein, and rilpivirine was associated with aspartate aminotransferase.

Conclusion: Given the effect of nucleoside and non-nucleoside reverse transcriptase inhibitors and protease inhibitors, routine assessment of FFM, FM and related metabolic parameters is essential to mitigate potential ART-related effects. Longitudinal studies are warranted to better understand ART's impact on metabolic health over time.

O-05

Serum Creatinine and Cystatin C-Derived Index as an Indicator of Sarcopenia Onset and Progression in Community-Dwelling Older Adults: Results from a Longitudinal Study

Ryota Matsuzawa[1], Airi Nakahara[1], Koutatsu Nagai[1], Hiroshi Kusunoki[2], Kayoko Tamaki[3], Yasuyuki Nagasawa[3], Ken Shinmura[3]
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Background: Biomarkers, particularly serum creatinine and cystatin C, have garnered increasing attention as potential methods for predicting sarcopenia onset and progression in older adults. Nevertheless, there is currently a scarcity of research in this area.
Objectives: To assess the association between the serum creatinine and cystatin C-derived index and sarcopenia onset and progression among community-dwelling older adults.
Methods: This longitudinal observational study encompassed older adults (aged ≥65 years), who underwent baseline evaluations including clinical characteristics and the presence and severity of sarcopenia based on AWGS criteria. According to reassessment results at least one year later, we identified the presence or absence of sarcopenia onset and progression. We employed a tool calculated by incorporating serum creatinine and cystatin C levels: Total Body Muscle Mass Index (TBMM) = body weight × serum creatinine / (coefficient value k × body weight × serum cystatin C + serum creatinine).
Results: In the analysis of 644 participants, 46 (7.1%) experienced sarcopenia onset or progression after the observational period. Logistic regression analysis, even after adjusting for clinical characteristics, showed that TBMM was significantly associated with the onset or progression of sarcopenia (odds ratio, 0.76; 95% confidence interval, 0.67-0.85).
Conclusion: This study provides strong evidence of the association between the serum creatinine- and cystatin C-derived index and sarcopenia onset and progression among community-dwelling older adults. The application of this index may be valuable for screening individuals at higher risk of sarcopenia onset or progression in clinical settings.

O-06

Megestrol Acetate as Appetite Stimulant in Geriatric patients: A Systematic Review and Meta-analysis

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Diminished appetite among older adults is attributable to medications, comorbidities, and age-related changes in olfaction, taste and sight. Megestrol acetate (MA) is a steroidal agent used in cancer patients with anorexia and cachexia. Evidence on its use among older adults is limited.
This review aimed to determine the efficacy and safety of MA among geriatric patients with poor appetite or weight loss.
Electronic databases (MEDLINE and Cochrane Library) were systematically searched for randomized controlled trials until July 25, 2024. Eligible studies were assessed for quality using the Cochrane Risk of Bias tool. Meta-analyses of applicable outcomes were performed using Review Manager 5.4. Certainty of evidence was evaluated using the GRADE approach.
Four randomized controlled trials (n = 171), most with moderate risk of bias, were included. Pooled analysis from two studies showed greater increase in body weight among patients given MA 800 mg (mean difference [MD] 4.42 kg, 95% CI 2.16 to 6.69, I2=83%) than control. Improved appetite scores were observed in the MA group [MD range 0.80 (95% CI, -0.04 to 1.64) to 0.91 (95% CI, 0.79 to 1.03)]. The effect of MA on well-being and serum albumin was inconclusive. Although analysis of total adverse events was inconclusive, two patients experienced thromboembolism and one death was reported in the MA group.
Very low certainty of evidence suggests that MA leads to weight and appetite improvement among geriatric patients. Further high-quality trials with larger sample sizes may be considered to ascertain the benefit and safety of MA in older adults

O-07

Association of Obesity Indicators with All-Cause Mortality in Asian Community-Dwelling Older Adults: A Systematic Review and Meta-Analysis

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Background: Sarcopenic obesity may increase the risk of adverse health outcomes, ultimately leading to mortality. While ESPEN-EASO has proposed diagnostic criteria for sarcopenic obesity, an obesity indicator for diagnosing this condition in Asia has not yet been established. It should be prioritized to identify which obesity indicator has the strongest association with adverse health outcomes to accurately diagnose obesity.
Objectives: We aimed to conduct a meta-analysis to clarify the association between obesity indicators and the risk of mortality in Asian community-dwelling older adults aged over 60 years.
Methods: Five databases, including PubMed, Embase, Cochrane Library, Web of Science, and Scopus, were systematically searched from inception to December 20, 2023. Relative risk (RR) with a 95% confidence interval (CI) for mortality was pooled using a random-effects model.
Results: A total of 33 studies (subjects, n = 1,702,466) are eligible for our review, with a mean follow-up of 9.8 years. We found that obesity (RR: 0.83, 95% CI: 0.78–0.87) and overweight (RR: 0.81, 95% CI: 0.78–0.85), defined by body mass index (BMI), was associated with a decreased risk of mortality, whereas underweight, defined by BMI, was associated with an increased risk of mortality in older adults (RR: 1.64, 95% CI: 1.46–1.83). Meanwhile, abdominal obesity, defined by waist circumference (WC), was not associated with the risk of mortality (RR: 0.91, 95% CI: 0.70–1.11).
Conclusion: BMI better predicts the risk of mortality than WC, which suggest that BMI measurement should be prioritized in clinical practice for predicting mortality in Asian older adults.

O-08

Association between physical activity and swallowing function in patients with hip fracture

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Background: The prevalence of dysphagia in hip fracture patients is as high as 32% (Suzuki, 2023). These dysphagia are thought to be associated with systemic sarcopenia. Whole-body exercise in addition to swallowing rehabilitation is important for dysphagia, but the association is not known.
Objectives: The aim is to determine the effect of physical activity during hospitalisation on swallowing function at discharge.
Methods: Hip fracture patients aged 65 years or older who were admitted to a convalescent rehabilitation wards between January 2021 and December 2023 were included. Physical activity was measured using a triaxial accelerometer for five days each on admission and discharge, and activity time (standing: >20.METs) and steps were calculated. The clinical outcome was the Repetitive Saliva Swallowing Test (RSST) at discharge. Statistical analysis of the association between physical activity and RSST was performed using multiple regression analysis, adjusting for the effects of confounding factors.
Results: The analysis included 148 subjects (83.1 ± 7.9 years, 79.0% female). Median physical activity time was 61.2 [43.5, 94.2] at admission, 99.6 [77.0, 133.5] at discharge, and total activity time during hospitalization was 813.0 [631.0, 1127.5] minutes. Median steps was 134.9 [66.1, 412.1] at admission and 1018.4 [351.0, 2545.0] at discharge, for a total volume was 6909.0 [2400.0, 15110.0] steps. Multivariate analysis for RSST at discharge showed a significantly positive correlation for activity time at admission (β=0.152, $p<0.039$), discharge (β=0.212, $p<0.010$) and total (β=0.216, $p<0.008$). No significant association was found for steps.
Conclusion: Physical activity time during hospitalization in the convalescent rehabilitation wards had an impact on swallowing function at discharge.

O-09

Association between Soy Isoflavone Intake and Sarcopenia in Community-Dwelling Older Adults: The Itabashi Longitudinal Study on Aging

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Background: Animal studies suggest that sarcopenia, characterized by age-related loss of muscle mass and strength, may be mitigated by soy isoflavones' estrogen-like effects. However, this association remains unclear in older adults.

Objectives: To investigate the cross-sectional association between soy isoflavone intake and sarcopenia in older adults.

Methods: Participants were drawn from the 2023 Itabashi Longitudinal Study on Aging. Sarcopenia was determined based on AWGS2019 criteria. Soy isoflavone intake was assessed by a brief-type diet history questionnaire and was categorized into tertiles. Sex-stratified logistic regression analyses were conducted with adjustment by age, urinary equol, energy intake. The interaction between sex and isoflavone intake was also examined.

Results: The analysis included 639 participants (median age 75 years, 57.6% male, 13.6% sarcopenic). After adjusting for covariates, higher isoflavone intake was associated with lower sarcopenia risk in men (odds ratios [OR] 0.62, 95% CI 0.39-0.98) but not in women (OR 1.57, 95% CI 0.94-2.59). The interaction was significant in the direction that the association between increased isoflavone intake and reduced sarcopenia risk was stronger in men than in women ($p<0.001$).

Conclusion: The cross-sectional association between soy isoflavone intake and sarcopenia was contrasting between sexes in a way that it was strongly positive in men while rather negative in women. Hormonal effects may play a role in the observed sex differences, considering that soy isoflavones modify the effects of estrogen. Reverse causation is also possible, as health-conscious sarcopenic individuals might consume more soy products. Longitudinal research is needed to clarify these associations.

O-10

A technology-driven evolution in physical performance test: Hidden parameters in Short Physical Performance Battery

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Disclosures: Seongjun Yoon and Heewon Jung are the co-founders of DYPHI Inc. This study was supported by the Korea National Institute of Health (KNIH) research project (No. 2023ER080700).

Background: The majority of widely used physical performance assessment protocols were originally developed under the assumption of manual operation by a human observer with a stopwatch.

Objectives: Recently, the concept of a multi-modal sensor system has been proposed [1-4]. One of the primary advantages of implementing this technology is the capacity to record all continuous sensor data from subjects, which is typically absent in a traditional manner. This study shows how to reveal hidden parameters in continuous sensor data based on the short physical performance battery (SPPB).

Methods: SPPB tests were performed on a total of 107 community-dwelling subjects using a multi-modal sensor system (AndanteFit, DYPHI Inc.) at a community center in South Korea. The mean SPPB score was 11.4, with a mean age of 75.6 years (62.0 - 88.7 years).

Results: After 4-meter gait speed tests, gait displacement data show distinct acceleration and steady gait phases, and thus, gait parameters at each segment could be utilized as novel features compared to the conventional manual test. Similarly, after 5x chair stand tests, hip-to-chair displacement data contain cyclic motion, and thus, the transitions from sit-to-stand and stand-to-sit can be distinguished. After balance tests, continuous weight change data can be collected on each foot, providing additional stability information.

Conclusion: While maintaining the established test protocols, we have shown that additional features can be extracted by leveraging sensor technologies. This may facilitate further evolutions by revealing hidden information in physical performance tests.

O-11

Effects of square-stepping exercise on physical and cognitive performance in older adults with cognitive frailty

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Background: Cognitive frailty increases risks of adverse health consequences, and people with cognitive frailty exhibit impairment in both physical and cognitive function. Square-stepping exercise (SSE) has been proved to be an effective intervention for physical and cognitive function in older adults. However, such effect of SSE has not yet been established in cognitive frailty.
Objectives: To investigate the effects of square-stepping exercise in older adults with cognitive frailty.
Methods: This was a block-designed randomized controlled trial. 18 participants were allocated to SSE or control group (SSE: n= 10, control: n=8). Outcome measurements included frailty status, general cognition function, functional mobility, knee extensor muscle strength, and executive function, measured before and after intervention. Generalized estimating equation (GEE) was used to analyze baseline difference and interventional effect. Baseline group difference were adjusted, and missing data was analyzed according to intention to treat approach.
Results: Throughout the study period, three participants dropped out from SSE group and four dropped out from control group (overall dropout rate 38.8%), mainly due to concern of the COVID-19 pandemic. Functional mobility revealed significant group by time interaction, while time effect was noted in general cognitive function, frailty status, knee extensor muscle strength, and digit span test. After SSE training, participants demonstrated improvement in general cognitive function, frailty status, functional mobility, knee extensor strength, and digit span test.
Conclusion: SSE is effective improving physical and cognitive function, especially functional mobility, in people with cognitive frailty. The present findings could provide possible exercise programs for cognitive frailty.

O-12

Blood-Based DNA Methylation Signatures: Predictors and Reversal Strategies for Frailty

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Background: Frailty, a geriatric syndrome marked by decreased resilience and increased vulnerability to adverse health outcomes, is an emerging public health concern in Thailand's ageing population. Current diagnostic methods primarily rely on questionnairesand physical assessments, but the absence of precise biological markers impedes early detection and intervention.
Objectives: This study aimed to identify epigenetic biomarkers for frailty in Thai elderly through DNA methylation analysis and to explore reversal strategies based on these methylation patterns.
Methods: A total of 131 community-dwelling elderly volunteers residing near Siriraj Hospital were recruited and assessed for frailty using the Fried frailty phenotype and the Kihon Checklist. Blood samples were collected and analysed for DNA methylation using the Infinium Methylation EPIC v2.0 array.
Results: The study analysed 50 robust, 50 pre-frail, and 31 frail individuals. A total of 195 differentially methylated positions (DMPs) were identified as significantly different among the groups. Methylation levels at three distinct DMPs effectively distinguished frail from non-frail individuals (AUC = 0.93) and robust from non-robust participants (AUC = 0.95). Additionally, 443 genes showed significant differential methylation, with 33 genes implicated in the response to decitabine, a demethylating agent.
Conclusion: The identification of DNA methylation biomarkers associated with frailty offers a novel approach for screening older adults in clinical settings, potentially enabling more accurate and rapid diagnosis. Furthermore, the use of a demethylating agent may offer a promising strategy to prevent or reverse frailty.

O-13

Ability of sarcopenia, frailty, previous fracture and high fracture risk determined by FRAX in identifying those with high hip fracture risk

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Background: Early identification of those with high hip fracture (HF) risk is essential in reducing the incidence of hip fracture. Although many measures are used, the relative merit of these is uncertain.
Objectives: This study compared the sensitivities of sarcopenia, frailty, history of previous fracture and fracture risk assessed by FRAX algorithm in identifying those with high hip fracture risk in order to find the best determinant.
Methods: A total of 209 patients with incident HF were assessed within 24 hours after admission to National Hospital, Galle. Pre-fracture frailty and physical activities were assessed based on history and using the locally validated Frail Non-Disabled (FiND) questionnaire and Barthel index. Probable sarcopenia was detected using hand grip strength (HGS) and fracture probabilities were calculated using clinical risk factors on Sri Lankan FRAX model. The sensitivities were calculated assuming that above information was available the day before fracture.
Results: Among 209 HF patients admitted, 151 (72%) were females and mean age (SD) of HF patients was 73.7 (11.3) years. Most of the HF patients, 158 (75.6%) were fully physically independent before the fracture. More than half of the HF patients (57%) had one or more falls during the last year. However, only 27% had previous fractures (sensitivity 0.27). The sensitivities of probable sarcopenia, frailty and FRAX based high fracture risk were 0.29, 0.84 and 0.74, respectively.
Conclusion: Pre-fracture frailty showed higher sensitivity than FRAX based high fracture risk, probable sarcopenia or history of previous fracture and this information can be used in identifying those with high HF risk.

OUTSTANDING POSTER PRESENTATION

P-23

Efficacy of Structured Exercise-Nutritional Intervention on Sarcopenia in Patients with Osteoporosis

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Background: Osteo-sarcopenia increases the risk of falls, fractures and functional decline among elderly. An effective multidisciplinary intervention is in demand.

Objectives: We aimed to evaluate the efficacy of exercise-nutritional intervention for patients with osteo-sarcopenia in the Jockey Club Integrated Rehabilitation Day Centre of Kowloon Hospital.

Methods: This was a prospective randomized controlled trial. 27 of 94 patients assessed (28.7%) were diagnosed with sarcopenia in the osteoporosis clinic of Kowloon Hospital in June–December 2022 by AWGS 2019 criteria. 13 patients were recruited to the study in September 2022 – April 2024. The subjects were randomized into intervention and control groups. During the 12-week study period, the intervention group received resistance, aerobic, flexibility and balance exercise training through in-person sessions and tele-rehabilitation. They also received dietitian counselling and supplement containing β-hydroxy β-methylbutyrate (HMB). The control group received conventional care.

Results: The mean age of subjects was 78.5 ± 5.0 years. 84.6% of the subjects were living with severe sarcopenia. The attendance rate of supervised training was 91.6% and the compliance rate to supplement was 100%. There were statistically significant improvements in grip strength (3.14 kg, 95% CI 1.11 to 5.18 kg) and Short Physical Performance Battery (1.14 points, 95% CI 0.09 to 2.20 points) in the intervention group. Meanwhile, there were no significant changes in body weight, body mass index, appendicular skeletal muscle mass index, 6-metre walk test or 5-time chair stand test in either group.

Conclusion: Exercise-nutritional intervention is effective in improving muscle strength and physical performance of patients with osteo-sarcopenia.

P-25

Impact of SNS-Based Healthcare App on Oral Frailty Improvement in Community-Based Oral Frailty Prevention program: Comprehensive Awareness Modification of Mouth, Chewing And Meal (CAMCAM) program Dx

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Background: While various healthcare applications have been developed in recent years, oral healthcare applications remain immaturely implemented. We have created community-based oral frailty (OF) prevention program using a SNS portal app, known as Comprehensive Awareness Modification of Mouth, Chewing And Meal (CAMCAM) program.

Objectives: This preliminary investigation aimed to assess the impact of the CAMCAM program on changes in OF and frailty.

Methods: A total of 140 community-dwelling adults (48 males, mean age 71.6±6.1 years) participated in this study. Participants installed the SNS based app and completed the questionnaires for Oral Frailty Index-8 (OFI-8) and Kihon Checklist for systemic frailty (KCL) on the app before and after the intervention. In the intervention, participants gather monthly to learn about oral health and nutrition while eating the CAMCAM textured lunch together. Additionally, participants received information through the app and were encouraged to engage in the online chat community. Changes in OFI-8 and KCL scores after the program were assessed using paired t-test.

Results: Following the intervention, the mean OFI-8 score improved significantly from 2.6±2.3 to 2.3±3.1 (P=0.011). The KCL also improved significantly from 20.2±2.9 to 20.8±2.7 (P=0.002). Participants joining the chat community showed further significant improvements in these scores than those who did not.

Conclusion: The utilization of the SNS portal app for CAMCAM program could have transformative effects on raising awareness of oral health and nutrition, as well as exerting preventive effects on oral frailty and frailty.

P-49

The synergistic effect of low handgrip strength and silent lacunar infarcts on physical function in community-dwelling older adults: the Bunkyo Health Study

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Background: Low-handgrip strength (HGS) and silent lacunar infarcts (SLI) are associated with low physical function, respectively; however, their combined impact remains unclear.

Objectives: This study aimed to elucidate the association between the combined presence of low-HGS and SLI and physical function in older adults.

Methods: This study included 1410 older adults with no history of cerebrovascular disease who participated in the Bunkyo Health Study. Low-HGS was defined as HGS < 28 kg for men and < 18 kg for women. SLI was defined by MRI. Participants were divided into four groups based on HGS and SLI: neither low-HGS nor SLI (High-None), only SLI (High-SLI), only low-HGS (Low-None), and both low-HGS and SLI (Low-SLI). Leg extension strength and timed up and go test (TUG), were compared using ANCOVA, adjusted for confounders, with post-hoc Bonferroni tests.

Results: Leg extension strength (Nm/kg) was significantly lower in the Low-None (1.23±0.02) and Low-SLI (1.07±0.05) groups compared to the High-None (1.38±0.01) and High-SLI (1.36±0.02) groups. Similarly, TUG time (sec) was longer in the Low-None (6.90±0.09) and Low-SLI (7.60±0.18) groups compared to the High-None (6.41±0.04) and High-SLI (6.54±0.09) groups. The Low-SLI group exhibited the lowest leg extension strength and the slowest TUG time, significantly worse than the Low-None group ($p<0.05$).

Conclusion: These findings suggest a synergistic effect between low HGS and SLI, leading to greater declines in muscle strength and physical function. Screening for both low HGS and SLI could be crucial in identifying older adults at higher risk of functional decline.

P-53

An integrative approach to detect potential blood-based biomarkers for frailty

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Background: Frailty is a geriatric syndrome associated with disability, hospitalization, and mortality. However, it is reversible and preventable with the appropriate interventions. Therefore, there is a need for novel biomarkers that enable early diagnosis of frailty.

Objectives: Our goal was to identify blood-based biomarkers for the early diagnosis of frailty and to develop a prediction model for frailty.

Methods: The study included 102 older adults aged 65 to 90, comprising 59 frailty subjects and 43 robust subjects. Blood samples and associated clinical data were obtained from the National Center for Geriatrics and Gerontology Biobank in Japan. Using blood-based gene-expression data, aging-related factors, and clinical data, we explored potential biomarkers for early frailty diagnosis through logistic regression, adjusting for age, sex, and body mass index. An optimal biomarker set was identified by constructing prediction models with the random forest algorithm evaluating all combinations of the biomarker candidates.

Results: The best model utilized one clinical factor (skeletal muscle mass index measured by dual-energy X-ray absorptiometry: SMI DEXA) and four aging-related factors (GDF15, Adiponectin, CXCL9 and Apelin). This model achieved a high area under the curve (AUC) of 0.91 in an independent validation cohort (95% confidence interval [CI]: 0.78 to 0.97). Additionally, when SMI measured by InBody was used instead of SMI DEXA, the model maintained a high AUC of 0.92 (95% CI: 0.77 to 0.97).

Conclusion: We identified promising biomarkers for early diagnosis of frailty. Further refinement and validation of these biomarkers may enhance their future clinical application.

P-67

Screening of frailty, sarcopenia, and oral hypofunction using color-changeable chewing gum to evaluate masticatory performance

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Background: Early detection of frailty, sarcopenia, and oral hypofunction is important. The screening method anyone can use is desired.

Objectives: To clarify whether a color-changeable chewing gum to evaluate masticatory performance can be used for the screening.

Methods: Participants were 65 years of age or older. Frailty was determined based on the J-CHS, sarcopenia on AWGS2019, and oral hypofunction on the Japanese Society of Gerodontology. Objective masticatory performance, MPIG, was evaluated by color-changeable chewing gum (Mastication check gum, Lotte), and subjective masticatory performance was evaluated by the food acceptance score (FAS) and subjective chewing difficulty. Logistic regression analyses were performed in 134 participants, with frailty, sarcopenia, and oral hypofunction as the objective variables respectively. The explanatory variables were MPIG for Model 1, plus age for Model 2, plus FAS for Model 3, and plus subjective chewing difficulty for Model 4. ROC curves were drawn and cutoff values for each were derived by Youden index. In the validation data of 67 participants, the sensitivity and specificity were calculated at their cutoff values, and their stability was verified. The significance level was set at 0.05.

Results: Analyses were significant for sarcopenia and oral hypofunction. The sensitivity and specificity at both data in the optimal model were 0.80, 0.77, and 0.74, 0.56 (Model 4) for sarcopenia and 0.76, 0.83, and 0.74, 0.63 (Model 2) for oral hypofunction, respectively.

Conclusion: The combination of masticatory performance evaluation methods anyone can use suggests the possibility of screening for sarcopenia and oral hypofunction.

P-91

Association between psychological frailty and incidence of dementia among community-dwelling older adults

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Background: Physical frailty and depression in older adults are closely interrelated and associated with an increased risk of dementia. However, there is a paucity of evidence on the association between psychological frailty, which includes both physical and psychological aspects, and the incidence of dementia.

Objectives: To determine the association between psychological frailty and the risk of incidence of dementia.

Methods: This study included 2,111 community-dwelling, older adults (median age=73 years, interquartile range=68–78 years, 39.5% male). Participants were followed up for 5 years from baseline to assess the incidence of dementia. Physical frailty was operationalized using the Japanese version of the Cardiovascular Health Study criteria. Depressive symptoms were assessed using the 15-item Geriatric Depression Scale. Participants were classified into four groups based on physical frailty and depressive symptoms. Psychological frailty was defined as the coexistence of physical frailty and depressive symptoms. Cox proportional hazards regression models were used to analyze the associations between frailty and dementia incidence.

Results: The incidence of dementia in normal, physical frailty, depressive symptoms, and psychological frailty were 5.2%, 23.3%, 9.2%, and 27.2%, respectively. The risk of dementia onset for physical frailty (HR:2.63, 95% CI: 1.65–4.20), depressive symptom (HR: 1.52, 95% CI: 1.01–2.30) and psychological frailty (HR: 2.69, 95% CI: 1.66–4.35) significantly higher than that for normal.

Conclusion: In conclusion, psychological frailty may accelerate the progression to dementia. This underscores the importance of comprehensive geriatric assessments that consider physical and psychological factors to identify high-risk individuals and implement targeted interventions.

P-94

Association Between the Number of Functional Teeth and Incidence of Mobility Disability after 6-Year: Findings from the Korean Frailty and Aging Cohort Study

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Background: Mobility disability is common in older adults, negatively affecting their independent life. Lack of functional teeth (FT) has been reported to be associated with mobility disability. However, there is a lack of longitudinal studies examining the association between the number of FT and incident mobility disability.
Objectives: We aimed to evaluate an association between the number of FT at baseline and incident mobility disability after 6-year in community-dwelling older adults.
Methods: A longitudinal analysis was conducted using data of 1,090 participants without mobility disability at baseline (2016–2017) (50.2% women; mean age 75.3 ± 3.4 years) from the Korean Frailty and Aging Cohort Study. The FT at baseline was counted with remaining teeth and prosthetic teeth in panoramic radiography. Incident mobility disability after 6-year (2022–2023) was defined as having gait speed less than 1.0 m/s. The longitudinal association between the number of FT and incident mobility disability was examined using the multivariate logistic regression analysis
Results: A total of 287 (26.3%) participants had FT less than 20. The incidence of mobility disability was 30.2% after 6-year. FT less than 20 had a higher risk of incident mobility disability in unadjusted model (odds ratio [OR]: 2.27, 95% confidence interval [CI]: 1.71–3.00). After adjusting for confounders, FT less than 20 was significantly associated with incident mobility disability (OR: 1.95, 95% CI: 1.38–2.75).
Conclusion: The number of FT were independently associated with incident mobility disability. Our findings suggest that maintaining FT 20 or more is important for preserving mobility performance in older adults.

P-95

The Transitions in Frailty States Over 6-Year Follow-up: Findings from the Korean Frailty and Aging Cohort Study

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Background: Frailty is a dynamic process, characterized by transitions in frailty states over time. However, little is known about the process of frailty transition in Korean community-dwelling older adults.
Objectives: We aimed to investigate the dynamic transitions of frailty states among Korean community-dwelling older adults.
Methods: A total of 2,633 older adults (52.0% women; mean age 76.5 ± 3.9 years) were analysed from the Korean Frailty and Aging Cohort Study. Participants had their frailty states measured at baseline and experienced at least one transition during the 6-year follow-up period. They were categorized into four states: robust, pre-frail, and frail according to the Fried frailty phenotype and death. We used the multi-state Markov model to estimate the 1-year transition probabilities and to identify the association between sociodemographic factors (age, sex, and education level) and frailty transitions.
Results: Over a mean follow-up of 4.6 years, 5,942 transitions were observed. Of these, 3,568 (61.6%) were maintained, 1,358 (22.9%) worsened, and 926 (15.6%) improved. In the robust state, the 1-year progression probability to pre-frail was higher than the probability of moving to the frailty state (20.2% vs. 0.9%). Additionally, the probability of reversion to robust was higher for pre-frail than for frail (17.7% vs. 2.6%). The 1-year transition to death was highest for those in the frail state compared to other states. Older age, being female, and lower education level were associated with frailty progression.
Conclusion: An understanding of the dynamic changes between states and the associated sociodemographic characteristics may provide an opportunity to reverse the progression of frailty.

P-118

Cognitive Frailty as a Distinct Construct: Differential Risk Factors and Reversibility

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Background: Cognitive frailty (CF) represents a state of reduced cognitive reserve.
Objectives: We aim to examine (i) whether cognitive frailty presents with risk factors distinct from isolated phenotypes of physical frailty and cognitive impairment, (ii) reversibility of cognitive frailty subtypes.
Methods: Participants were aged >60 years. Physical frailty was assessed using Fried phenotype. Cognitive status was assessed based on memory symptoms and modified Chinese version of Mini-Mental State Examination (CMMSE). We captured social vulnerability, mood, comorbidities, functional performance, sensory problems (hearing, vision), nutritional status, and sarcopenia. Each participant was classified into one of five diagnostic groups: reversible CF (rCF); potentially reversible CF (pCF); isolated prefrailty/ frailty (PF); isolated cognitive impairment (CI); robust-cognitively intact.
Results: Among 961 participants, 351 (36.2%) were robust-cognitively intact, 112 (11.7%) had rCF, 56 (5.8%) had pCF, 279 (29.0%) had isolated PF, and 163 (17.0%) had isolated CI. Depression significantly increased risk for both CF subtypes (rCF: RRR 17.59; pCF: RRR 7.97; $p<0.001$), isolated PF and isolated CI. Sarcopenia was associated with CF (rCF: RRR 15.12; pCF: RRR 14.20; both $p<0.001$) and isolated PF [RRR 16.13 (5.61, 46.40)]. Visual impairment was associated with rCF [RRR 2.40 (1.26, 4.59)] and CI [RRR 2.01 (1.16, 3.45)]. Hearing impairment was associated with isolated PF [RRR 1.75 (1.00, 3.76)]. At 1-year, 25% of rCF and 12.5% of pCF reverted to robust- cognitively intact.
Conclusion: Depression is a common risk factor across cognitive frailty subtypes and isolated physical frailty and cognitive impairment. Sarcopenia may contribute to cognitive frailty through physical frailty.

POSTER PRESENTATION

P-01

Effect of Renal Dysfunction on Frailty and Sarcopenia in Patients with Chronic Cardiovascular Disease

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Background: Although a close relationship between cardiovascular disease and impaired renal function has been established, few studies have examined how renal dysfunction affects early frailty and sarcopenia in patients with chronic cardiovascular disease. This study aimed to examine the effect of renal dysfunction on frailty and sarcopenia in patients with chronic cardiovascular disease.
Objectives: A total of 114 outpatients with frailty and sarcopenia and cardiovascular disease were included in the study.
Methods: The patients were classified into the mild renal function impaired group (≤60 mL/min/1.73 m2) and sever group (intermediate eGFR grades 2 or lower) (≥60 mL/min/1.73 m2). We collected data on the frailty score, the Kihon checklist, grip strength, walking speed, SMI, blood data, and blood pressure.
Results: The frailty score and basic checklist were significantly higher, while SMI, blood pressure, and Hb tended to be worse in the sever renal function impaired group than in the X group. Hand grip strength and the 6-m walking speed were significantly lower in the renal function impaired group than in the mild group (both $p<0.05$).
Conclusion: This study established a close relationship between cardiovascular disease and impaired renal function. Renal dysfunction promotes arteriosclerosis, oxidative stress, and blood pressure abnormalities, which were found in our study. The complication rate of renal dysfunction and frailty syndrome is high, with approximately one in five patients suffering from frailty after stage G3b. This phenotype may be associated with weight loss, decreased walking speed, and decreased activity (confinement), which are consistent with the results of the present study.

P-03

Association between skeletal muscle strength and insulin resistance in type 2 diabetes mellitus patients attending tertiary care center in Odisha, India

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Background: Skeletal muscle accounts for approximately 40% of body weight and contributes about 80% of insulin-mediated glucose disposal. So, this tissue plays a major role in developing and progressing insulin resistance and type 2 diabetes mellitus (T2DM). Sarcopenia is an emerging clinical condition described as an age-related decrease in skeletal muscle mass associated with a decline in strength and function. T2DM-associated muscle loss starts at a very early stage of the disease gradually progressing to sarcopenia and frailty affecting the quality of life.
Objectives: 1. Assessment of skeletal muscle strength in T2DM patients and comparison with the age and gender-matched healthy controls. 2. Correlation of skeletal muscle strength with insulin resistance in T2DM patients.
Methods: A total of 60 participants aged ≥ 40 years were included in the study. Out of 60, 30 were T2DM patients, and 30 were age and gender healthy volunteers. In all the participants handgrip strength was assessed by a digital handheld dynamometer and insulin resistance was assessed by HOMA-IR.
Results: We observed handgrip strength was significantly decreased in T2DM patients compared to controls ($p<0.05$). The multivariate linear regression model shows lower hand grip strength was significantly associated with higher HbA1C ($p<0.01$) and higher HOMA-IR ($p<0.05$) independent of age, gender, and BMI.
Conclusion: The study's findings suggest that handgrip strength may be used as a screening tool for diagnosing T2DM. Due to the scarcity of data in the Indian population, our study finding may be a novel approach for screening T2DM, if confirmed in larger population groups.

P-05

Prevalence of sarcopenia and the associated physical risk factors among fragility fracture patients in a tertiary teaching hospital in Malaysia

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Background: Sarcopenia, defined by the European Working Group on Sarcopenia (EWGSOP), involves the loss of skeletal muscle mass, strength, and physical ability. It is strongly correlated with fragility fractures, whose incidence rises significantly due to reduced physical activity, immobilization and nutritional deficiencies during post-fracture recovery. This condition further increases the risk of falls and subsequent fractures due to muscle weakness and impaired balance.
Objectives: This study aims to: i) Investigate the prevalence of sarcopenia in elderly following fragility fractures; ii) Identify physical risk factors associated with sarcopenia after fragility fractures.
Methods: A cross-sectional study was conducted from June to December 2022 on elderly patients (60+ years) with fragility fractures referred to the Fracture Liaison Service (FLS) at Hospital Canselor Tuanku Muhriz. Sarcopenia prevalence was assessed using the SARC-F questionnaire. Physical performance, including gait speed, balance, lower limb strength, and hand grip strength, was measured using the Short Physical Performance Battery and a hand-held dynamometer.
Results: Out of 73 elderly participants (61 female, 12 male), 16.5% (n=13) were sarcopenic, and 75.9% (n=60) were non-sarcopenic. Overall physical performance was good (69.9%), with only 8 participants recorded low function. Sarcopenia showed a significant correlation with gait speed, balance, and lower limb strength ($p<0.05$). Additionally, 64.4% of participants had reduced hand grip strength but without sarcopenia.
Conclusion: The prevalence of sarcopenia was low among patients. These result was greatly influence by the early initiation of anti-osteoporosis medication and rehabilitation program by the FLS team. Implementing a multidisciplinary strategy to address the underlying osteoporosis and promote physical rehabilitation can reduce re-fractures and improve overall health outcomes in elderly.

P-06

Sarcopenia outweighing osteoporosis associated with all-cause mortality of a Fracture Liaison Service Program in central Taiwan

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Background: Sarcopenia (SP) and osteoporosis (OP) both posed higher risks for adverse health outcomes.
Objectives: This study explored the relationship among SP, OP, and all-cause mortality.
Methods: This retrospective cohort utilized a tertiary-hospital-based cohort from 2018 to 2024 in Fracture Liaison service program. Patients received dual-energy X-ray absorptiometry scans. OP was diagnosed when T-scores of <-2.5 were at the L-spine or femoral neck. SP was defined using the Asian Working Group for Sarcopenia 2019 criteria: low muscle strength (lowest 20% of handgrip strength), low physical performance (lowest 20% of 6-meter walking), and low appendicular skeletal mass index (<7.0 for men; <5.4 for women). We utilized the Cox proportional hazard model and Kaplan-Meier curves to depict observed time to mortality. Post-hoc analysis was applied for subgroup comparison. All deaths were followed up for 1.3±1.5 years.
Results: 545 patients with mean (SD) age 67.9±14.1 were 72.3% women. At baseline, the prevalence of SP alone was 15.6%, OP alone 23.1%, and both SP and OP 14.3%. After 696 person-years of follow-up, 24 patients died. Older age (hazard ratio [HR]=1.08) and multimorbidity (HR=1.28) were significantly associated with high risk for all-cause mortality. In a multivariable model adjusted for age, sex, body mass index, multimorbidity and medication, SP patients with/without OP having low BMI, total lean tissue and fat outweighed OP alone for predicting all-cause death (HR=5.39 vs. 4.11; 95% confidence interval (CI)=1.15-25.31 vs. 0.85-19.86).
Conclusion: SP's impact on muscle function and physical activity made it a more appropriate predictor for all-cause mortality.

P-07

Fear of Falling and Balance Performance Association with Sarcopenia Screening Measures in Community-dwelling Older Adults

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Background: Sarcopenia is often linked with weakness and falls. Sarcopenia screening such as the SARC-F and SARC-CALF, simple and practical assessments may be used in conjunction with fall risk measures.
Objectives: To determine association of SARC-F and SARC-CALF with fear of falling and balance performance.
Methods: A total of 315 older adults (68.02 ±5.88 years) from Selangor Malaysia were recruited. Sarcopenia status (Probable sarcopenia) was screened using the SARC-F (≥ 4) and SARC-CALF (≥ 11). Fear of falling was assessed using the Short Fall Efficacy Scale-International (≥ 7 points: Increased concern); while balance performance using the Timed-Up and Go test (> 14 sec: High fall risk). Logistic regression analysis was used to establish the association between the falls parameters and sarcopenia status.
Results: Analysis revealed that fear of falling (OR = 0.080, 95% CI: 0.021-0.298, p < 0.001) and poor balance (OR = 0.049, 95% CI: 0.019-0.129, p < 0.001) significantly predicted probable sarcopenia using the SARC-F measure. For SARC-CALF, poor balance (OR = 0.382, 95% CI: 0.180-0.812, p = 0.012) was a significant predictor, whereas fear of falling (OR = 0.493, 95% CI: 0.232-1.048, p = 0.066) was not statistically significant.
Conclusion: Findings suggest that the SARC-F and SARC-CALF can predict fall risk in older adults who may have difficulty with physical performance tests. However, SARC-CALF may not be as effective in predicting fear of falling as the SARC-F. Hence, it may be valuable to incorporate SARC-F in fall risk assessment which can inform targeted interventions for sarcopenia.

P-08

Relationship Between Oral Frailty and Depression in a Frailty Outpatient Clinic: A Cross-Sectional Study

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Background: Depression and oral frailty have attracted attention as factors that increase the risk of negative outcomes, such as hospitalization, disability, and death, among older people. However, the relationship between these two issues has not been sufficiently investigated among outpatients in acute care.
Objectives: This study aimed to examine the relationship between depression and oral frailty in a frailty outpatient clinic.
Methods: This was a retrospective cross-sectional study. Patients aged ≥ 65 years who visited the frailty outpatient clinic were included in the study. Depression was assessed using the Geriatric Depression Scale-15 (GDS-15). Oral frailty was assessed using the Oral Frailty Five-item Checklist (OF-5). The associations between depression (GDS-15≥5), oral frailty (OF-5≥2), and OF-5 sub-items were analyzed using a chi-square test and logistic regression analysis.
Results: A total of 337 patients (mean age 78.4 ± 6.4 years old) were included. Of these, 126 (37%) had depression, and 168 (50%) had oral frailty. A significantly higher proportion of those with depression had oral frailty, and a significantly higher proportion had chewing ability, swallowing function, and dryness on the OF-5 sub-items. The logistic regression analysis showed that oral frailty was associated with depression with an adjusted odds ratio of 2.2 (95% Confidence Interval: 1.3–3.6).
Conclusion: We observed an association between depression and oral frailty. In addition, there is a relationship between depression and subjective oral dysfunction such as chewing ability and dryness. A longitudinal study is needed to address the causal effect of oral frailty on depression.

P-11

Low muscle-to-fat ratio and high fat mass, potentially alternative choices, predict all-cause morality of patients with sarcopenic obesity in central Taiwan

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Background: Sarcopenia and obesity had bidirectional and pathogenic interaction. However, operational definition and results were inconsistent.
Objectives: This study explored the relationship among low muscle-to-fat ratio, high fat mass, and all-cause mortality.
Methods: This retrospective cohort utilized a tertiary-hospital-based cohort from 2018 to 2024 in Fracture Liaison service program. Sarcopenia (SP) was defined by low muscle strength (lowest 20% of handgrip strength), low physical performance (lowest 20% of 6-meter walking), and low appendicular skeletal mass index (<7.0 for men; <5.4 for women). Total body muscle mass divided by total body fat mass (tMFR) and total body fat divided by total tissue (FM%) were used for categorizing obesity. Low tMFR and high FM% was defined as the lowest and highest quartile of this cohort. Cox proportional hazard model and Kaplan-Meier curves were used for the primary outcome.
Results: 538 patients with mean (SD) age 67.9 ±14.0 were 72.7% female; All deaths were followed up for 1.3±1.5 years. 32 patients with sarcopenia and low tMFR as well as 31 patients with sarcopenia and high FM% had significant older age, male predominant, high android to gynoid fat ratio, and total fat. Older age, sarcopenia, osteoporosis, multimorbidity, high serum creatinine, alkaline phosphate, and glycated hemoglobin were significantly associated with all-cause mortality. In a |univariable model, SP patients with low tMFR (HR=5.02; 95% confidence interval (CI)=1.47-17.18) and SP patients with high FM% (HR=5.85; 95% CI=1.71-20.02) were associated with all-cause death.
Conclusion: Low tMFR and high FM% may be an appropriate predictor for all-cause mortality.

P-12

A higher dietary acid load increases the risk of disability in older women

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Background: Metabolic acidosis caused by acidogenic diets increases muscle catabolism. Some studies have reported that higher acidogenic diets increase the risk of muscle loss in older adults; however, the association with functional outcomes remains unknown.
Objectives: To investigate whether a higher acidogenic diet increases the risk of disability.
Methods: This study included 1,704 community-dwelling Japanese people aged ≥75 years without disabilities (52.2% female). The dietary acid load was assessed using the potential renal acid load (PRAL) values from dietary intake, which reflect urinary acidity, with a higher value indicating a more acidogenic diet. The incidence of disability for 1 year was determined using certification records from the Japanese long-term care insurance system. Participants were divided into quartiles (Q1–Q4, Q1 was set as reference) based on their sex-stratified PRAL scores. The odds ratios (ORs) and 95% confidence intervals (CIs) for disability were calculated using multiple logistic regression analysis after adjustment for energy intake, age, body mass index, living alone, smoking, and alcohol intake.
Results: Disabilities occurred in 44 males (5.7%) and 71 females (8.7%). ORs (95% CI) for disability from Q2 to Q4 were: males: 1.40 (0.82–2.39), 0.71 (0.38–1.32), 0.98 (0.55–1.72); females: 1.06 (0.69–1.64), 0.80 (0.50–1.27), 1.61 (1.07–2.40), respectively.
Conclusion: A higher dietary acid load increases the risk of disability in older women, suggesting that managing the intake of high-acid diets may contribute to maintaining a better functional status. Future studies should investigate whether sex is an effect modifier.

P-13

Preoperative respiratory sarcopenia as risk factor for postoperative pneumonia in patients with esophageal cancer

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Background: Respiratory sarcopenia (RS) is a new concept defined as low respiratory muscle strength and muscle mass. We hypothesized that RS is a risk factor for postoperative pneumonia after esophagectomy.
Objectives: This study aimed to investigate the relationship between preoperative RS and postoperative pneumonia in patients with esophageal cancer who underwent esophagectomy.
Methods: This single-center retrospective observational study included patients with esophageal cancer who underwent esophagectomy between June 2020 and March 2024. RS was defined as the presence of inspiratory muscle weakness (IMW) and low muscle mass. IMW was identified as a maximum inspiratory pressure < 80% of the predicted value by a respiratory dynamometer. Low muscle mass was defined using the Asian Working Group of Sarcopenia 2019 criteria for the appendicular skeletal muscle index using bioelectrical impedance analysis. The primary outcome was the incidence of postoperative pneumonia. The relationship between preoperative RS and postoperative pneumonia was examined using a logistic regression model with inverse probability weighting. Propensity scores for RS likelihood were estimated with adjustment for confounders such as sex, age, smoking status, comorbidity status, neoadjuvant therapy, and malnutrition to create inverse probability weights.
Results: Among the 104 included patients, 12 (12%) developed postoperative pneumonia. Preoperative RS was associated with postoperative pneumonia in the unweighted (odds ratio [OR], 6.23; 95% confidence interval [CI], 1.72–22.48) and weighted (OR, 3.60; 95% CI, 1.34–9.67) models.
Conclusion: Preoperative RS, defined as IMW and low muscle mass, is associated with an increased risk of postoperative pneumonia in patients with esophageal cancer who undergoing esophagectomy.

P-14

Cross-cultural adaptation and validation of the Sinhala version of PRISMA-7 frailty scale

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Background: PRISMA-7 is a seven-item, simple tool developed to detect frailty among older adults.
Objectives: This cross-sectional study validated the Sinhala version of PRISMA-7 frailty scale (PRISMA-7SV) among Sinhala-conversant older adults in Sri Lanka after standard forward and backward translation and cultural adaptation of seven items.
Methods: After a pilot study, the developed PRISMA-7SV was administered to a group of older adults (purposive sampling) attending medical clinics in a tertiary health care setting in Colombo. Fried phenotype used as the reference standards to detect frailty phenotype. PRISMA-7SV score >3 was used as the cut point to define frailty. The agreement between the reference standard and PRISMA-7SV was assessed and comparison of those frail and not frail was done. Reliability of the questionnaire was assessed and the optimum cut point to define frailty in the local population was determined by ROC analysis.
Results: The mean (SD) age of the subjects (n=118) was 81.9 (7.3) years and the agreement between the reference standard and PRISMA-7SV was high (Kappa 0.69, $p<0.001$). According to PRISMA-7SV, 53 were frail, and compared to those non frail (n=65), they were older, had higher comorbidity and poor physical performance ($p<0.05$ for all). The overall Cronbachs alpha of PRISMA-7SV was 0.71 ($p<0.001$) and the area under ROC curve was 0.87 ($p<0.001$) The best cut point in ROC curve was 3 and this was associated with 0.81 sensitivity and 0.89 specificity.
Conclusion: PRISMA-7SV has satisfactory psychometric properties to be used as a screening tool to detect frailty among Sinhala conversant older adults in Sri Lanka.depression and subjective oral dysfunction such as chewing ability and dryness. A longitudinal study is needed to address the causal effect of oral frailty on depression.

P-15

Cost of Illness Analysis of Frailty for Older Adults: A Systematic Review and Meta-Analysis

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Background: The increasing burden of costs and out-of-pocket expenses borne by older adults with frailty can be a considerable challenge in efforts toward improving societal health. This study estimated the cost of frailty for older adults by employing cost of illness theory.

Methods: Four electronic databases were searched (without any language or year restriction) for relevant articles from their inception to April 2024. Studies investigating the cost of frailty and prefrailty for older adults (aged ≥60 years) were included. The review protocol was registered in the PROSPERO database (CRD42024530953).

Results: A total of 51 studies were included. The findings revealed that frailty significantly increased mean total costs by US$3286.43 and US$4653.01 compared with the costs for individuals with prefrailty and robustness, respectively. The cost difference between the prefrailty and robust groups was US$2729.66. The increases in indirect costs did not significantly differ between the prefrailty and robust groups or between the frailty and robust groups. The total cost by setting was significantly increased in the frailty group relative to the prefrailty and robust groups. The results stratified by continent or region revealed that only the frailty and prefrailty groups in North America experienced significant increases in total costs relative to the robust group. However, in the Asia-Pacific region and Europe, no significant results were noted.

Conclusion: This is the first meta-analysis to employ cost of illness theory to investigate the cost of frailty. Our findings can help providers of health-care services and professional workers develop effective and comprehensive intervention plans and services that can be provided for older adults with frailty.

P-16

A nation-wide survey of an additional system for patients with suspected or diagnosed dementia during hospitalization for physical illness

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Background: In Japan, an additional system, dementia support team (DST), for patients with suspected or diagnosed dementia during hospitalization for physical illness began in 2016. DST is an initiative established based on the knowledge that, when individuals with dementia or older people at risk for delirium are hospitalized due to physical illnesses, there are often cases where their cognitive symptoms rapidly deteriorate. However, activities of each hospitals were unknown. Therefore, we started a nation-wide survey of DST.

Objectives: A questionnaire survey was conducted at 1032 hospitals throughout Japan.

Methods: Major questions were number of beds, number of types of medical staffs, number of patients seen for intervention/Month, frequency for team meeting/week, types of assessment of cognitive function, and frequencies of advice for medication, rehabilitation, reduction of physical restraint and nutrition.

Results: Of the hospitals, 422 responses were obtained. Furthermore, 292 were applicable. The main results are as follows: number of beds (200~499 beds :n=171), number of types of medical stuffs (4 types≦:n=248), number of patients for intervention/month (30patients ≦,100patients>:n=164), frequency for team meeting/week(1/week :n=242), assessment of cognitive function (HDS-R: n=141), advice: medication (n=281), rehabilitation (n=244), reduction of physical restraint (n=275), and nutrition (n=198).

Conclusion: In view of prevention for sarcopenia or frailty, the present study revealed that assessment of nutrition was insufficient. A further study will be required in the future.

P-17

Association between phase angle and peripheral circulation after lower leg bathing

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Background: Local hyperthermia, like lower leg baths (LLB), increases blood flow in unheated areas for heat dissipation. This effectiveness is potentially expected to be related to skeletal muscle.
Objectives: This pilot study aimed to investigate the relationship between skeletal muscle mass and peripheral circulation enhancement through LLB in healthy men.
Methods: Ten healthy men (mean age: 25.9 ± 3.1 years; height: 161.3 ± 31.2 cm; weight: 61.6 ± 7.4 kg) participated. LLB was conducted at 42℃ for 20 minutes using a foot bath machine. Leg circumference, skeletal muscle index (SMI) and phase angle (PhA), were measured before the LLB. SMI and PhA were determined by bioelectrical impedance analysis (Inbody S10, InBody Co, Japan) Earlobe blood flow (EBF) was measured before to after 5 minutes LLB using a wireless doppler laser blood flow meter (Pocket LDF, JMS Co, Japan), and we calculated the EBF ratio at rest and 5 min after the LLB. The relationship between EBF ratio and skeletal muscle mass indicators was analyzed using Pearson's correlation.
Results: A significant positive correlation was found between EBF ratio and phase angle ($r = 0.918$, $p = 0.00018$). No significant correlation was found between EBF ratio and leg circumference ($r = -0.0543$, $p = 0.881$) or SMI ($r = 0.588$, $p = 0.0739$).
Conclusion: PhA is an indicator of muscle quality. Individuals with low PhA reflecting as frailty or sarcopenia, may not experience improved peripheral circulation from hyperthermia.

P-19

Prevalence of Sarcopenia and Osteoporosis amongst older adults screened by a community frailty clinic in Singapore.

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Background: Osteoporosis is a prevalent disease that is associated with increased risk of fractures, morbidity and mortality. Sarcopenia is a geriatric syndrome that is highly prevalent among osteoporosis patients and these are associated with adverse health outcomes in elderly patients. The concurrent occurrence of both syndromes, characterized as "Osteosarcopenia" is an emerging syndrome that is associated with increased risk of falls and fractures.
Objectives: To assess the prevalence of Osteoporosis, Sarcopenia, Osteosarcopenia and the correlation between the two in a population of community dwelling adults in Singapore.
Methods: A total of 188 Community dwelling elderly were seen in the Geriatric Services Hub (GSH) in Singapore. BMI, Hand grip strength and SARC-F screening tool were administered for assessment of muscle strength and sarcopenia. BMD scores were used to diagnose osteoporosis. Measurements for frailty with the CFS, MMSE, Parkinsonism were taken as well.
Results: The patients had a mean age of 80.3 ± 7.4 with a predominantly Chinese ethnicity (75.5%). There were 118 females (62.8%) and 70 males (37.2%). 93 (49.4%) patients had SARC-F≥4. The overall prevalence of confirmed osteoporosis in the population was 47 (25.0%), of these patients, 37 (78.7%) had Osteosarcopenia.
Conclusion: Osteoporosis and sarcopenia are two important geriatric syndromes. This study shows a high prevalence of sarcopenia in patients with osteoporosis and adds further value to the close relationship between the 2 syndromes. Early detection and a multidisciplinary approach to managing Osteosarcopenia are crucial for improving outcomes and maintaining quality of life in affected individuals.

P-20

Development of Cancer-related Sarcopenia Classification Models Using Machine Learning Based on Kinect-based Mixed-reality Exercises in Breast Cancer Survivors

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Background: Cancer-related sarcopenia presents a significant challenge for cancer survivors. The use of kinect-based mixed-reality (KMR) devices enables precise joint data collection, offering a unique advantage in analyzing movement patterns and evaluating exercise interventions.
Objectives: Our study aimed to develop machine learning-based sarcopenia classification models for breast cancer survivors. By leveraging KMR and analyzing joint angle data, we aimed to improve sarcopenia classification accuracy and gain insights into specific variables affecting sarcopenia.
Methods: Overall, 77 breast cancer survivors (mean age 48.9±5.4 years; mean weight, 58±7.3 kg) were enrolled. Sarcopenia was classified using the Skeletal Muscle Index and Hand grip strength. Over 8 weeks, Kinect data from exercise sessions were collected using KMR. After data preprocessing, four different models (support vector machine, K-nearest neighbor, random forest [RF], and XGBoost [XGB]) were employed for classification. Additionally, feature-importance analysis was conducted.
Results: Twelve patients were diagnosed with sarcopenia. XGB demonstrated the highest performance, achieving 94.7% accuracy, 91.2% recall, 95.8% precision, 93.4% F1 score, and 96.2% area under the curve. All four models performed well in classifying sarcopenia, with varying strengths for different evaluation metrics. Furthermore, regarding feature importance, RF and XGB revealed a consistent trend, suggesting that “knee flexion (right)” had the most remarkable impact on the sarcopenia classification model.
Conclusion: Among machine-learning classification models trained on Kinect data using KMR, XGB demonstrated the best performance. Through feature-importance analysis, we identified that right knee flexion had the greatest impact. These findings may guide interventions in breast cancer-related sarcopenia.

P-21

Odor Molecules Detected in the Urine Can Distinguish Sarcopenia Patients

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Background: At the previous ACFS2024, we reported 10 volatile organic compounds (VOCs) as potential urinary biomarkers for sarcopenia patients. These odor molecules originate from food or gut microbiota and reflect changes in the body's metabolic functions. The detection of these VOCs may enable noninvasive diagnosis of sarcopenia.
Objectives: To evaluate whether urinary odor molecules can distinguish sarcopenia patients, we performed multiple regression analyses using combined three VOCs or five VOCs indices in older individuals.
Methods: VOC analysis was performed on the urine of 68 sarcopenia patients and 71 age- and sexmatched healthy controls using Solid Phase Micro Extraction combined with Gas Chromatography-Mass Spectrometry (SPME-GCMS). The detected VOC amounts were standardized and analyzed via multiple linear regression. Additionally, to evaluate discriminative performance, stratified multiple linear regression analysis was conducted by sex and age.
Results: Using a VOC index calculated from the detection amounts of three VOCs (octanoic acid, nonanoic acid, gamma-butyrolactone), the discriminative performance was higher in males (AUC = 0.897) than in females (AUC = 0.756). When using five VOCs (p-xylene, d-limonene, nonanal, gamma-butyrolactone, octanoic acid), the AUC was 0.822 for those under 79 years old and 0.875 for those aged 80 and above, indicating high discriminative performance.
Conclusion: We identified ten urinary VOC compounds as candidate biomarkers for sarcopenia. Although there are sex differences in the discriminative performance of sarcopenia using urinary VOCs, combining indices with age demonstrated the potential for a high-performance, noninvasive diagnostic method for sarcopenia. The ROC analysis of the combined five VOC compounds showed high performance in non-standardized predicted values, suggesting the potential for noninvasive diagnosis of sarcopenia.

P-24

The effectiveness and related factors of functional outcomes among inpatient stroke with sarcopenia receiving rehabilitation

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Background: Sarcopenia is prevalent among elderly stroke patients and impacts functional outcomes.
Objectives: To investigate the effectiveness and related factors of functional outcomes of elderly stroke with sarcopenia receiving inpatient rehabilitation.
Methods: Stroke patients who were admitted for rehabilitation during April 2023 to March 2024 were recruited. Sarcopenia was diagnosed according to the Asian Working Group for Sarcopenia 2019, and it was assessed during the first three days of admission. The functional outcome was measured by Barthel Index at admission (BIad) and at discharge (BIdc). Effectiveness of functional outcome was calculated by (BIdc-BIad)/(BImax-BIad)*100. Factors related to the effectiveness were analyzed using multiple linear regression.
Results: Ninety-two stroke patients with mean age of 70.71 (SD 7.29) years were included. The effectiveness among participants without sarcopenia (mean = 51.36, SD = 26.04) was statistically higher than those with sarcopenia (mean = 31.40, SD = 23.98). After controlling confounding factors, sarcopenia was independently significantly associated with negative functional outcomes (B = -20.468, 95% confidence interval (CI) -32.379 to -8.557, p-value = 0.001). Additionally, onset to rehabilitation admission interval was independently significantly associated with negative functional outcomes (B = -0.006, 95% CI -0.012 to -0.001, p-value = 0.03).
Conclusion: The presence of initial sarcopenia at admission and longer stroke onset to inpatient rehabilitation interval decrease the effectiveness of functional outcome after receiving inpatient stroke rehabilitation. Additional research on other factors of the effectiveness of functional outcome among the oldest-old stroke patients should be performed.

P-26

Association Between the Oral Frailty 5-item Checklist (OF-5) and Oral Function: The Otassha Study

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Background: Oral frailty (OF) is a state between a “healthy mouth” and a “decline of oral function.” The Oral Frailty 5-item checklist (OF-5) is a screening tool to recognize potential oral function decline, and consists of questions: (i) fewer teeth, (ii) chewing difficulty, (iii) swallowing difficulty, (iv) dry mouth, and (v) low articulatory oral motor skills (AOMS). However, no specific measures of OF are presented, and the relationship between each OF-5 item and oral function remains unclear.
Objectives: To describe the oral function corresponding to each OF-5 item among community-dwelling older adults.
Methods: This cross-sectional study analyzed data from the Otassha Study. Dental professionals assessed the decline of oral functions, including oral hygiene, mucosal wetness, occlusal force, tongue pressure, AOMS, masticatory and swallowing function. Logistic regression analysis was conducted with each oral function as the dependent variable (1:impaired, 0:robust) and each OF-5 item as an independent variable while controlling for age and sex, using a Bonferroni-corrected threshold ($p<0.0014$). (Ethical committee approval number: R22-034).
Results: The analysis included 539 participants (335 women, mean age 73.7±6.4 years). Fewer teeth were significantly associated with occlusal force and masticatory function impairments. Chewing difficulty was associated with occlusal force, masticatory and swallowing function impairments. Swallowing difficulty, dry mouth, and AOMS were associated with swallowing function impairments.
Conclusion: Different oral function declines were detected depending on OF-5 item showing a decline. Although combinations of OF-5 items were not considered in OF, countermeasures should be planned based on the specific OF-5 items identified.

P-29

Association of frailty and intrinsic capacity with subjective health in community-dwelling older adults

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Background: Frailty and intrinsic capacity (IC) are distinct but interrelated concepts. The relationship between comorbidities and health indicators remains unclear.
Objectives: This cross-sectional study investigated the relationships between frailty, IC, and subjective health among community-dwelling older adults.
Methods: Data from 593 participants (mean age; 73.9 years, 62.2% female) in the 2019 Tarumizu Study, a community-based health survey, were analyzed. Frailty was assessed using the Japanese version of the Cardiovascular Health Study criteria and categorized into robust, prefrailty, and frailty. IC was assessed in the cognitive, locomotor, vitality, sensory, and psychological domains according to the World Health Organization concept (scored 0–2 each, total of 10). Scores ≥ 9 and ≤ 8 indicated high and low capacities, respectively. Subjective health was assessed using a four-category method and dichotomized into good and poor health groups. The participants were divided into four groups based on their frailty/IC status; 1. high capacity + robust, 2. high capacity + pre-frailty and frailty, 3. low capacity + robust, and 4. low capacity + pre-frailty and frailty.
Results: Group distribution was 30.0%, 23.1%, 15.9%, and 31.0% in groups 1, 2, 3, and 4, respectively. Compared to group 1, no association with poor health was found in groups 2 and 3, but group 4 showed a significant association (OR; 3.52, 95% CI; 1.33–9.28).
Conclusion: The co-occurrence of frailty and low IC was significantly associated with poor subjective health among community-dwelling older adults.

P-30

Phase Angle-Defined Sarcopenia Predicts Functional Status and Discharge Outcomes in Acute Stroke Patients

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Background: Sarcopenia defined by phase angle (PhA) may predict clinical outcomes in patients with stroke.
Objectives: This study aimed to investigate the effects of sarcopenia defined by PhA on functional status and discharge disposition during the acute phase in patients with acute stroke.
Methods: We included consecutive patients who experienced acute stroke between October 2021 and December 2022. We measured PhA within one week of rehabilitation initiation using bioelectrical impedance analysis. We defined sarcopenia based on PhA (<5.28° for male and <4.62° for female) and patients were categorized into the sarcopenia group (SG) and non-sarcopenia group (NSG). Clinical outcomes were functional independence by the modified Rankin Scale (mRS) score (0–2, independence; 3–5, nonindependence) and discharge disposition (home or others). Multivariate logistic regression analysis was sued to examine the effect of sarcopenia defined by PhA on functional independence at discharge and discharge disposition.
Results: A total of 205 patients were included in the analysis. The prevalence of sarcopenia was 72.7% (n=148). More patients in the SG were unable to be independent (27.7% vs. 66.7%, P<0.001) and were unable to be discharged home (53.4% vs. 82.5%, P<0.001) than in the NSG. Logistic regression analysis showed that baseline sarcopenia defined by PhA decreased the likelihood of functional independence (odds ratio [OR]=0.275, P=0.003) and home discharge (OR=0.378, P=0.044).
Conclusion: Sarcopenia defined by PhA is a risk factor for low functional status at hospital discharge and decreases the likelihood of home discharge in patients with acute stroke.

P-32

Efficacy and Safety of SGLT2 Inhibitors Use in Older Adults with Heart Failure: A Systematic Review

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Background: Sodium-Glucose Cotransporter 2 (SGLT2) inhibitors are now class 1 recommendation for patients with symptomatic heart failure (HF) regardless of the presence of Type 2 diabetes mellitus (T2DM). However, the efficacy and risk-benefits profile of SGLT2 inhibitors in older adults have not been systematically investigated.
Objectives: To determine if SGLT2 inhibitors reduce the incidence of cardiovascular deaths among older adults age 65 years and above with heart failure.
Methods: Systematic search of electronic databases (including PubMed and The Cochrane Library) was done until June 20, 2024. Search for randomized controlled trials was conducted involving older adults 65 years and above with heart failure. The primary endpoint was cardiovascular death. All-cause mortality, HF hospitalizations, and serious adverse events were also assessed. Additionally, subgroup analysis was conducted based on age categories. Risk of bias in the included studies was assessed using the Cochrane Risk of Bias tool. Random-effects meta-analyses with pooled risk ratios were used to synthesize results.
Results: Among 18724 participants combined from the trials, the addition of SGLT2 inhibitors was non-inferior in reducing cardiovascular death (risk ratio 0.87; 95% CI 0.80-0.96) and all-cause mortality (risk ratio 0.93; 95% CI 0.87-1.00). There was also a reduction in HF hospitalizations (risk ratio 0.72; 95% CI 0.67-0.77). There was no increase in risk for serious adverse events (risk ratio 0.93; 95% CI 0.89-0.98).
Conclusion: The addition of SGLT2 inhibitors in older adults may reduce cardiovascular deaths and all-cause mortality, and reduce HF hospitalizations without an increased risk for serious adverse events.

P-33

The development of care model for sarcopenic obesity in older adults: a participatory action research

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Background: The senior population is growing in both size and proportion globally. Sarcopenic obesity (SO) is a simultaneous occurrence of sarcopenia and obesity which is commonly found in older adults.
Objectives: This study used participatory action research to develop a care model for sarcopenic obesity in older adults in Thailand.
Methods: In-depth interviews were conducted among 25 older adults. Focus group interviews (sample = 12 stakeholders) were used to develop the preliminary care model. The participatory action research (PAR) method used an action research spiral process and followed 15 older adults with sarcopenic obesity over a period of 16 weeks. This process consists of four steps: planning, acting, observing, and reflecting. Re-planning began after the reflecting stage, initiating a new cycle of the spiral process that continued until the care model attained suitability. Qualitative data was analyzed using the ATLAS.ti 23.0 program to develop data categories.
Results: A care model for sarcopenic obesity in older adults was developed. The findings describe the approach used in implementing a participatory action research method for behavior transformation in older adults. Health awareness and sarcopenic obesity literacy were the important issues for behavior change.
Conclusion: This study presents the behavior change process, transformative learning was employed which facilitated individual internal changes. This approach helps individuals understand interconnected factors through personal experiences, leading to a profound understanding and readiness to listen, deeply transform, and sustain continuous and meaningful behavioral changes.

P-34

Association of Traditional Japanese diet score with disability survival and disability-adjusted life years - an international open data longitudinal study

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Background: Disability-adjusted life years (DALY), and years of life lived with disability (YLD) are public health indicators. Japan has one of the highest healthy life expectancies in the world, and Japanese diet may contribute to it. We developed the Traditional Japanese diet Score (TJDS) and reported the usefulness of it in analysis of international data.

Objectives: To clarify the relationship between the TJDS and YLD/DALY.

Methods: Food characteristic of Japanese food (rice, fish, soybeans, vegetables, and eggs) and relatively underused food (wheat, milk, and red meat) were scored by country of supply in 3 quartiles (total -8 to 8 points). Foods and total energy supply were obtained from the Food and Agriculture Organization of the United Nations database, and YLD/DALY were obtained from the Global Burden of Disease Study (GBD) 2021. GDP and aging rate were obtained from the World Bank database, and years of education, smoking rate, physical activity, and obesity rate were obtained from GBD2021 and used as covariates. Longitudinal analyses were conducted in linear mixed models with YLD/DALY from 2010 to 2021 for 144 countries with populations of 1 million or more, using YLD/DALY as dependent variables and 2010 TJDS as independent variables.

Results: The fixed effects (SE) of the TJDS and YLD and DALY were YLD -88.750 (23.807, P<0.001) and DALY -1018.464 (331.626, p<0.01). The TJDS was thought to potentially reduce the duration of living with disability and premature aging.

Conclusion: International data suggest that Japanese diet may contribute to shortening YLD and DALY.

P-35

Analysis of Japanese Diabetes Management Approaches and Muscle/Bone Indices

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Background: As the life expectancy of people with diabetes increases, treatment strategies aimed at prolonging healthy life expectancy are becoming essential. In Japan, the concept of "Glycemic Targets for Elderly Patients with Diabetes" is commonly applied, where older patients are categorized into three groups based on their condition, with specific HbA1c targets set for each group. Given the high prevalence of sarcopenia and frailty among patients with diabetes, we analyzed the association between these categories and muscle and bone indices to clarify the usefulness of this classification as a screening tool for muscle and bone health

Objectives: This analysis included diabetic patients who visited the department between June 2023 and July 2024 and underwent bone mineral density testing using the DXA method. A total of 77 patients (50 men and 27 women, mean age = 78.1 years) were studied. The patients were categorized as follows: Category I (43 cases), independent; Category II (24 cases), intermediate; and Category III (10 cases), not independent. The association between these categories and skeletal muscle mass index (SMI) and bone density (femur) was analyzed using the Jonckheere-Terpstra test.

Results: As the category worsened, i.e., as daily function decreased, SMI showed a decreasing trend (p for trend [p trend] = 0.049) and bone mineral density also decreased (p trend = 0.026).

Conclusion: The categorization could be useful for screening sarcopenia and frailty, as it is associated with reduced muscle and bone indices. In advanced categories, interventions targeting muscle and bone should be considered.

P-36

Inpatient Rehabilitation Transforms Geriatric Male with Severe Frailty and Depression

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Background: This case report demonstrates the transformative impact of inpatient rehabilitation on addressing health challenges in geriatric males. Recent research highlights the strong association between frailty and depression, affecting their quality of life, making multidisciplinary interventions crucial for achieving successful outcomes.

Objectives: A 72-year-old male inpatient with recurrent pneumonia and geriatric syndrome (immobilization, infection, sarcopenia, frailty, and depression) presented with a de Morton Mobility Index (DEMMI) score of 0, bilateral broncho-pneumonia on thorax X-ray, possible sarcopenia (AWGSOP score 8, SARC-F score 8), Clinical Frailty Scale score of 7, and Geriatric Depression Scale (GDS) score of 11.

Methods: The patient underwent cardiopulmonary endurance training with twice-daily arm ergometer cycling starting from 15 minutes at 0 watts and 30-40 RPM, gradually increasing. Psychological support included Cognitive Behavioural Therapy (CBT), alongside mobilization exercises.

Results: After 2 weeks of rehabilitation, the patient's mobility improved (DEMMI score increased from 0 to 8), no worsening of bronchopneumonia, frailty, or sarcopenia, and GDS improved from 11 to 8.

Conclusion: Sarcopenia affects geriatric mobility by reducing musclestrength, balance, coordination, and endurance, leading to decreased activity and increased immobility, and frailty. Physical limitations and depression reduce the quality of life in the elderly. Comprehensive rehabilitation, including aerobic exercise with CBT, improves mood and emotional well-being. This supports full participation in rehabilitation programs, enhances frailty and sarcopenia, and promotes mobility. Thus, multidisciplinary approaches are crucial in managing complex geriatric conditions effectively.

P-37

Effective Nutritional therapy for sarcopenia: protocol for a systematic review

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Background: With an ageing population worldwide, the prevention and improvement of sarcopenia, an age-related loss of muscle mass, low muscle strength, and/or low physical performance, is an important public health issue. One of the effective strategies to contrast sarcopenia is nutritional therapy. Several systematic reviews have reported nutrient-supplemented interventions for sarcopenia, but the results are not sufficient to recommend specific nutritional components. One of the reasons for these inconsistent results is that the intake of energy and protein, which are important factors in nutritional therapy for sarcopenia, has not been assessed.

Objectives: To develop a review protocol for a systematic review of studies examining nutritional therapy for sarcopenia, including the assessment of energy and protein intake.

Methods: We created a search formula using the words “sarcopenia,” “nutrition therapy,” and “study design” to systematically search by three databases (PubMed/Medline, Web of Science, and ProQuest), and determined the inclusion and exclusion criteria. We will evaluate the study quality using the Risk of Bias Tool 2 for RCTs and RoBANS for other studies. We will extract the characteristics of participants and study design, intake of protein and energy, and the methods and value for the indicator of sarcopenia diagnosis.

Results: The protocol was registered in the PROSPERO International Prospective Register of Systematic Reviews, No: CRD42024566421

Conclusion: Identifying studies that have examined nutritional therapy for sarcopenia, including energy and protein intake, and interpreting their results will hopefully assist in the development of future sarcopenia guidelines.

P-38

Decrease of ankle joint angular velocity during gait is associated with future falls in community-dwelling older adults

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Background: Falls frequently occur among frailty older adults. Previous studies with kinematic gait analyses of older adults with a history of falls revealed a decreased hip extension angle and peak ankle plantar flexion moment among this population.
Objectives: We aimed to analyze ankle movement during the gait cycle of community-dwelling older adults and identify the gait characteristics of those with a high risk of falling.
Methods: A total of 162 community-dwelling older adults (19 in the fall group and 143, non-fall group) participated in a 1-year prospective fall survey. Through propensity score matching, nine from each group were selected. This study was approved by the university ethics committee. The participants walked at a comfortable speed on a 10-m flat walkway and were recorded from the sagittal plane using a digital video camera. The video analysis software calculated step length, stride length, walking speed, timing, and ankle joint angle during each gait cycle phase: initial contact (IC), loading response (LR), mid-stance (MSt), heel-off (HO), pre-swing (PSw), toe-off (TO), mid-swing (MSw), and terminal swing (TSw). Ankle joint angular velocity was calculated. A paired t-test was used to compare the groups after propensity score matching ($p<0.05$).
Results: In the fall group, three participants were frailty and two were pre-frailty, whereas the non-fall group had no frailty participants. No significant differences were found in the step length, stride length, or walking speed between both groups. Significant differences were found in the ankle joint angle during TO and MSw and in the ankle joint angular velocity during HO-PSw, PSw-TO, TO-MSw, and MSw-TSw.
Conclusion: Older adults who fell within the following year had decreased ankle angular velocity from the TSw to the MSw and delayed ankle dorsiflexion during the swing phase.

P-39

Muscle mass and muscle quality assessment using a new ultrasound device for muscle measurement and its relationship to physical function.

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Background: Ultrasound-based methods for assessing muscle mass and quality are not yet standard.
Objectives: To investigate the relationship between quadriceps muscle cross-sectional area and echo intensity measured using a new ultrasound measuring device and physical function.
Methods: The cross-sectional area and echo intensity of the quadriceps muscle were measured using a new ultrasound device newly developed by Furuno Electric Co. Muscle strength (grip strength, knee extension strength) and motor function (walking speed, Sit to Stand-five test (SS-5) , SPPB, Timed Up and Go test, one-leg standing time, two-step test) were measured to assess physical function. The association between ultrasound measurements and physical function was analysed statistically.
Results: Adjusted for gender, age and height, muscle strength, SS-5, TUG test and 2-step test were associated with cross-sectional area, while SS-5 and 2-step test were associated with echo intensity.
Conclusion: In the evaluation using this ultrasound measuring device, an association between physical function and muscle cross-sectional area was found, similar to reports using other methods such as CT. This method can be used to assess muscle mass and quality outside hospitals, and is expected to be used in community health check-ups.

P-42

Intrinsic capacity as prevention and remission factors for frailty: Results from a three-years prospective cohort study

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Background: The WHO introduced the term "intrinsic capacity," a relatively new concept to promote healthy aging.
Objectives: This longitudinal study examined the impact of intrinsic capacity on the prevention and remission of frailty in community-dwelling older adults.
Methods: In total, 286 older adults completed a health check at baseline (in 2019) and three-years follow-up assessments (in 2022). Frailty status was assessed based on the revised Japanese version of the CHS criteria. Intrinsic capacity was applied to the five dimensions (locomotion, vitality, sensory, cognition, and psychological). Each dimension of intrinsic capacity consisted of two items and was assessed using 0–2 points; therefore, the total score was 10 points. Complete capacity was defined as 10 points, and ≤9 points was defined as incomplete capacity.
Results: Of the 277 participants without frailty at baseline, 209 (75.5%) showed stable/remission of frailty status over three years, and 68 (24.5%) were divided into the progress group. Of the 148 participants with pre-frailty and frailty at baseline, 64 (43.2%) showed remission of frailty status over three years, and 84 (56.8%) showed stable/progressive frailty status. Complete intrinsic capacity was not a preventive predictor for progress of frailty status among participants with robust or pre-frailty (adjusted OR 0.57, 95% CI 0.27–1.22), but a promoting factor for remission of frailty status among those with pre-frailty and frailty (adjusted OR 3.08, 95% CI 1.14– 8.32).
Conclusion: Although older adults will become frail, the maintenance of intrinsic capacity may have a positive impact on frailty remission.

P-43

Higher physical function influences higher health-related quality of life: a cross-sectional study of older adults in Ratchaburi Province, Thailand.

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Background: One of the challenges in old age is the decline in physical function due to lack of exercise, which has been noted to reduce health-related quality of life (HRQoL).
Objectives: This study aimed to clarify the association between HRQoL and physical function among people aged ≥ 60 years.
Methods: This study was conducted in the Photharam District, Ratchaburi Province, Thailand. Four physical function measures, hand grip, five-times-sit-to-stand test, timed up-and-go (TUG) test, and one-leg standing, were considered. HRQoL evaluation was assessed using the EuroQoL (EQ-5D-5L). Statistical analysis was performed by regression analysis with HRQoL's as the dependent variable and the four physical functions as independent variables, and standardized partial regression coefficients (β), standard errors (SE) and P values were calculated.
Results: A total of 497 older adults aged ≥ 60 years were enrolled; 82 were males, and 412 (83.5%) were females. The average age was 69 ± 7 years, and 52.9% were in their 60s. The average for EQ-5D-5L was 0.89 ± 0.1. Only TUG test showed an association in multiple regression analysis with four types of physical function adjusted for age, gender and BMI (β:-0.167, SE:0.002, P Value:0.002).
Conclusion: In older adults aged 60 years or older living in rural Thailand, the only physical function associated with HRQoL was TUG. In order to maintain a high HRQoL, it is required to maintain a high level of physical functions such as standing up, walking and changing direction, which are included in TUG test movements.

P-44

Exploring Frailty and Fracture Risk in Polypharmacy Among Older Adults Living in Communities

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Background: Polypharmacy, the use of five or more medications, is common among seniors and raises risks of adverse drug reactions and medication errors, potentially worsening frailty.
Objectives: This study examines the relationship between frailty, fracture risk and polypharmacy, highlighting the need for tailored assessment and management strategies for older adults living in communities.
Methods: Conducted in Taiwan, this study recruited participants from a community care station between January 1, 2022, and December 31, 2022. Assessments included Quantitative Ultrasound for skeletal status, InBody for body composition, comprehensive geriatric evaluations, and FRAX fracture risk estimates. Participants were categorized into polypharmacy and non-polypharmacy groups, with subgroup analysis within the polypharmacy group using Fried's frailty phenotype.
Results: Among 142 participants, 61 were in the polypharmacy group and 81 in the non-polypharmacy group. Frailty phenotypes showed 4.9% robust, 68.3% pre-frail, and 26.8% frail. Polypharmacy participants were older (77.4±8.2 vs 74.0±6.4, p=0.016), had slower walking speed (0.9±0.3 vs 1.0±0.2, p=0.004), and higher frailty prevalence (39.3% vs 17.3%, p=0.010), but no significant fracture risk differences (13.2%±6.4% vs 13.2%±9.5%, p= 0.445). Within the polypharmacy subgroup, robust individuals showed younger age (71.0±1.0 vs 75.5±7.6 vs 81.0±8.2, p=0.017), higher body weight (69.9±9.4 vs 62.0±12.4 vs 56.1±5.8, p=0.023), better cognitive function (MMSE: 29.0±1.7 vs 27.9±1.9 vs 26.0±3.4, p=0.026), however, there were still no significant differences in fracture risk. (8.2%±4.2% vs 10.8%±5.8%, 14.1%±6.4%, p= 0.195).
Conclusion: A holistic approach, addressing medical, physical, and cognitive aspects, should be adopted when managing older adults, particularly those on polypharmacy.

P-45

Uncover the profound influence of the ICOPE framework on frailty among community-dwelling older adults.

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Background: Frailty in older adults is marked by declining physiological reserves. The WHO's Integrated Care for Older People (ICOPE) approach assesses intrinsic capacity. The ICOPE approach is supposed to identify people at risk for care dependency. However, there are few studies on intrinsic capacity impairments to detect people at higher risk of frailty.
Objectives: This study aims to explore the association between the ICOPE assessment items and the prevalence and severity of frailty among older adults living in the community.
Methods: This study was conducted between January 1, 2022, and December 31, 2022, in Taiwan. The assessments of the study included InBody for body composition and FRAX for fracture risk. Functional abilities were evaluated using the ICOPE approach across seven domains. Participants were divided into three frailty groups based on Fried's phenotype, and logistic regression was used to identify factors associated with frailty.
Results: Among 142 participants, the median age was 74.0 years (interquartile range: 70.0-80.0), with 77 females (54.2%) and 65 males (45.8%). 7 of those participants were robust, 97 were pre-frail, and 38 were frail. Significant differences were observed across groups in age, height, weight, skeletal muscle index, ten-year fracture risk, and ICOPE impairments (limited mobility and hearing loss), highlighting their associations with frailty. Significant associations were found with age, skeletal muscle index (SMI), malnutrition, limited mobility, and ICOPE impairment sum scores, with increasing odds ratios indicating a higher risk of frailty.
Conclusion: The study underscores the relationship between aging factors, intrinsic capacity, and frailty. Addressing modifiable risk factors like muscle strength and nutrition can mitigate frailty and promote healthy aging.

P-46

Efficacy home base postoperative hip muscle workout music video program for elderly patient with femoral neck fracture after bipolar hemiarthroplasty

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Background: PT after a femoral neck fracture is essential for recovery but limitations like poor compliance, and incorrect exercise. To improve, we've developed a home-based hip muscle workout program using music therapy and videos. We hypothesize this program will improve functional outcomes compared to standard program.

Methods: An RCT from 2023 to 2024 on elderly patients with cementless bipolar hemiarthroplasty after femoral neck fracture. 30 patients were randomly into two gr. : 15 in the intervention gr. and 15 in the control gr. Both received pre-discharge PT instructions from orthopedic trainee. Functional outcomes were assessed using the HHS from 2 to 12 weeks. Hip strength was measured by handheld dynamometer. Anxiety and pain were assessed using VAS. Compliance was assessed by record table.

Results: Both gr. showed increase in HHS at 2, 6, 12 weeks. The intervention gr. scored 49.4, 65.2,82.3 respectively, while the control gr. scored 39.7, 53.5,67.6, showing significantly higher scores for intervention gr.($p<0.05$). Both increased hip strength in abduction, adduction, flexion, and extension at 12 weeks, with the intervention gr. greater strength ($p<0.05$). Anxiety was lower in the intervention gr. at 6 (2.87 vs 3.47, $p=0.047$) and 12 weeks (1.47 vs 2.27, $p=0.08$). Pain was lower in the intervention gr. at 12 weeks (1.20 vs 1.93, $p=0.007$). Compliance was significantly higher in the intervention gr.

Conclusion: This research shows a home-based hip muscle workout program with music videos significantly improved functional outcomes, hip strength, and compliance. Additionally, it reduced anxiety and postoperative pain effectively.

P-48

Preoperative factors associated with respiratory sarcopenia in esophageal cancer patients undergo esophagectomy

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Background: Though Respiratory Sarcopenia (RS) was proposed in 2023, factors associated with RS have not been identified in esophageal cancer patients undergo esophagectomy.

Objectives: The purpose of this study was to examine preoperative factors associated with RS in esophageal cancer patients undergo esophagectomy.

Methods: This single-center, retrospective, observational study included esophageal cancer patients who underwent esophagectomy between June 2020 and February 2024. The RS was diagnosed when both inspiratory muscle weakness (IMW) and low respiratory muscle mass (RMM) were present. IMW was defined as a maximum inspiratory pressure <80% of the predicted value as measured by respiratory dynamometer. RMM was diaphragm thickness (DT) measured by ultrasound. Low RMM was defined as DT below the lower limit of normal (1.7 mm in male and 1.3 mm in female). The association between RS and factors was examined using a single regression logistic model. Factors examined for association with RS were age, gender, smoking status, comorbidity status, performance status, neoadjuvant therapy, respiratory function, state of nutrition, and sarcopenia.

Results: The study included 70 patients, and 11 (16%) had respiratory sarcopenia. Factors associated with respiratory sarcopenia were performance status (odds ratio [OR], 3.44; 95% CI, 1.21–10.39), neoadjuvant therapy (OR, 7.06; 95% CI, 1.23–133.9), state of nutrition (OR, 0.79; 95% CI, 0.62–1.00), and sarcopenia (OR, 5.21; 95% CI, 1.25–21.74). Other factors were not relevant.

Conclusion: This study highlights that performance status, neoadjuvant therapy, nutritional status, and sarcopenia are significant preoperative predictors of respiratory sarcopenia in esophageal cancer patients undergo esophagectomy.

P-50

Sleep Quality Mediates the Relationship between Subjective Cognitive Decline and Frailty: A Cross-Sectional Study

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Background: Subjective cognitive decline (SCD) and frailty are prevalent in older adults, potentially sharing underlying mechanisms. Sleep quality (SQ) has been associated with both cognitive function and physical health, but its role in the SCD-frailty relationship remains unclear.
Objectives: To investigate whether SQ mediates the association between SCD and frailty in older adults.
Methods: This cross-sectional study included 984 community-dwelling older adults aged ≥65 years (mean age: 72.8±5.1 years; women: 52.3%) without depression, objectively measurable cognitive impairment, or eligibility for long-term nursing care. SCD was assessed using a question from the Geriatric Depression Scale, frailty was assessed using the Kihon Checklist, and SQ was measured using the Pittsburgh Sleep Quality Index. Logistic regression and mediation analysis were adjusted for age, sex, BMI, years of education, quality of life (physical and mental components) and comorbidities (hypertension, cardiovascular diseases and diabetes).
Results: SCD was associated with frailty (direct effect: b = -1.2089, p < 0.001) and SQ (b = -0.0959, p = 0.0038). SQ was significantly associated with frailty (b = 0.7694, p = 0.0007) and mediated the relationship between SCD and frailty (indirect effect: -0.0738, 95% confidence interval: -0.1620 to -0.0134). The total effect of SCD on frailty remained significant when accounting for SQ as a mediator.
Conclusion: Poor SQ may represent one mechanism through which SCD is associated with the probability of frailty. Interventions targeting SQ may mitigate the impact of SCD on frailty in older adults. Future longitudinal studies should investigate the causal relationships among these factors.

P-52

Association between sarcopenia and osteopenia/osteoporosis in Japanese patients with diabetes requiring insulin therapy

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Background: Insulin is an important hormone for bone and muscle maintenance. Osteosarcopenia is the coexistence of osteopenia/osteoporosis (OP) and sarcopenia. Patients with diabetes requiring insulin therapy are at a high risk of OP and sarcopenia. However, the association between OP and sarcopenia in these patients is unclear.
Objectives: This study explored the prevalence of osteosarcopenia and the association between OP and sarcopenia in Japanese patients with diabetes requiring insulin therapy.
Methods: This was a retrospective study of 55 diabetic patients aged ≥ 50 years receiving insulin therapy at Osaka International Medical & Science Center. OP was defined as a lumbar or femoral T-score ≤ -1.0 or being treated for osteoporosis. Sarcopenia was defined by the Asian Working Group for Sarcopenia 2019 recommendations.
Results: Among the 55 patients (mean age, 74.8 ± 8.8 years; 60.0% men; 14.5% type 1 diabetes), the prevalences of OP, sarcopenia, and osteosarcopenia were 52.7%, 40.0%, and 29.1%, respectively. Patients with OP had a significantly shorter disease duration, and lower body mass index, skeletal muscle index, grip strength, and triglyceride levels. They also exhibited less frequent use of GLP-1RA and antihypertensive medications than control patients, and had significantly higher sarcopenia prevalence (55.2% vs. 23.1%). A logistic regression analysis revealed that sarcopenia was independently associated with OP after adjustment for all covariates (odds ratio, 10.07; 95% confidence interval, 1.19, 84.91).
Conclusion: Japanese patients with diabetes requiring insulin therapy have a high prevalence of osteosarcopenia, and sarcopenia is an independent associated factor for OP in these patients.

P-54

Barriers and facilitators towards physical activity in the elderly primary care population in Singapore

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Background: Many older adults have inadequate physical activity (PA) despite the well-established benefits. This study aimed to understand the PA barriers and facilitators in the elderly primary care population in Singapore.
Methods: Older polyclinic patients were purposively selected based on their PA levels. After obtaining written informed consent, they underwent in-depth interviews based on the COM-B-Theoretical Domains Framework and guideline recommendations on aerobic and muscle strengthening activities, from November 2023 to current. Interviews were audio-recorded and transcribed verbatim. Thematic analysis was conducted using NVivo 14 qualitative data analysis software.
Results: Three male and three female participants, aged 62 to 71 years old, were included in this interim analysis. Four and two participants engaged in adequate aerobic and muscle strengthening activities respectively. Findings followed the COM-B themes of capability, opportunity, motivation and behaviour. PA barriers included lack of skills and knowledge to perform the PA at all or at an appropriate level, which may lead to beliefs about the adequacy of their current physical condition and current activity level and PA limitations due to their bodily conditions. Facilitators included PA adaptation to body/lifestyle/environment, PA skills and knowledge, process goal-setting, information literacy, experience of benefits, PA contribution to health goals, will-power, equipment/place for PA, and social support.
Conclusion: Further data collection till data saturation is required to enhance our current findings. Our interim results suggest the importance of targeting the identified barriers in addition to the use of behaviour change techniques based on the identified facilitators to increase PA in this population.

P-55

The Association between Skeletal Muscle Index and Cachexia with Systemic Lupus Erythematosus: A Cross-sectional Study

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Background: Systemic lupus erythematosus (SLE) is caused by inflammatory response and affects changes in body composition. Medications for SLE, mainly glucocorticoid, lead to loss of muscle mass. Patients with SLE are also a risk for cachexia through inflammatory reactions.
Objectives: This study aimed to examine the association between skeletal muscle index (SMI) and cachexia in patients with SLE.
Methods: We conducted a cross-sectional study from November 2022 to July 2023 at Kyoto University Hospital including outpatients with SLE aged 18 years or older. The primary exposure was SMI using bioelectrical impedance analysis by InBody770. The main outcome was cachexia assessed by the Asian Working Group for Cachexia (AWGC) criteria. Participants were divided into 2 groups: those with or without cachexia. We estimated odds ratio using logistic regression model adjusted by age, smoking, drinking, comorbidities, disease duration, medications and SLE disease activity score. This study was approved by Kyoto University Graduate School and Faculty of Medicine Ethics Committee (approval number: R1452).
Results: In total 271 participants, females were 253 (91%) subjects. The mean (standard deviation) SMI was 5.9 (0.7) in females and 7.2 (0.9) in males. The number of cachexia was 61 (24%) in females and 1 (0.06%) in males, respectively. Odds ratio (95% confidence interval) for cachexia per 1-point increase in SMI was 0.41 (0.25 to 0.69) in females.
Conclusion: This study showed high SMI was associated with a lower cachexia prevalence in patients with SLE. Further studies are needed to determine whether interventions for SMI improve cachexia.

P-57

Prevalence of Oral Frailty Using the OF-5 among Dental Outpatients and Its Relationship with Frailty

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Background: In April 2024, Japanese societies released a new assessment method for oral frailty (OF), the Oral Frailty 5-item Checklist (OF-5). This tool was developed based on evidence from studies involving community-dwelling older adults.
Objectives: This study was performed to clarify the prevalence of OF as assessed by the OF-5 and examine the relationship between OF and frailty among dental outpatients.
Methods: We enrolled 239 patients aged ≥40 years (mean age, 72 ± 13 years) who were attending dental clinics for regular checkups. Data were collected on the OF-5, oral functions, the Kihon Checklist, and other relevant factors. The Mann–Whitney U test was used to compare patients with and without OF. Logistic regression analysis was performed with frailty (the Kihon Checklist score of ≥8 points) as the dependent variable. The α level was set at 0.05. This study was approved by the Ethics Committee of Tokyo Dental College (#986) and supported by JSPS KAKENHI (JP20K18835).
Results: The prevalence of OF was 58.2%. The median masticatory efficiency in patients with and without OF was 104 and 172 mg/dL, respectively. There was a significant difference between the two groups. The odds ratio of OF for frailty was 6.40 (95% confidence interval, 2.70–15.15).
Conclusion: This study revealed a high prevalence of OF, possibly due to the increased vulnerability of oral functions in outpatients. We conclude that more than half of outpatients exhibited OF and that they had a higher risk of frailty than patients without OF.

P-58

Association between premenstrual syndrome and bone mass in young women: Perspectives on primary prevention of osteoporosis

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Background: Dysmenorrhea is associated with bone mass; however, the relationship between premenstrual syndrome (PMS) and bone mass remains unclear. The applicability of the Premenstrual Symptoms Questionnaire (PSQ), which screens for PMS, in healthy young women is controversial.
Objectives: To examine the association between PMS and bone mass in young women, we used the existing reorganized criteria.
Methods: A total of 395 female university students (20±1 years) were assessed for PMS severity using the PSQ. Bone mass was measured using an ultrasonic bone densitometer (FUJIJILM). Bone mass was used as the objective variable, and the PSQ three- (PSQoriginal) or four-point scale (PSQmodify) with reorganized severity levels was used as the explanatory variable in quantification I analysis.
Results: In PSQoriginal, 11 participants had severe disease, 38 participants had moderate-to-severe disease, and 343 participants had mild-to-no disease. In PSQmodify, 49, 59, 60, and 224 participants had levels 4, 3, 2, and 1, respectively, in descending order from severe to moderate disease. In PSQoriginal, mild-to-no disease ($\beta=0.24$, $p<0.05$) was significantly positively associated with bone mass than severe disease. In PSQmodify, level 1 ($\beta=0.21$, $p<0.01$) was significantly positively associated with bone mass compared with level 4.
Conclusion: These results indicated that mild PMS may affect bone mass in young women. Conversely, most women with PMSoriginal are classified as having mild PMS. Therefore, reorganization of the screening criteria for women with mild PMS at a young age may contribute to the primary prevention of osteoporosis.

P-59

Can Virtual Reality Technology Be Utilized For The Management of Sarcopenia? A Systematic Review and Meta-analysis

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Background: Sarcopenia is one of the health problems in the elderly that increases vulnerability to stressors. Virtual Reality (VR) technology has been utilized very widely in the elderly, but there are almost no published journals about VR on sarcopenia in the elderly.
Objectives: The study aims to analyze VR training similar effects compared to conventional training to support strength, performance, or muscle mass in elderly.
Methods: The researches were conducted in 4 databases EBSCO, MDPI, PUBMED, and SCOPUS, limited to VR training research in the population ≥ 60 years compared to conventional training, study design only RCTs. 81 registers were obtained. After machine selection and full-text review, 22 eligible data were obtained.
Results: 19 studies included gait speed (GS) as one of the outcomes and 6 studies included handgrip strength (HGS). 2 studies used muscle mass. Eggar test found, no studies bias. The random effect model of GS : p = 0.7193 and 95% CI: -0.1175 to 0.0811; HGS: p = 0.1388 with 95% CI: -0.4296 to 3.0812.
Conclusion: VR presents a virtual environment that is created with conditions tailored to training goals. During the training session, the subjects receive real-time feedback on posture, GS, or hand tracking. VR gamification increases training motivation through fun. The other mechanism involves mirror motor neuron system, which enables the brain to mentally imitate the movements. There is no significant difference between VR training compared to conventional training, so VR training will probably be used as an alternative to sarcopenia training.

P-60

The Relationship between Vitamin D and Total Cholesterol in the Frailty Incident of Elderly Patients in Elderly Community in Semarang

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Background: Vitamin D deficiency has reached a global epidemic, data relates low vitamin D to high cholesterol levels. Vitamin D involvement is often associated with frailty incidence in the elderly.
Objectives: This study aims to determine the relationship between vitamin D and total cholesterol in frailty incidence among elderly patients.
Methods: A cross sectional study in a community in Semarang, involve 92 elderly, vitamin D limits (normal ≥30ng/mL, low <30ng/mL). Total cholesterol is high ≥200 mg/dL, normal <200mg/dL. Frailty assessment used the FRAIL questionnaire.
Results: 92 subjects with average age of 64.7 years (60 – 81 years). The average vitamin D level was 22.8ng/mL, low vitamin D category (73 patients) with 41.1% Frailty, normal vitamin D category (19 subjects) with 10.5% Frailty. Chi square test of vitamin D category with Frailty p 0.026, prevalence ratio test 3.904, 95%CI 1.023-14.901. The Frailty incidence with high cholesterol was 39.2%, normal cholesterol was 16.7%, prevalence ratio was 2.351, 95%CI 0.806-6.864. The multivariate analysis results with logistic regression showed OR = 6.1; 95%CI = 1.3 - 28.8.
Conclusion: The elderly with low vitamin D category have 3.9x risk of experiencing Frailty compared to elderly with normal Vitamin D. From the results of cholesterol analysis, high cholesterol does not significantly increase the risk of frailty. The results of multivariate analysis acquire data that by considering total cholesterol, it was confirmed that low vitamin D was a risk factor for Frailty incidents of 6.1x compared to normal vitamin D.

P-61

Exploring the Relationship Between Subjective Life Expectancy and Sarcopenia in the Oldest Old

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Background: Subjective Life Expectancy (SLE) is strongly linked to physical, cognitive function, and actual lifespan, while sarcopenia correlates with increased mortality; however, its relationship between sarcopenia and SLE in the super-aged is unclear.

Objectives: This study aims to investigate the relationship between sarcopenia and SLE in the oldest old.

Methods: Data were from a subsample of the Taiwan Longitudinal Study for Health and Longevity (TLSHO) using convenience sampling. SLE was categorized into two groups: the Confident Group (CG), who expected to live beyond one year, and the Uncertain Group (UG). Sarcopenia was defined according to the AWGS (Asia Working Group for Sarcopenia) 2019 criteria. Muscle strength was measured by grip strength, and physical performance was assessed via the 5-time chair stand and 6-meter walk tests. Appendicular skeletal muscle mass (ASM) was assessed by Bioelectrical Impedance Analysis (BIA). Logistic regression was used to examine the relationship between sarcopenia and SLE, with significance set at $p<0.05$.

Results: A total of 339 healthy adults aged 80 and above were enrolled. Those confident of living beyond a year were more likely to be male, better educated, and married. The CG showed faster gait speed (1.33 ± 0.30 vs. 1.26 ± 0.29) and a lower prevalence of sarcopenia. ASMI meeting AWGS criteria was linked to a 1.98-year reduction in SLE, and meeting AWGS criteria for the 5-time chair stand test was associated with a 2.39-year decrease in SLE.

Conclusion: Sarcopenia is correlated with SLE. Furthermore, muscle mass and muscle physical performance were positively correlated with SLE of those who could clearly state their expected years of living.

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Oral hypofunction is not related to trunk muscle characteristics in healthy older adults

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Background: Aging causes deterioration in muscle mass including trunk muscle, which leads to sarcopenia. It also increases the risk of oral hypofunction. Ultrasound is a useful screening tool to examine trunk muscle characteristics. Previous studies reveal that oral function is related to trunk mass. However, there are few studies about the relationship between oral hypofunction and trunk muscle.

Objectives: This research investigated the relationship between oral hypofunction and trunk muscle characteristics.

Methods: We recruited 123 healthy community-dwelling older adults aged ≥ 60 years old. Basic data were collected. Seven oral hypofunction diagnostic criteria were measured: oral hygiene, dryness, occlusal force, tongue-lip motor function, tongue pressure, masticatory, and swallowing functions. Participants with 3 or more affected items were diagnosed with oral hypofunction. Trunk muscle quantity, quality, and stiffness were assessed using ultrasound devices. Mann-Whitney U test and binary logistic regression were performed to examine the relationship between trunk muscle and the presence of oral hypofunction.

Results: Among the participants (59 men and 64 women), 29 had oral hypofunction (14 men and 15 women). Mann Whitney-U test shows that those with oral hypofunction had a significantly higher mean age (78.8 ± 6.2 years, $p= 0.028$), but did not show differences in trunk muscle quantity, quality, and stiffness. Binary logistic regression analysis also revealed no differences in trunk muscle characteristics between the 2 groups.

Conclusion: Oral hypofunction relates to age but does not relate to trunk muscle characteristics in healthy older adults. Oral hypofunction consists of 7 functions and may progress independently of changes in trunk muscle characteristics.

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Older individuals diagnosed with Oral Hypofunction have stiff perioral muscles

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Background: Oral Hypofunction (OH) is a condition that compromises oral function, negatively impacting older adults' physical and mental health. The association between OH and perioral muscle characteristics remains unclear.
Objectives: This study focuses on the masseter muscle, a masticatory muscle, and the suprahyoid muscles, associated with swallowing. We investigated the relationship between OH and the characteristics of perioral muscles.
Methods: We enrolled 122 healthy older adults (58 males, mean age 76.5 ± 6.8 years) from community surveys. Basic information and dental records were obtained. Seven diagnostic criteria of OH were measured: oral hygiene, dryness, occlusal force, tongue-lip motor function, tongue pressure, masticatory, and swallowing functions. Participants with three or more items below the reference value were diagnosed with OH. Muscle thickness, intensity, and stiffness of the masseter, geniohyoid were measured by ultrasonography. Statistical comparisons and binomial logistic regression analysis were performed.
Results: Among the subjects, 29 had OH (15 men; mean age 78.8 ± 6.2 years). The presence of OH showed significant differences were in the intensity of masseter muscle and the stiffness of geniohyoid muscle. Binomial logistic regression analysis showed that OH was significantly associated with geniohyoid muscle stiffness (OR, 1.91; 95% CI, 1.14-3.18; p=0.013).
Conclusion: The results showed that only geniohyoid muscle stiffness was associated with OH. Those with OH had stiffer geniohyoid muscles. The OH test items were more related to swallowing muscles than masticatory, indicating the geniohyoid stiffness as a useful indicator of OH.

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Relationship between Falls and Quadriceps Computed Tomography Values

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Background: Muscle computed tomography (CT) values may be related to the qualitative properties of the muscles; however, no reports have discussed their relationship with falls.
Objectives: This study aimed to determine the relationship between CT values of individual quadriceps muscles and falls.
Methods: A total of 541 participants (mean age; 77.3±7.0 years, 329 women) were classified into two groups using the Kihon checklist: those with (192 cases) and without (348 cases) falls in the previous year. CT scans of the right mid-thigh were performed to determine the CT values of the rectus femoris (RF), vastus medialis (VM), vastus lateralis (VL), and vastus intermedius (VI). The dependent variable was the presence or absence of falls, and the explanatory variables were the CT values of the muscles and age. These variables were analyzed for each sex using logistic regression analysis.
Results: In women, no significant factors, including age, were associated with falls in any of the four muscles. In men, the CT value of the VI was an important factor associated with falls (odds ratio; 0.941, 95% confidence interval; 0.889–0.996). The ROC curve showed that the cutoff CT value of VI was 51.19 (sensitivity; 0.6, specificity; 0.6, area under the ROC curve; 0.6).
Conclusion: The VI has been reported to serve as a stabilizer of the knee joint in coordination with the biceps femoris muscle, suggesting that the CT value of the VI is a factor associated with falls in men.

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The Impact of a 12-Week Gunkang Taekwondo Program on Cognitive and Physical Health in Older Adults with Mild Cognitive Impairment: A Randomized Controlled Trial

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Background: The global shift towards an aging population presents significant challenges, particularly concerning cognitive health deterioration, which strains public health systems. This issue is pronounced in South Korea due to socio-economic changes and the increasing prevalence of Mild Cognitive Impairment, raising the risk of severe dementias like Alzheimer's Disease.

Objectives: The study aims to explore effective prevention and management strategies for cognitive impairments, focusing on the potential of exercise, particularly Taekwondo, to improve cognitive and physical health in older adults.

Methods: A 12-week randomized controlled trial using the Senior Taekwondo program (Gunkang Poomsae) was conducted, with participants exercising three times a week for 30 minutes per session. Pre- and post-intervention assessments were conducted to compare the outcomes.

Results: This study showed significant improvements in both cognitive function (Korean Version of the Montreal Cognitive Assessment total score [$F(1,44) = 32.689$, $p < 0.001$]; executive function and visuospatial skills [$F(1,44) = 12.228$, $p < 0.01$]; language [$F(1,44) = 12.871$, $p < 0.01$]) and physical function (Short Physical Performance Battery total score [$F(1,44) = 21.776$, $p < 0.001$]; balance [$F(1,44) = 7.843$, $p < 0.01$]; 5 chair-stand test [$F(1,44) = 5.193$, $p < 0.05$]; 4m gait time [$F(1,44) = 4.79$, $p < 0.05$]; 4m gait speed [$F(1,44) = 4.115$, $p < 0.05$]), all statistically significant.

Conclusion: The study demonstrates that the Senior Taekwondo program offers significant cognitive and physical benefits for older adults with MCI. These findings support integrating Taekwondo into health promotion programs for older adults to enhance health outcomes and quality of life in community and clinical settings.

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The relationship between baseline oral function and onset of sarcopenia at one year follow-up

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Background: Although oral function has been reported to be associated with sarcopenia, the longitudinal relationship has not been clarified.

Objectives: To determine whether baseline oral function is associated with the onset of sarcopenia one year later.

Methods: Two measurements were taken on subjects aged 65 years or older: once at baseline and once at follow-up approximately one year later. Subjects were excluded if they had sarcopenia at the baseline measurement or had major changes in their general condition by the follow-up measurement. Sarcopenia was determined based on AWGS2019, and oral function (oral moisture, oral hygiene, maximum occlusal force, tongue pressure, oral motor function, masticatory function, and swallowing function) was judged as normal or decreased according to the criteria of the Japanese Society of Gerodontology. Fisher's exact probability test was conducted with the presence of sarcopenia/severe sarcopenia as the objective variable and judgment of each oral function as the explanatory variable. The significance level was set at 0.05. This study has been ethically reviewed.

Results: Six of 127 participants who completed two measurements, developed sarcopenia/severe sarcopenia. Fisher's exact probability tests revealed that oral moisture ($p=0.01$) and oral motor function ($p=0.03$) were significant factors in the onset of sarcopenia.

Conclusion: In this study, univariate analysis was performed because only six patients had the onset of sarcopenia. Therefore, although oral moisture and oral motor function were significant variables, the possibility of other confounding factors cannot be discounted. Further research is required to clarify the detailed relationships.

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The association between dietary variety and oral function in older adults

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Background: With an aging population, the dietary habits of older adults are receiving increasing attention. Reduced dietary variety has been associated with frailty, sarcopenia, cognitive decline, and malnutrition, highlighting the need to maintain a diverse diet. While factors such as fewer teeth and malfunctioning prostheses are known to reduce the number of foods available for intake, the role of oral function has been less studied.

Objectives: This study aimed to clarify the relationship between comprehensive oral function and the number of foods available for intake.

Methods: Participants aged 65 or older were included. Dietary variety was assessed using the Food Acceptance Score (FAS). The oral function was evaluated based on seven criteria defined by the Japanese Society of Gerodontology, categorizing normal or decreased. Multiple regression analysis was conducted using the forced entry method, with FAS as the dependent variable and oral functions and other factors as independent variables. The significance level was set at 0.05 using JMP17.0 statistical software. This study has been ethically reviewed.

Results: Out of 201 participants, 200 were analyzed (86 males, 114 females, median age 74). Significant oral functions affecting FAS included masticatory function, tongue pressure, and swallowing function. In addition, the number of functional teeth and oral-related quality of life were significantly associated.

Conclusion: The study indicates that oral functions such as tongue pressure, masticatory function, and swallowing function significantly affect the number of foods available for intake, regardless of the number of functional teeth and subjective factors.

P-70

The relationship between frailty at baseline and the decline in oral function at one year follow-up

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Background: Although oral hypofunction is widely recognized, the associated factors that tend to worsen oral function have not been adequately studied.

Objectives: To determine whether factors, including frailty at baseline, are associated with deterioration in oral function at one year.

Methods: Patients aged 65 years and older underwent baseline and follow-up assessments about one year apart. The assessments included age, oral function (oral moisture, oral hygiene, maximum bite force, tongue pressure, oral motor function, masticatory function, and swallowing function), frailty (as determined by the J-CHS criteria), number of functional teeth, and residential status (living alone/residing together). Each item of oral function was judged as normal/degraded according to the criteria of the Japanese Society of Gerodontology. Multiple regression analysis was conducted using the forced entry method, with the objective variable being the increase in the number of items of decreased oral function at follow-up, and the explanatory variables being frailty at baseline, the number of items corresponding to decreased oral function, and other factors. The significance level was set at 0.05. This study has been ethically reviewed.

Results: Measurements were finally taken in 147 participants. Significant factors for increased oral hypofunction at follow-up included the number of items with baseline oral hypofunction ($p<0.001$), the number of functional teeth ($p=0.04$), and frailty ($p=0.002$).

Conclusion: In addition to functional and morphological oral factors, general frailty was associated with the increase in the number of items of decreased oral function at one year. In addition to functional and morphological oral factors, general frailty was associated with the increase in the number of items of decreased oral function at one year.

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Electric appliance usage in four seasons and frailty in rural and urban

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Background: In-house activities were reported to possibly be associated with frailty. However, the associations were inconsistent because of imprecise measurements of in-house activities including recall bias, short-term measurements, and poor adherences to wearing internet of things (IoT) devices. This problem can be solved by monitoring electric appliances (EA) usage with a single sensor in power distribution board.

Objectives: To investigate the association between EA (e.g. TV, air conditioner, microwave oven) usage and frailty in two regions (urban/rural) during four seasons (spring/summer/autumn/winter).

Methods: Participants of this cross-sectional study were older adults living alone in two regions. EA usage was measured by a single sensor, and every minute at all-day usage was measured more than 365 days, which were conducted between 2022 and 2024. Frailty was defined by Kihon Checklist physical sub-category (score ranged from 0 [robust] to 5 [high-frailty]) ≥3. Modified Poisson regression analyses were performed to estimate risk ratio (RR) of frailty by each EA usage with 95% confidence interval (95%CI), adjusted for age, sex, education years, sleep time, and depression.

Results: Sixty-two participants (mean age, standard deviation: 77.5 [7.40], female: 41 [66.1%]) were analyzed. Likelihood of being frailty were associated with longer time for TV usage in urban (RR [95%CI]: 1.09 [1.02-1.17] in spring; 1.07 [1.00-1.14] in summer; 1.09 [1.01-1.17] in autumn; 1.07 [1.00-1.15] in winter) and for air conditioner usage in rural (RR [95% CI]: 1.14 [1.04-1.25] in spring; 1.27 [1.13-1.44] in winter).

Conclusion: Monitoring of EA usage for frailty would be important, and to consider the regions and seasons would be necessary.

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Attitudes of Frail Older Adults and their Caregivers towards Medications in Singapore: a Qualitative Study

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Background: Polypharmacy is strongly correlated with frailty but there is a paucity of studies on the attitudes and experiences of frail older adults and their carers towards their medications.

Methods: A qualitative study design with a thematic analysis was utilized. Face-to-face interviews were conducted from May to November 2023, with frail hospitalised patients and caregivers. Data were analyzed using Braun and Clarke's thematic analysis which examined knowledge, attitudes, perceived "value" and factors associated with adherence and non-adherence to medications.

Results: A total of 10 patients (median age 74.3) and 11 caregivers (median age 56.0) were interviewed. We found that our patients fell into 3 main categories: those who were compliant and willing to take medications, those compliant but unwilling to take medications and those who were both non-compliant and unwilling to take medications. Amongst frail older patients who were both compliant and willing to take their medications, common themes reported included the reliance on a dedicated caregiver, and a belief that medications contributed to their general health and wellbeing. Conversely, common themes stated by patients non-compliant to medications included a lack of perceived benefit in their medications, and unexplained aversion towards medications that their caregiver did not seek to elucidate. All frail patients (regardless of compliance) expressed that they were on multiple pills but did not know what these medications were for, and that they trusted medical professionals to prescribe medications in their best interests, without seeking to know the benefits and/or risks of such medications.

Conclusion: Autonomy and knowledge of medications was lacking but trust in healthcare professionals and belief in the benefit of medications were associated with medication adherence. Frail patients may require stronger social support to manage their medications, particularly those without a caregiver.

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Prevalence and overlap of sarcopenia, frailty, cachexia in patients with SLE; from the Kyoto Lupus Cohort study

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Background: Systemic lupus erythematosus (SLE) is an autoimmune disease with diverse clinical manifestations affecting multiple organs and systems. Patients with SLE may have a higher risk for sarcopenia, frailty, and cachexia due to debilitating inflammation and concomitant treatments such as glucocorticoids.
Objectives: This study aimed to assess the prevalence and overlap of these syndromes in SLE patients.
Methods: The participants were 271 SLE patients who visited Kyoto University Hospital between November 2022 and July 2023. Sarcopenia was defined by the diagnostic algorithm of the Asian Working Group for Sarcopenia (AWGS), frailty was defined by the Japanese Frailty Criteria (J-CHS), and cachexia was defined by the Cachexia Diagnostic Criteria (AWGC 2023). The prevalence and overlap of these syndromes were calculated.
Results: The median age of the 271 participants was 50 years (41, 58), and the majority were women (93.4%). The prevalence of sarcopenia was 11.4%, and malnutrition and chronic renal failure were identified as associated factors. The prevalence of frailty was 19.6%, and malnutrition was an associated factor. Cachexia was prevalent in 22.9%, and malnutrition and disease duration were identified as associated factors. There were 14 patients (5.17%) with overlapping sarcopenia, frailty, and cachexia. In 5.90 % of patients sarcopenia and frailty occurred concurrently; in 8.49 % frailty and cachexia; in 11.1% sarcopenia and cachexia.
Conclusion: One-third of SLE patients had at least one condition. These condition partially overlapped and were interrelated. Future longitudinal studies are needed to elucidate the impact of singular and overlapping conditions on disease activity and daily life.

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Correlation between Vitamin D level, Handgrip Strength, Falls Incidence and Frailty Status In the community-dwelling elderly At Semarang, Indonesia.

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Background: Older adults are more likely to have lower vitamin D levels, which makes them more vulnerable, especially for those who are in a pre-frail and frail state. Multifactorial components have been identified, and studying how they interact may promote healthier aging.
Objectives: This study aimed to look at the relationship between vitamin D levels, hand grip strength, fall incidence, and frailty status in the community.
Methods: A cross-sectional study was conducted in March 2023 at a community-dwelling elderly in Semarang, Indonesia with subjects aged ≥60 years. The serum vitamin D level (25(OH)D) was determined with ELISA. A digital handgrip dynamometer by Camry was used to measure handgrip strength. Modified Fried Frailty (Indonesian version) was used to determine the status of frailty. The incidence of falls over six months was recorded.
Results: We obtained 92 participants, 52% of them were female. Low vitamin D levels were reported in 79% of subjects, with a median level of 21.5 ng/mL. Frailty status was correlated with vitamin D levels (p=0.014, OR 5,93, 95% CI 1,274-27,595) and handgrip strength (p=0.005 OR 4,097 95% CI 1,622-10,354).
Conclusion: Low vitamin D levels are significantly associated with pre-frail, but not with falls or handgrip strength. As a cell differentiating and antiproliferative factor, vitamin D affects the immunological system, cardiovascular system, and kidneys, all of which contribute to pre-frail conditions. Furthermore, a correlation was seen between handgrip strength and pre-frail. Frailty is seen more likely as muscle strength declines, measured with handgrip strength.

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Association between phase angle and inflammation in community-dwelling older adults: the Itabashi longitudinal study on aging

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Background: Bioelectrical impedance analysis-derived phase angle (PhA) would reflect disruptions of cell membrane intra- and extra-cellular fluid imbalances caused by chronic inflammation.
Objectives: To examine the association between PhA and inflammatory blood biomarkers in community-dwelling older Japanese adults.
Methods: A sex-stratified multivariate logistic regression analysis adjusted for age, overweightness, and history of non-communicable diseases was conducted, with abnormal C-reactive protein (CRP; ≥3.0 mg/L) and interleukin-6 (IL-6; >4.0 pg/mL) levels as the outcomes and whole-body and local PhAs as the exposures. The model's ability to identify inflammation in the whole-body and local PhAs was assessed using a receiver operating characteristic (ROC) curve.
Results: This study included 1,664 participants (age 76 [73–80] years; 855 women). In men, the multivariate odds ratios (ORs) at the 95% confidence interval (95% CI) for abnormal CRP levels in the third quartile were lower compared to the first quartile for both whole-body (OR: 0.36; 95% CI: 0.14, 0.83) and leg (OR: 0.34; 95% CI: 0.14, 0.78) PhAs. A similar association was found for IL-6 in whole-body (OR: 0.24; 95% CI: 0.03, 0.95) and leg (OR: 0.10; 95% CI: 0.01, 0.60) PhAs. The areas under the ROC curves for identifying abnormal IL-6 were 0.61 (95% CI: 0.49, 0.74) for whole-body and 0.64 (95% CI: 0.52, 0.77) for leg PhAs in men. In women, neither PhA was significantly associated with these inflammatory markers.
Conclusion: PhA is associated with inflammation in community-dwelling older men; however, it may be difficult to screen for inflammation based on PhA alone.

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Risk preference is associated with oral function in older adults

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Background: The decline of oral function such as occlusal force is associated with frailty and sarcopenia. This may be due to people's decision making. The behavioral economic characteristics such as risk preference have been reported to influence individual's health related decision-making. For example, people who take risks tend to smoke, and have an unhealthy diet. Such kind of traits may also be associated with oral function. However, the relationship between risk tendency and oral functions is unclear in the aged population.
Objectives: To investigate the relationship between risk tendency and occlusal force, masseter muscle characteristics among older adults.
Methods: The study targeted 72 community dwelling older adults. A questionnaire survey was conducted to collect basic information and an assessment of behavioral economic characteristics. Occlusal force, masseter muscle thickness (MMT), masseter muscle echo intensity (MMEI), and skeletal muscle mass index (SMI) were measured. The relationship between occlusal force, MMT, MMEI, SMI, and behavioral economic characteristics were examined using multiple regression analysis.
Results: There was a significant positive association between risk tendency and occlusal force, and people who tend to take risks had higher occlusal force (p=0.027, B (95%CI)=-123.852 (-233.346- -14.357)). There were no association between risk tendency and MMT, MMEI, SMI.
Conclusion: Risk tendency was related to muscle strength, which can increase in a shorter time, but not to muscle mass or muscle properties. From this result, risk preference may be associated with frailty, but not with sarcopenia. Therefore, risk preference may be one indicator of oral function.

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Identification of Sarcopenia with Bioelectrical Impedance Analysis, Dual Energy X-ray Absorptiometry and Magnetic Resonance Imaging in an Older Malaysian Population

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Background: Bioelectrical impedance analysis (BIA) is now widely used to screen for sarcopenia, though concerns remain for its accuracy. The accuracy of BIA measurements may, however, have improved with technological advancements.

Objectives: To compare muscle mass measurements obtained with BIA, dual energy x-ray absorptiometry (DXA) and magnetic resonance imaging (MRI).

Methods: 604 community-dwelling residents, aged ≥60 years, of the Klang Valley of Malaysia were recruited. All participants had anthropometric and BIA assessments, 72 participants have MRI, and 27 had DXA scans. Muscle percentage was estimated with BIA. Appendicular skeletal muscle (ASM) was determined with DXA. The cross-sectional area at 50% femoral length (CSAF) and volume of the middle third of the thigh (VMTT) were obtained through MRI segmentation.

Results: BIA measurements were moderately correlated with DXA (r= 0.459). Weak to moderate correlation was observed between BIA and MRI segmented muscle (r CSAF= 0.343, r VMTT= 0.373). % Muscle was moderately correlated with muscle-to-fat ratio (MFR) in MRI (r CSAF= 0.492, r VMTT= 0.504). DXA measurement were strongly correlated with muscle segments on MRI (r CSAF= 0.726, r VMTT= 0.796).

Conclusion: Using the assumption that MRI measurements are considered the gold standard, DXA muscle mass measurements had better accuracy. However, as MRI is both expensive and time consuming, and DXA scans are only available in larger centers, BIA measurements may have a role in community-based and low resource settings. The measurements obtained through BIA will need to be interpreted with clinical judgement, with further imaging with DXA or MRI performed when necessary.

P-79

Treatment responsiveness of muscle architecture and composition markers assessed by ultrasound imaging: a systematic review and meta-analysis

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Background: Muscle architecture (pennation angle and fascicle length) and composition (echo intensity) markers from ultrasound imaging may provide new insights into explaining the age-related decline of muscle strength, but their clinical validity has not been systematically evaluated.

Objectives: To integrate clinical trials assessing the effects on muscle architecture and composition markers in older adults and evaluate their treatment responsiveness.

Methods: This study, part of a comprehensive review on muscle quality (registration number CRD42022357116), included randomized controlled trials lasting at least eight weeks in adults aged ≥60 years, focusing on pennation angle, fascicle length, and echo intensity. Seven peer reviewers conducted a two-stage screening process and included studies that met eligibility criteria. Random-effects modeling for Hedges' g was used for meta-analysis.

Results: A total of 4832 studies were initially searched, and 24 studies involving 723 participants were included. The intervention programs were summarized into exercise (21 studies), nutrition (4 studies), exercise+nutrition (3 studies), and other (3 studies). The standardized mean differences [95% confidence intervals] (positive direction indicates improvement due to treatment), heterogeneity, and the number of studies analyzed for each outcome between intervention and control groups were as follows: pennation angle (0.05 [-0.09, 0.19], I^2: 0%, 6 studies), fascicle length (-0.06 [-0.04, 0.28], I^2: 17%, 4 studies), echo intensity (-0.00 [-0.02, 0.02], I^2: 0%, 8 studies).

Conclusion: Muscle architecture and composition markers did not show adequate treatment responsiveness. Further well-designed clinical trials are needed to confirm the clinical validity of these markers.

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Longitudinal Association between Sarcopenia and Serum Creatinine- and Cystatin-C–Based Indices during 6-Year Follow-Up: Findings from the Korean Frailty and Aging Cohort Study

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Background: Creatinine and cystatin-C–based indices have been reported to be associated with sarcopenia; however, the longitudinal associations of these indices with sarcopenia remain unclear.
Objectives: We aimed to examine the longitudinal association of baseline serum creatinine and cystatin-C–based indices with the incident sarcopenia during 6-year follow-up and to compare which indicator best predicts sarcopenia in community-dwelling older adults.
Methods: A total of 698 participants (54.4% women; mean age 75.1 ± 3.7 years) from the Korean Frailty and Aging Cohort Study were included. Creatinine-to-cystatin-C ratio estimated glomerular filtration rate (eGFR) ratio (eGFRcystatin-C/eGFRcreatinine), sarcopenia-index (serum creatinine×eGFRcystatin-C), predicted skeletal muscle mass index (pSMI), and total-body muscle mass index (TBMM) were measured at baseline. Sarcopenia was defined by the criteria of the Asian Working Group for Sarcopenia 2019.
Results: The incident sarcopenia during 6-year follow-up was 22.5% in men and 16.7% in women. The pSMI and TBMM showed a higher area under the receiver operating characteristic curves for predicting incident sarcopenia in men (pSMI:0.634; TBMM:0.635) and women (pSMI:0.727; TBMM:0.724) than other indices. Higher pSMI and TBMM were associated with the incident sarcopenia in both men (pSMI, odds ratio [OR]:0.370, 95% confidence interval [CI]:0.223–0.614; TBMM, OR:0.928, CI:0.896–0.962) and women (pSMI, OR:0.149, CI:0.072–0.307; TBMM, OR:0.896, CI:0.857–0.936), after adjusting confounders.
Conclusion: pSMI and TBMM predicted the sarcopenia more accurately than other indices. Notably, higher pSMI was strongly associated with a lower risk of incident sarcopenia. Our findings suggest that pSMI might be helpful for predicting sarcopenia in older adults.

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Transition of Intrinsic Capacity and its Association with Frailty Incidence: Findings from the Korean Frailty and Aging Cohort Study

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Background: Intrinsic capacity (IC) and frailty are reported to be interrelated bidirectionally; however, they are two distinct concepts. It is necessary to investigate the causal relationship of IC on frailty.
Objectives: We investigate the association between IC transition and frailty incidence among community-dwelling older adults.
Methods: A retrospective analysis was conducted over a 6-year follow-up with biennial measurements, including a total of 638 participants (41.2% women; mean age 75.0 ± 3.3 years) from the Korean Frailty and Aging Cohort Study. Participants were categorized based on their transition in IC status from the baseline to Wave 2: "Remained well and improved", "Worsened", and "Remained poor". Frailty status was assessed by the Fried frailty phenotype and frailty was defined as participants with pre-frail and frail. Frailty incidence was measured at Wave 3 and 4. Logistic regression was used to assess the relationship between IC transition and frailty incidence.
Results: The IC transition probability for “Remained well and improved” was the highest at 87.8%, followed by 7.7% for “Worsened” and 4.5% for “Remained poor”. Furthermore, over a 4-year follow-up, 290 participants (45.5%) developed frailty. Compared with the “Remained well and improved”, the “Worsened” had an increased risk of incident frailty (odds ratio [OR]:1.88, 95% confidence interval [CI]:1.01–3.51), whereas the “Remained poor” did not demonstrate a significant (OR:1.37, 95% CI:0.61–3.08) after adjusting covariates.
Conclusion: Worsened IC group was significantly associated with an increased risk of incident frailty, compared to Remained well and improved group. Our findings suggest that early monitoring of IC is meaningful to prevent frailty.

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Predictive Value of the Sarcopenia Conceptual Definition in the GLIS for All-Cause Mortality: Findings from the Korean Frailty and Aging Cohort Study

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Background: Recently, the Global Leadership Initiative on Sarcopenia (GLIS) has sought to establish international consensus on sarcopenia diagnosis. The conceptual definition of sarcopenia comprises the concurrent combination of reduced muscle mass and muscle strength.
Objectives: We investigate the associations of the sarcopenia conceptual definition in the GLIS with all-cause mortality in community-dwelling older adults.
Methods: We conducted prospective 6-year follow-up analyses (n = 2,400) among older adults (52.8% women; mean age 76.0 ± 3.9 years) enrolled in Korean Frailty and Aging Cohort Study (KFACS). Participants who had their appendicular skeletal mass measured by dual-energy X-ray absorptiometry, handgrip strength, and physical performance tests assessed at baseline (2016–2017) were included. Discrete-time Cox proportional hazards models were used to assess the association between sarcopenia and all-cause mortality during the 6-year follow-up.
Results: The prevalence of sarcopenia according to the GLIS was 15.4% in men and 7.5% in women. A total of 203 deaths occurred, with 6-year mortality rates of 2.1 (95% confidence interval [CI]: 1.9–2.5) per 100 person-years, and 4.8 per 100 person-years (95% CI: 3.6–6.3) among those with sarcopenia. In an unadjusted discrete-time survival model, sarcopenia was associated with an increased risk of all-cause mortality (hazard ratio [HR]: 2.76, 95% CI: 2.00–3.80). After adjustment for potential confounders, sarcopenia was still associated with greater all-cause mortality (HR: 1.56, 95% CI: 1.09–2.24).
Conclusion: The sarcopenia conceptual definition in the GLIS, which includes both reduced muscle mass and muscle strength, is associated with premature mortality among community-dwelling older adults.

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Knowledge of Sarcopenia and the Risk of Sarcopenia in Community-Dwelling Older Adults

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Background: Sarcopenia has become a major health concern in older population. Having sufficient health-related knowledge is crucial for the prevention of adverse health outcomes and management of diseases.
Objectives: This study aimed to assess the knowledge of sarcopenia among community-dwelling older adults and the correlation between knowledge of sarcopenia and the risk of sarcopenia.
Methods: A total of 434 questionnaires were included for analysis. Knowledge of sarcopenia was evaluated using the Sarcopenia Knowledge Questionnaire (SKQ). The risk of sarcopenia was examined regarding muscle strength and physical performance.
Results: The average percentage score on the SKQ was 54.16 ± 14.36 for all participants, indicating moderate-to-poor knowledge of sarcopenia. Only 8.1% of the participants exhibited adequate knowledge of sarcopenia. The participants knew the least about screening and diagnosis, followed by lifestyle factors and sarcopenia outcomes. Participants with a risk of sarcopenia exhibited significantly poorer knowledge of sarcopenia compared with those without (59.52 ± 15.60 vs. 53.12 ± 13.89, p = 0.002). After confounding variables were controlled for, the sarcopenia knowledge scores remained significantly associated with a reduced risk of sarcopenia, and the risk of sarcopenia decreased by 2% when the sarcopenia knowledge score increased by 1 point.
Conclusion: Community-dwelling older adults exhibit moderate-to-poor knowledge of sarcopenia. Compared with those without, older adults with a risk of sarcopenia exhibit significantly lower levels of sarcopenia knowledge in all domains. Enhancing knowledge and awareness regarding sarcopenia may serve as an effective strategy for prevention of sarcopenia. Further research is required to confirm this hypothesis.

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Situations of Sarcopenia among Formerly Older Homeless Adults in a Home for the Destitute

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Background: Older homeless adults are vulnerable as they are at risk of sarcopenia. It is, therefore, necessary to describe situations of sarcopenia among them.
Objectives: To describe the situations of sarcopenia, including the prevalence of case finding and possible sarcopenia in older adults, and approaches to develop a sarcopenia management system in Home for Destitute.
Methods: This study used mixed methods with embedded design. In the quantitative phase, participants were purposively selected, including 175 older adults. Data were collected to assess the prevalence of case findings and possible sarcopenia according to the Asian Working Group for Sarcopenia in 2019. In the qualitative phase, focus group interviews were conducted with 12 older adults (aged >50), and 8 stakeholders (aged >18), including administrators, first aid staff, staff members, and a chef. An in-depth interview was also conducted with the head administrator of Home for Destitute between March and June 2024. The data were analyzed using descriptive statistics, including percentages, mean, standard deviation, and content analysis for qualitative data.
Results: The prevalence of case finding was 75%, the possible sarcopenia with low muscle strength was 86.29%, and the low physical performance was 76.57% in older adults. The qualitative findings revealed five main themes: 1)early screening and proper care, 2)setting up team and environmental modification, and 3)seeking resources/support for sustainable and sufficient protein supplementation and exercise.
Conclusion: Findings indicate a need to develop a sarcopenia management system at the Home for Destitute, Thailand.

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Establishing Normative Reference Phase Angle Values for the Korean Population: Analysis from the Korea National Health and Nutrition Examination Survey

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Background: Phase angle (PA), which is an indicator of cellular health, is highly predictive of clinical outcomes such as sarcopenia; however, normative reference value of PA and cut-off points for sarcopenia have not yet been established in Korean population.
Objectives: This study aims to establish normative reference PA values in a representative Korean sample and to examine the association between PA and sarcopenia in older adults.
Methods: This cross-sectional analysis used 2022 Korea National Health and Nutrition Examination Survey (KNHANES) data, analyzing 4,881 individuals aged 10–80 years. PA were measured using multi-frequency bioelectrical impedance analysis. Sarcopenia was defined according to the Asian Working Group for Sarcopenia 2019 guidelines. Weighted analysis generated descriptive statistics, and weighted logistic regression was conducted to analyze the association between PA and sarcopenia.
Results: PA values increased from teenage years, peaking in the 30s for men (6.22±0.05◦) and for women (5.09±0.05◦), and declined from midlife onwards. PA was higher in men than in women across most body mass index and age groups ($p<0.05$). The PA cut-off points for sarcopenia in older adults aged 65 and older were 4.65◦ for men and 4.25◦ for women. There was a significant association between PA and sarcopenia in both men (odds ratio [OR]: 6.63, 95% confidence interval [CI]: 2.97–14.79) and women (OR: 3.12, 95% CI: 1.50–6.48), after adjusting for confounders.
Conclusion: We established normative reference PA values across the lifespan in a Korean population aged 10–80 years. These identification with cut-off points can be helpful in diagnosing sarcopenia in older adults.

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Effect of ground reaction force in sit-to-stand motion on deteriorated frailty among community-dwelling older adults

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Background: Ground reaction force (GRF) during sit-to-stand motion reflects lower extremity function; however, its association with deteriorated frailty remains unclear.
Objectives: This study aimed to investigate the relationship between GRF and one-year deteriorated frailty status in older adults.
Methods: This study included 230 older adults who completed baseline (2021) and one-year follow-up (2022) health checkups. Frailty status was assessed using the Kihon checklist (KCL) and divided into robust, pre-frailty, and frailty categories. Those with one-year deteriorated frailty status were the "deterioration group," the remaining were the "maintenance/improvement group." During the sit-to-stand motion, the measured GRF parameters included power (F/W), speed (RFD/W), and balance (St, Vx/Vw). Logistic regression analysis used deteriorated frailty status as the dependent variable and GRF parameters as the independent variables (covariates; age, polypharmacy, and baseline KCL points). The analysis was conducted separately for both sexes to account for differences in lower-extremity strength.
Results: The prevalence of the "deterioration group" was 16.0% in men and 15.4% in women. Logistic regression analysis showed that F/W was significantly associated with deteriorated frailty status only in women (OR; 0.47, 95% CI; 0.25–0.88). Other GRF parameters were not significantly associated with deteriorated frailty status.
Conclusion: This study suggests that F/W, which indicates power, is associated with worsening frailty in community-dwelling older women. Higher power during the sit-to-stand motion may help prevent the worsening of frailty in older women

P-90

Neighborhood geographic environmental factors that prevent community-dwelling older adults from continuing to belong to an exercise group.

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Background: There have been several reports which suggest engaging in physical activity or exercise increases a healthy life expectancy, particularly in the super-aging population of Japan. Furthermore, to motivate towards active participation in physical activities and exercises, it is necessary to enhance the factors that promote behavioral changes. However, it is equally important to identify the inhibiting factors hindering a positive behavioral change.
Objectives: To identify the geographic and environmental factors associated with retention and attrition in walking-based health promotion program among community-dwelling older adults.
Methods: A total of 229 members (46 regular members and 183 members who discontinued; mean age: 80.24 years) from a walking-based health promotion program for community-dwelling older adults in Shimogyo-ku, Kyoto, Japan, were enrolled. Using a geographic information system, multilevel logistic regression analysis was conducted to determine whether the participants continued or withdrew from the program as the objective variable (regular members as the reference point), geographic and environmental factors as explanatory variables, and age and sex as adjustment variables.
Results: Age correlated negatively to withdrawal from exercise. Travel time and distance to a meeting place were significantly associated, whereas population density was negatively associated.
Conclusion: These results suggest that relatively younger senior participants were less likely to engage in activities more suitable for older age-groups. Population density showed a significantly negative association, suggesting that the presence of peers in the neighborhood may encourage continuation of exercise. Moreover, accessibility to an appropriate meeting place may play an important role in continuation of exercise.

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Joint association of self-rated health and physical frailty with use of long-term care insurance in Japan

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Background: The combined effect of self-rated health and physical frailty on the use of long-term care insurance (LTCI) is unknown.
Objectives: This study examined the association between self-rated health, physical frailty, and LTCI utilization among community-dwelling older adults in Japan.
Methods: A total of 2,838 community-dwelling older adults aged 65 years or older (73.1 ± 5.9 years) were included in the study. Self-rated health was assessed on a 4-point scale based on the question, "Would you normally consider yourself healthy?" Physical frailty was assessed using the Japanese version of the Cardiovascular Health Study criteria. Participants were divided into four groups according to self-rated health (good or poor) and physical frailty (robust or frailty), and the association with LTCI utilization over five years was examined.
Results: Of the 2,838 participants, 349 were newly certified for LTCI during the follow-up period (median 60.0 months). In the Cox proportional hazards regression model, poor/robust (hazard ratio [HR] 1.61, 95% confidence interval [CI] 1.18-2.20), good/frailty (HR 2.74, 95% CI 2.05-3.66), poor/frailty (HR 2.06, 95% CI 1.41-3.01) showed significantly higher HRs than good/robust.
Conclusion: Frail older adults who reported good health were at highest risk for future LTCI utilization, suggesting that the discrepancy between subjective and objective health may be a risk for adverse outcomes. Focusing on both subjective and objective health is important to promote healthy aging.

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Predictors of Nutritional Status among Hospitalized Older Adults Aged 65 Years and above in Bukidnon: A Cross-sectional Study

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Background: The aging population in the Philippines is growing, leading to increased public health concerns, particularly malnutrition. While malnutrition is prevalent among older adults, its predictors in hospitalized individuals aged 65 and above are not well understood. The objective of this study was to identify the predictors of nutritional status among inpatients aged 65 years and older.
Methods: A multicenter, cross-sectional study was conducted on 96 older adults (≥65 years) admitted to secondary hospitals in Bukidnon. Data on age, mid-upper arm circumference (MUAC), handgrip strength (HGS), and nutritional status assessed by the Mini-Nutritional Assessment-Short Form (MNA-SF) were collected. Pearson correlation analysis was used to determine associations between variables, and simple linear regression identified predictors of nutritional status.
Results: Among the 96 inpatients (mean age=72.88, SD=6.75), 30% were at risk for malnutrition, and 70% were malnourished. The MNA-SF score declined with increasing age ($r(96) = -.221$, $p=0.031$) and decreasing MUAC ($r(96) = .363$, $p<.001$). HGS did not show a significant relationship with MNA-SF ($r(96) = .003$, $p= .979$). Age and MUAC significantly predicted nutritional status by approximately 5% (95% CI: -0.029 - -0.001, $p=0.031$) and 13.19% (95% CI: 0.019 - 0.064, $p<.001$), respectively.
Conclusion: The study suggests that age and MUAC are important predictors of nutritional status among hospitalized older adults. Future research should include more participants and explore other potential moderators of nutritional status in this population.

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Changes in Immune Cells and T Lymphocyte Phenotypes According to Age, Sex and Frailty Status in Thai Community-Dwelling Older Adults

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Background: Aging impacts the immune system, including alterations in T lymphocyte phenotypes, with increased naïve cells and decreased memory cells. Understanding the T lymphocyte phenotypes and their association with frailty in Thai older adults is limited. This study examined CD4+ and CD8+ T cell phenotypes and their frailty associations in Thai older adults.

Methods: A cross-sectional study of 223 adults aged ≥60 living in Bangkok, Thailand were conducted. The participants included 64 frail, 80 pre-frail and 79 robust individuals classified based on Fried's frailty phenotype. Peripheral blood immune cell counts and CD4+ and CD8+ T lymphocytes, including naive (TN), central memory (TCM), effector memory (TEM) and effector memory re-expressing CD45RA (TEMRA) subsets, along with their exhaustion (PD-1+) and senescence (CD57+) phenotypes, were analyzed by flow cytometry.

Results: Differences in the immune cells were observed between sexes: females had higher lymphocyte percentages and males had higher monocyte percentages, resulting in a higher monocyte-to-lymphocyte ratio in males. Lymphocyte percentages decreased significantly in adults aged ≥75, resulting in an increased neutrophil-to-lymphocyte ratio. The immune risk profile (CD4/CD8 ratio <1) did not differ across age groups or frailty statuses. Differences were noted in the CD8+ T lymphocyte subsets, where females had more TN and fewer TEM phenotypes than males. Additionally, females had higher exhausted cells, while males had higher senescent cells. The CD8+ TN cells decreased significantly in adults aged ≥75, with increased exhausted cells, but no differences in senescent cells. Frailty status did not significantly affect T lymphocyte subsets.

Conclusion: Alteration in immune cell frequencies and the phenotypes of T lymphocytes by sex and age, but not frailty status, were demonstrated in Thai older adults.

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Sarcopenia and freezing of gait in Parkinson's disease

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Background: Sarcopenia may be more common in patients with Parkinson's disease (PwP) compared to controls. Additionally, PwP who have sarcopenia tend to exhibit more severe motor symptoms and higher frequency of falls. There is a lack of information regarding association between sarcopenia and gait abnormalities, especially freezing of gait (FoG) in PD and how this may differ between genders

Objectives: To evaluate the association between FoG and the three main conditions of sarcopenia: muscle mass, muscle strength, and physical performance in PwP.

Methods: 71 PwP underwent detailed clinical test batteries, including gait velocity, hand grip strength and whole-body composition assessments using DXA. Multivariate logistic forward stepwise regression was performed to define gait velocity, hand grip strength and lean mass associations for FoG.

Results: Multivariate regression analysis revealed that gait velocity was significantly associated with FoG in all PD (adjusted OR, 0.170; p=0.001). However, within the PD FoG subgroup, grip strength (adjusted OR, 0.337; p=0.048) and gait velocity (adjusted OR, 0.147; p=0.011) were significantly associated with FoG in males PD while gait velocity (adjusted OR, 0.094; p=0.055) was borderline significantly associated with FoG in females PD.

Conclusion: Among the three main components of sarcopenia, physical performance, specifically slow gait velocity, is associated with FoG in PD. When considering gender-specific findings, males PD and FoG have significantly lower hand grip strength compared to non-FoG males. In contrast, among females PD with FoG and non-FoG, there was no significant difference in terms of muscle strength or mass.

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Sarcopenia from an International Classification of Functioning, Disability and Health Point of View

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Sarcopenia refers to declining in muscle strength and muscle mass that affects the physical performance, hypothesized to contribute to disability. The International Classification of Functioning, Disability and Health (ICF) gives the basic concept of identifying functional problems. It contains the interaction between health condition, body structure and function, activity, participation, environment and personal factors.

Medical condition and their comorbidities plays important role in defining the prognostic determination, including the functional prognosis. Its organic structure problem causes various kind of body function issue such as muscle function. With the loss of ype II muscle fibres contributes to deterioration of functional especially physical activity that uses lower extremity muscle groups which . The thigh muscles will decline first among the other muscles with predominantly type II muscel fibres. Basic activity daily living such as standing, ambulation, climbing stairs will be affected in sarcopenia. Those changes is associated with functional decline that leads to increase dependency, immobilisation, environment and personal burden. Furthermore, the dependency level of individual could change the quality of life of the patient and also the caregiver. Furthermore, ICF gives more objective framework of defining rehabilitation problems, target, prognostication aspect, and programme.

P-99

Association Between Oral Frailty and Food Intake: The SONIC Study

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Background: The "Oral Frailty 5-item checklist (OF-5)" has been developed to facilitate easy and widespread assessment of oral frailty (OF); however, the association between OF and food intake has not been validated.

Objectives: This study aimed to investigate the association between OF and food intake in Japanese community-dwelling older adults.

Methods: This cross-sectional study analyzed 494 participants. OF was defined as meeting two or more of the following OF-5 items: (1) fewer teeth (≤20), (2) low articulatory oral motor skills (oral diadochokinesis <6.0 times/second), (3) difficulty in chewing, (4) difficulty in swallowing, and (5) Dry mouth. Energy-adjusted intake of 11 food groups, assessed using the brief-type self-administered diet history questionnaire, was compared between those with and without OF, and those meeting and not meeting each OF-5 item. Statistical analysis was performed using the Mann-Whitney U test, with a significance level set at 5%.

Results: The OF group had lower intake of legumes and vegetables compared with the non-OF group. The stratified comparison conducted for each OF-5 item indicated significantly lower intake of the following food groups: (1) meat and vegetables for fewer teeth, (2) no food group for low articulatory oral motor skills, (3) meat and vegetables for difficulty in chewing, (4) no food group for difficulty in swallowing, and (5) fish for Dry mouth.

Conclusion: This study suggested that OF assessed using the OF-5 is associated with specific food intake patterns in older adults.

P-100

The Relationship Between Oral Frailty and Physical Frailty: The NOSE study.

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Background: Oral frailty (OF) is a condition with minor oral function deterioration, which increases the risk of further functional decline. Recently, Oral Frailty 5-item checklist (OF-5) has been developed to assess OF without using devices.
Objectives: This study aimed to investigate the association between OF and physical frailty in older Japanese aged over 65 years.
Methods: This study involved 147 individuals aged over 65 years who participated in community-based integrated care systems in Nose City, from 2022 to 2023. OF was defined as meeting two or more of the following: (1) fewer than 20 teeth, (2) decline in speaking ability, (3) difficulty in chewing, (4) difficulty in swallowing, and (5) dry mouth. Physical pre-frailty and frailty were defined using the criteria of the Japanese version of the Cardiovascular Health Study (J-CHS): (1) shrinking, (2) weakness, (3) exhaustion, (4) slowness, and (5) low activity. Physical pre-frailty was defined as meeting one or two of the criteria, and physical frailty as meeting three or more. The association between OF and frailty was examined by $\chi 2$ test.
Results: OF was observed in 40.8% participants. 55.8% were pre-frailty, and 10.2% were frailty. $\chi 2$ test revealed a significantly higher prevalence of OF among pre-frailty and frailty participants ($p<0.05$).
Conclusion: This study suggests a significant association between OF and physical frailty in community-dwelling older Japanese aged over 65 years. Therefore, OF-5 may be beneficial for investigating the risk of physical frailty.

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Relationship between gut microbiota and frailty

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Background & Objectives: Gut microbiota dysregulation is associated with several life-threatening conditions; thus, it may be a useful target to prevent frailty. However, the relationship between the gut microbial population and frailty remains unclear.
Methods: We recruited participants from the Nagoya Longitudinal Follow-up Study for Healthy Elderly (NLFS-HE), an observational prospective cohort study of community-dwelling older adults in Japan. The participants' basic information (age, sex, height, weight, body mass index, and underlying diseases), frailty assessed by CHS criteria, fall risk, exercise habits, nutritional status, dietary intake, quality of life, and social isolation were obtained. Fecal samples were obtained, and the gut microbiota was assessed using terminal restriction fragment length polymorphism (T-RFLP) analysis. The patients were divided into two groups; robust and prefrailty. Multivariate logistic regression models were used to identify the variables independently associated with prefrailty.
Results: The number of bacteroides (enterotype I) was lower and number of "other" bacteria (enterotype III) was higher in the prefrailty group than in the robust group. Multivariate analysis showed that the enterotypes I and enterotype III bacteria were strongly associated with prefrailty (OR; 0.1, 95% CI; 0.03–0.35, $P<0.001$).
Conclusion: We have shown that the gut microbiota components, bacteroides and "other" bacteria, are independently associated with prefrailty.

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Using decision tree model to identify the risk group of multidimensional frailty in community-dwelling older population

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Background: Variations in the risk factors for frailty can lead to differences in the likelihood of developing frailty among older adults; however, few studies have explored the interactions among the risk factors.
Objectives: To investigate the interactions among risk factors and identified a discriminative pathway for groups at risk of frailty in community-dwelling older adults.
Methods: A secondary analysis was conducted from 308 community-dwelling older adults. Data on various risk factors, namely demographics (age, gender, education, body mass index, and marital status) and comprehensive geriatric assessment (mobility measured by Short Physical Performance Battery (SPPB), cognition by Montreal Cognitive Assessment, nutrition by Mini Nutritional Assessment, depression by Geriatric Depression Scale (GDS), basic and advanced activities of daily living by Barthel Index and Lawton Instrumental Activity of Daily Living Scale, quality of life (QOL) by World Health Organization Quality of Life (WHOQOL-OLD). Multidimensional frailty was evaluated by the Tilburg Frailty Indicator. A classification and regression tree (CART) model was used to examine interactions among these factors and identify groups at risk of frailty.
Results: The prevalence of multidimensional frailty was 22.1%. The CART model identified two groups with higher probability of developing frailty: (1) older adults with poor mobility (score ≤9 in SPPB) and low QOL (score <52 in WHOQOL-OLD), (2) older adults with poor mobility, good QOL and depression (score ≥5 in GDS).
Conclusion: The interactive effects among mobility, QOL, and depression may cause different probabilities of developing frailty in community-dwelling older adults.

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Association Between Oral Frailty and Mortality in Older Adults Aged ≥75 Years: The OHSAKA study

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Background: Accumulated impairments in multiple oral health aspects and functions have been termed oral frailty (OF). Recently, the "Oral Frailty 5-item checklist (OF-5)" was developed to facilitate the easy assessment of OF.
Objectives: This study aimed to evaluate the association between OF and mortality in older adults aged ≥75 years.
Methods: This study analyzed 192,268 individuals aged ≥75 years who underwent dental checkups provided by public healthcare services in Osaka, Japan, from 2020 to 2021. OF was defined as meeting two or more of the following OF-5 items: (1) fewer teeth (≤20), (2) low articulatory oral motor skills (oral diadochokinesis <6.0 times/second), (3) difficulty in chewing, (4) difficulty in swallowing, (5) dry mouth. Survival analysis (Kaplan-Meier method and log-rank test) calculated cumulative survival rates (360 and 720 days) and evaluated the association between OF and mortality which verified by the loss of insurance eligibility.
Results: Mortality was observed in 4,799 participants (2.5%) during the mean observation period of 446.9 days. In the OF group (82,715 participants, 43.0%), the frequencies of the OF-5 items were, in order: fewer teeth, difficulty in chewing, dry mouth, low articulatory oral motor skills, and difficulty in swallowing. Cumulative survival rates at 360 and 720 days were 97.6% and 93.6% in the OF group and 98.8% and 96.3% in the non-OF group, respectively, with significant differences.
Conclusion: This study indicated that OF was associated with a higher mortality rate in older adults aged ≥75 years.

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Prevalence of Physio-Cognitive Decline Syndrome, Physical Frailty and Cognitive Frailty in Thai Older Adults: Findings from the fourth Thai National Health Examination Survey

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Background: Moving society toward healthy aging era would require a practical measurement to monitor the success. Ongoing attempts are to define early decline for physical and mental abilities in older adults. Cognitive frailty (CF), physical frailty (PF) and physio-cognitive decline syndrome (PCDS) are constructed aiming to measure the decline and the prevalences differ widely in different regions of the world.

Objectives: To evaluates the prevalence of PCDS, PF, and CF among Thai older adults using representative data from a community-dwelling population.

Methods: Data from participants aged ≥60 years were analyzed from the Fourth Thai NHES. Cognitive impairment (CI) was a cognitive performance score in any domains below ≥1.5 SD. PCDS was defined as physical declined, according to AWGS 2019, with CI. The Thai Frailty Index (TFI) was used to define PF. Cognitive frailty (CF), involves concurrent PF and CI.

Results: There were 8,782 participants with a mean age of 69.4 years. Prevalences for PCDS, PF, and CF were 18.5%, 19.2%, and 7.0%, respectively. Robust individuals were younger and more likely to be men. Inadequate physical activity increased while physical performance declined, progressively from robust to CF. The CF group comprised the oldest age with poorest cognitive performance and the highest proportion of women, cardiovascular disease, chronic kidney disease, and ADL impairment.

Conclusion: The high prevalence of PCDS, PF, and CF in Thai older adults is concerning. PCDS, the earliest declined performances stage, may serve as a crucial index for early intervention toward healthy aging society

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Sarcopenia Index Incorporating eGFRCysC Shows Noninferiority in Predicting Musculoskeletal Outcomes and Hospital Length of Stay in Young Elderly

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Background: Sarcopenia, marked by loss of skeletal muscle mass and function, is linked to increased morbidity, mortality, and healthcare costs. The Sarcopenia Index (SI, defined as serum creatinine (SCr)/cystatin C (CysC) × 100) and a new index (hereafter New Sarcopenia Index or NSI, defined as SCr × estimated glomerular filtration rate based on cystatin C ($eGFR_{CysC}$)) have been developed to assess sarcopenia. This study examines SI and NSI in predicting musculoskeletal disorders, including fractures and knee osteoarthritis (OA), and hospital length of stay (LOS) in young elderly (ages 65-74), evaluating NSI's noninferiority to SI.

Methods: We retrospectively analyzed 1,694 cases from 1,454 patients, aged 65-74, who underwent laboratory tests, including SCr and CysC, between 2005 and 2022. Outcomes included fractures (hip, radius, spine), knee OA, and LOS for hospitalized patients. Logistic regression and ROC curve analysis evaluated associations between the indices and these outcomes, while correlation and non-linear regression assessed their relationship with LOS.

Results: Logistic regression showed significant associations for NSI with spine fractures (OR = 0.987, P = 0.0361) and for both indices with knee OA and combined outcomes. ROC analysis found no significant difference between SI and NSI, indicating NSI's noninferiority. NSI was inversely correlated with LOS (rho = -0.0913, P = 0.00743), and non-linear regression demonstrated a power-law relationship (LOS = 11956.66 × NSI(-1.51), P = 3.796e-17, pseudo-R^2 = 0.0404).

Conclusion: NSI is noninferior to SI in predicting musculoskeletal outcomes and LOS in the young elderly, supporting its utility as a sarcopenia biomarker.

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Loss of weight (LOW) definitions for Fried Frailty Phenotype: Influence on frailty prevalence and diagnostic performance for social and physical activities and quality of life

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Background: Loss of weight (LOW) in older adults is associated with adverse outcomes. As an item in the Fried frailty Phenotype(FFP), LOW has been operationalized using Body Mass Index(BMI) or >5% over past year. Recently, Asia Working Group for Cachexia proposed >1% LOW over past 3 months as clinically significant. This lack of standardization in LOW definitions could affect the early identification of older persons at-risk of frailty.
Objectives: We aim to examine frailty prevalence and diagnostic performance between different LOW definitions in FFP amongst healthy community-dwelling older adults.
Methods: Amongst 300 older adults from the GeriLABS-2 study, we used three LOW definitions to derive corresponding FFP scores: BMI <18.5kg/m2 (FFP1), >5% in last 1 year (FFP2), >1% in last 3 months (FFP3). Outcomes were social activity(Frenchay Activity Index, FAI), physical activity (International Physical Activity Questionnaire, IPAQ) and quality of life(EQ5D-5L utility value). We performed receiver operating characteristic curve analysis to compare Area Under Curve(AUC) in discriminating outcomes.
Results: The prevalence of frailty was 7.7%(FFP1), 8.3%(FFP2) and 10.0%(FFP3). FFP1 and FFP2 were superior to FFP3 in discriminating low FAI [AUC(95% CI): 0.859(0.827-0.892) vs 0.857(0.825-0.890) vs 0.824(0.789-0.859), both p<0.01], while there was no difference for low IPAQ. Only FFP2 significantly discriminated low EQ5D [0.586(0.508-0.663), p=0.03] but there was no difference in paired comparisons against FFP1 [0.577(0.496-0.659), p=0.590] or FFP3 [0.570(0.495-0.646), p=0.435].
Conclusion: Our results highlight differences between LOW definitions in terms of prevalence and discriminatory ability. FFP1 and FFP2 appears to be superior, although further studies are required to validate their longitudinal predictive performance.

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Hospitalization experience and frailty prevention in hospitalized older patients: A Qualitative Study

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Background: Frailty describes a decline in function across multiple organ systems and is associated with various poor health outcomes.
Objectives: This study aims to explore the perception of frailty, frailty prevention strategies, and hospitalization experience among frail inpatients and their caregivers.
Methods: A qualitative study design was utilized. Face-to-face interviews were conducted from May to November 2023 with hospitalized patients with frailty and caregivers who regularly provided physical and social support to patients with frailty. Data were analyzed using thematic analysis.
Results: A total of 10 patients and 11 caregivers were interviewed. Seven themes in three domains emerged. We found that there was a lack of understanding and awareness of frailty. Due to the decreasing ability to perform daily activities, patients were not actively performing preventive activities and seldom engaged in community services owing to inconvenience, financial concerns, and a lack of trust in the external party. The majority of the patients faced self-care difficulties during the hospital stay. Domestic workers appeared to be the most common form of external help that patients received.
Conclusion: Patients and caregivers had an understanding of frailty prevention strategies but in reality, they hardly practiced these activities to prevent the progression of frailty. Only a small number of patients have utilized eldercare community services despite the availability of many local community care services. We identified gaps in frailty awareness and specific barriers and facilitators to frailty prevention. Findings from this study could be used to guide the development and implementation of frailty interventions.

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Thai Translation and Cultural Adaptation of the VIVIFRAIL Multicomponent Exercise Program

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Background: Vivifrail, the multicomponent exercise program consists of aerobic training, strength, balance and flexibility, developed to increase physical activity and reduce frailty in older adults, has improved mobility, strength, and quality of life. However, its effectiveness may be limited when directly applied to diverse populations without considering cultural differences and language barriers.

Objectives: This study aims to translate and culturally adapt the Vivifrail exercise program for use with Thai older adults. The purpose is to ensure the program is linguistically accurate, culturally relevant, and acceptable to the target population.

Methods: The process includes 1) forward-backward translation of the original Vivifrail materials from English to Thai to ensure accuracy and consistency by professional bilingual translators; 2) language comprehension and cultural adaptation through expert committee discussions and interviews with doctor, nurse, physical therapist, and target population to review and identify culturally specific modifications.

Results: The translation and cultural adaptation process revealed the same meaning in forward-backward translation process. Consequently, the expert committee recommended a few modifications and corrections. It was stated that they found the Thai Vivifrail exercise program to be both readily comprehensible and feasible to follow.

Conclusion: The Vivifrail exercise program has been successfully translated and culturally adapted for Thai older adults. This exercise program has the potential to enhance the physical activity levels and reduce frailty among older adults. Further research is needed to evaluate the long-term effectiveness and impact of the program on health outcomes.

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Sarcopenia, frailty, and malnutrition in hip fracture patients: a study in tertiary care center in Southern Sri Lanka

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Background: Hip fracture (HF) patients often experience in multiple geriatric nutritional problems including sarcopenia, frailty and malnutrition. Although these problems directly impact on clinical outcomes of HF survivors, health care professionals have lack of awareness about these conditions as all of these problems are overlapping.

Objectives: This study determined the prevalence of sarcopenia, frailty, and malnutrition in HF patients admitted to National Hospital, Galle, Sri Lanka.

Methods: A total of 209 patients with incident HF were assessed for sarcopenia, frailty and malnutrition within 24 hours after admission. Pre-fracture sarcopenia, and frailty were assessed using the locally validated SARC-F tool and Frail Non-Disabled (FiND) questionnaire. Nutritional status were evaluated using validated mini-nutritional assessment (MNA) tool.

Results: Among 209 HF patients admitted, 151 (72%) were females and mean age (SD) of HF patients was 73.7 (11.3) years. Prevalence of probable sarcopenia and pre- fracture frailty were 29% and 84% respectively. Of the participants, almost all (94.5%) had risk of malnutrition or were malnourished at the time of admission. Among HF patients who were frail on admission (n=175), only 29.7% (n=52) had sarcopenia whereas among 61 HF patients who were sarcopenic on admission, majority of them (85.2%, n=52) were frail. Nearly 25% of HF survivors had all three conditions which overlap each other.

Conclusion: Majority of HF patients experienced frailty and malnutrition during their pre-fracture stage. The overlap among sarcopenia, frailty and malnutrition is detected among these HF patients significantly. Early assessment of all these geriatric syndromes is paramount to develop effective preventive and management strategies to improve clinical outcomes of HF patients.

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Age-related normative values of bone structural parameters based on 3D-DXA in older adults: the Bunkyo Health Study

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Background: Decreased bone mineral density and deterioration of bone microstructure with aging cause fractures and contribute to the progression of sarcopenia and frailty. However, transition of bone microstructure with aging remains unclear.

Objectives: The purpose was to establish normative values for bone microstructure of the lumbar spine (LS) and total hip (TH) in older adults in Japanese.

Methods: This study used data from the Bunkyo Health Study of adults aged 65-84 years. 1053 participants (500 men and 553 women) for LS and 1372 participants (662 men and 710 women) for TH were analyzed. Bone microstructure was evaluated by trabecular bone score (TBS) of LS, trabecular volumetric bone mineral density (vBMD), cortical vBMD, integral vBMD, cortical thickness, and cortical surface BMD of TH using DXA-based analysis software. Medians and interquartile for each parameter were calculated between age groups (65-69, 70-74, 75-79, and 80-84 years), and compared using the Kruskal-Wallis test and post hoc analysis with Bonferroni correction.

Results: TBS was significantly lower in women 70-74 and 80-84 than 65-69 and not significantly different in men. In men, only cortical thickness was significantly lower in the 80-84 than 65-69 and 70-74. In women, cortical vBMD, cortical surface BMD, and cortical thickness were significantly lower in the 80-84 compared to the 65-69 and 70-74. Trabecular vBMD and integral vBMD were significantly lower in the 80-84 compared to the other groups.

Conclusion: Bone microstructural parameters showed different age-related changes by gender and site in older adults.

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The Prevalence of Frailty and Glycemic level association in Elderly with Diabetes Mellitus Type2 in Primary Care of Hatyai Hospital.

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Background: The proportion of elderly people in the population of Thailand is rapidly increasing. Diabetes is associated with a higher prevalence of frailty. Previously, a study using a narrowly defined frailty scale reported that both good and bad (U-shaped curve) glycated hemoglobin levels were frailty risk factors in patients with type 2 diabetes mellitus. However, no suchstudies in Thailand have shown this.

Objectives: Examine prevalence of frailty in elderly with DM type2 and investigate the association between level of glycemic control and frailty in the Elderly with Diabetes Mellitus type2.

Methods: By cross-sectional study with 350 subjects in 5 primary care units of Hatyai hospital. Physical frailty using FRAIL scale (AUC 0.882, Sensitivity 45%, Specificity 98.3%). Data were analyzed by frequency distribution, percentage, comparing proportions with Chi-square statistics, and finding relationships using multiple correlation analysis with logistic regression.

Results: The total population was 350, the prevalence of physical frailty was 40.9% and the median blood sugar level in the group with frailty was 140 mg%, significantly different from the group without frailty at 130 mg%. p-Value=0.022 And the relationship between increased blood sugar levels and frailty was found to be 1.0062 times (AOR 1.0062, 95%CI 1.0007-1.0119).

Conclusion: This study found a high level of physical frailty in elderly people with type 2 diabetes. And higher sugar levels are associated with physical frailty. In an aging society with limited resources, taking care of frailty in the diabetes group is important because it is so common. and are clearly related.

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Association between Sport Types in Adolescence and Cognitive Function in Older Age: the Bunkyo Health Study

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Background: Sports participation in adolescence improves cognitive reserve and supports cognitive function in old age, but their impact on cognitive function in old age may vary by sport.
Objectives: This study investigated the association between sport types in adolescence and cognitive function and specific regional brain volumes in old age.
Methods: This study analyzed baseline data from the Bunkyo Health Study, including 912 participants aged 65-84, who either engaged in the same sport for six years during adolescence or did not exercise at all. Cognitive function was assessed using the Japanese version of the Montreal Cognitive Assessment (MoCA-J) score. Regional brain volumes (prefrontal cortex, temporal lobe, parietal cortex, and hippocampus) and intracranial volume (ICV) were measured by MRI and adjusted for ICV. We analyzed associations between six major sports with more than 10 participants (men: martial arts, basketball, table tennis, tennis, baseball/softball, soccer; women: basketball, table tennis, tennis, volleyball) and MoCA-J scores, and regional brain volumes, using multiple regression analysis adjusting for potential confounders.
Results: In men, participation in basketball was significantly associated with higher MoCA-J scores (β = 0.130) and table tennis with higher prefrontal cortex volume (β = 0.106). Conversely, basketball (β = -0.110) and baseball (β = -0.105) were significantly associated with lower temporal lobe volume. In women, basketball was significantly associated with lower prefrontal cortex volume (β = -0.107) and volleyball with lower temporal lobe volume (β = -0.101).
Conclusion: Specific adolescent sports affect later brain health, with gender-specific effects on cognitive function and brain volume.

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A study on diagnostic algorithm for Oral Hypofunction based on the JSG diagnostic criteria (JSG: Japanese Society of Gerontology)

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Currently, Japan has the world's longest life expectancy and the oral status of the older people is also changing, with more than 50% of those aged 80 and over having 20 or more own teeth in 2016. Oral health is integral to the general health and social well-being of people. Oral health does not merely refer to the number of teeth present and the level of oral hygiene, but also to oral functions.
With a renewed focus on “Eating ability and oral function” in older people, we created a new concept in 2014 in Japan, called ‘Oral frailty’. This concept highlights an important message, that is a slight decline in oral functions easily leads to sarcopenia-related physical frailty. The Oral frailty diagram consists of 4 phases. The higher the phase number, the worse the oral function. The 1st and 2nd phase are covered by the population-based approach service. The 4th phase named disability oral function/dysphasia is already covered by the national health insurance.
Finally, the 3rd phase called oral hypofunction (OHF) has been covered by the national health insurance since 2018, thus becoming a very significant topic in Japan. The Japanese Society of Gerontology proposed the diagnostic criteria of OHF in 2016. Individuals with three or more the following seven components are diagnosed as OHF: poor oral hygiene, oral dryness, low occlusal force, low tongue-lip motor function, low tongue pressure, low masticatory function, and deterioration of swallowing function. In this study, we propose the diagnostic algorithm for OHF.

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Potential of Skeletal Muscle Mass Indicator Focused on the Thenar Muscle: Validation Using 3T High-Resolution MRI, Aiming Practical Application in Dwelling Community

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Background: Accurate measurement of skeletal muscle mass is crucial for diagnosing sarcopenia, but existing methods (CT, MRI, DXA, BIA) and measurement sites are problematic in clinical setting. This study aimed to determine if the thenar muscle of the hand could be a new indicator of skeletal muscle mass for sarcopenia diagnosis.

Objectives: The study included two parts: Study 1 involved MRI scans of healthy young adults, and Study 2 involved ultrasound of middle-aged and older community residents. Study 1 targeted healthy male university students, using a 3T MRI to image the thenar muscle of the dominant hand and calculate its volume (cm3). Thigh muscle volume was also measured as a reference. Ultrasound was then used to determine the thenar muscle thickness that best reflected the MRI-measured thenar muscle volume. Study 2 validated the thenar muscle thickness in men aged 40 and older, using BIA-measured appendicular skeletal muscle mass (ASM).

Results: In Study 1, 7 participants (mean age 21.0±0.0 years, mean BMI 21.2±1.7 kg/m2) were analyzed. MRI-measured thenar muscle volume correlated significantly with thigh muscle volume ($r=0.80$, $P<0.01$). Ultrasound-measured thenar muscle thickness correlated significantly with both thenar muscle volume ($r=0.79$, $P<0.01$) and thigh muscle volume ($r=0.84$, $P<0.01$). In Study 2, 79 participants (mean age 71.1±9.9 years, mean BMI 23±2.6 kg/m2) showed a significant correlation between BMI-corrected thenar muscle thickness and an ASM ($r=0.33$, $P<0.01$).

Conclusion: The results suggest that the thenar muscle could serve as a novel marker for total body skeletal muscle mass. However, further validation in larger and more diverse patient populations is necessary for practice.

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Physiatrist's Challenges and Interventions for Elderly Patient with Psychological, Activity Daily Living (ADL) Problems and Caregiver Burden at End-Stage Parkinson's Disease Post Pallidotomy: A Case Report

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Background: Rehabilitation is considered as a comprehensive supplementary approach to pharmacological and surgical treatments for Parkinson's disease (PD) to optimize functional ability and reduce secondary complications. Comprehensive rehabilitation approach can enhance the quality of life for both patients and family.

Objectives: This study aimed to evaluate the effectiveness of a comprehensive rehabilitation program for end stage PD patient post pallidotomy with psychological, ADL problems, and caregiver burden.

Methods: A 73 years old men was diagnosed with PD since 2007 and currently the PD has progressed to stage 5 according to Hoehn and Yahr scale. He took leparson for his symptoms since 16 years ago, the stiffness was increased that made him immobilize and the ADL all dependent. He underwent pallidotomy at 2017, the patient had a reduction in stiffness, enabling him to walk without assistive device and do all ADL independently. He was diagnosed with ileus paralitic in August 2021 and underwent the stoma surgery on September 2021. After stoma surgery, he was immobilized due to embrassed of his condition and the stiffness became worse. His activites were mostly in bed. The rehabilitation problems of this patient were: mobilization disturbance (de Morton Mobility Index or DEMMI 0/100), joint stiffness at regio neck and four extremities, fatigue (Fatigue Severity Scale or FSS 39), cardiopulmonary disturbance (single breath test 5), psychosocial disturbance (University of California Los Angeles or UCLA loneliness scale 3), ADL disturbance (barthel index 9/20), postural disturbance (lateral neck flexion to right), malnourished (Mini Nutritional Assesment or MNA 13,5), communication disturbance (ow volume and speech), geriatric syndrome, frailty (frailty fenotype 4/5), sarcopenia (SARC Calf 18), and caregiver burden (Zarit Burden score 25).

Results: After 3 months of comprehensive rehabilitation management, there has been improvement in his overall quality of life. He can walk in short distance with assistance. He experiences a weight gain of 3 kilograms and has a good appetite. The caregiver burden, fatigue, and malnourished are reduced with Zarit Burden score 17, FSS 33, and MNA 15.5. Cardiopulmonary fitness and ADL are improved with Barthel index 11/20 and single breath test 7.

Conclusion: Comprehensive rehabilitation program for this patient were sitting endurance exercise with trunk control strengthening and isotonic openchain exercise for all extremity, stretching flexibility exercise, ADL selfcare exercise in sitting position, tabular cervical orthosis for neck stiffness, deep breathing exercise and cardiopulmonary exercise with arm ergocycle, psychologist consultation and education to recruit additional caregiver for psychological disturbance and caregiver burden, education for joining community activity for frailty and communication disturbance. The aim of rehabilitation is to maintain and prevent further physical function declining. Comprehensive rehabilitation management of PD patient may improve the quality of life for both patients and family.

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Effect of gender, ages and frailty on circulating immune cells in community-dwelling Thai older adults

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Background: Complete blood count (CBC) is one of the most common laboratory investigations to measure general health of all ages. It also provides a basic status of circulating immune cells. However, it is less known that these obvious changes occur as we age.

Objectives: This study examined the percentages and absolute counts of neutrophils, lymphocytes and monocytes and their associations with gender, ages and frailty statuses in Thai older adults.

Methods: A cross-sectional study was conducted in 841 adults aged >60 living in Bangkok, Thailand. Physical frailty statuses were determined according to the Fried's frailty phenotype and by a modified Thai Frailty Index (TFI). CBC was determined and analysed.

Results: The study included 32% males and 68% females. The participants were classified into 3 groups as robust (41.6%), pre-frail (43.6%) and frail (14.7%). They were also classified into 4 groups according to a modified Thai Frailty Index (TFI), as fit (22.0%), pre-frail (61.8%), mildly frail (15.2%) and only 1% were severely frail. All white blood cell values were within normal reference ranges. However, differences between gender, ages and frailty statuses were noted among the white blood cell components. Females, compared to males, had statistically significant lower absolute count of neutrophils and monocytes, but higher percentages were noted in female lymphocytes. These differences resulted in lower neutrophil-to-lymphocyte ratio (NLR) and monocyte-to-lymphocyte ratio (MLR) values in females. Increased age mainly resulted a gradual decline in lymphocytes at >65 and significant reduction in group >75 years of age. Higher NLR and MLR were consistently shown in older age groups. Similar changes were noted in mildly frail group, compared to pre-frail and fit/robust groups.

Conclusion: This study demonstrated the influence of gender, increased ages and frailty on the number of white blood cells in CBC in the Thai older adults.

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Screening of latent tuberculosis in Thai older adults

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Background: Thailand is among the countries with top incidence of tuberculosis. Older adults represent 1 in 3 of registered tuberculosis cases. Screening of latent tuberculosis by IGRA for TB had been shown to be less effective measure in older people due to the declined immunity. Accurate diagnosis of LTBI in older adult population is critical, particularly if linked to the treatment of LTBI.

Objectives: This pilot study aims to determine the prevalence of latent TB in Thai older adults. Comparison of a new screening method with commercial IGRA was also explored.

Methods: A cross-sectional study was conducted in 399 adults aged >60 living in Bangkok-noi district, Bangkok. Fresh whole blood was tested with a commercial IGRA test (QuantiFeron Gold Plus for TB). A subset of 124 eldering subjects including 45 IGRA positive and 79 IGRA negative were also tested with an in-house test for the expression of HLA-DR by T cells producing IFNγ in response to a specific Mtb antigen stimulation, using 6-color FACSLyric flow cytometer.

Results: 31% of the study population were IGRA positive. Latent TB was more prevalent in males than females. The response was however suboptimal, as shown by low response to mitogen in some specimens. On the other hand, CD3+ T cell producing IFNγ demonstrated higher fold change in IGRA+ when compared with IGRA-. In addition, a better discrimination between IGRA+ and IGRA- was shown by measure HLA-DR on IFNγ+ CD3+ T cells. IFNγ+ CD3+ T cells that express HLA-DR were shown to belong to CD4+, CD8+ and CD4-8- T lymphocyte subsets.

Conclusion: This study demonstrated a feasibility of this new test in screening of elderly for latent tuberculosis. Further evaluation in more subjects will be investigated in the future.

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Prevalence and associated factors of sarcopenia among community-dwelling elders in Thailand

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Sarcopenia is one of the geriatric syndromes that is increasing among the Thai elderly. This cross-sectional study aimed to explore the prevalence situation of sarcopenia and the relationship between personal and health factors with muscle strength, physical activity and walking speed among the elderly people with chronic non-communicable diseases in communities of Lampang, Kalasin, Chonburi, and Chumphon provinces.

Sarcopenia was defined using the criteria of the Asian Working Group for Sarcopenia (AWGS) consensus. Muscle mass, muscle strength, and physical performance were determined using a bioelectrical impedance analyzer, handgrip dynamometer, and 6-meter usual gait speed respectively. Data were analyzed using descriptive and chi-square statistics.

This study collected information from questionnaires to assess nutritional status, depression, brain function test and physical activity. Of the 710 participants had an average age of 70.03 ± 6.72 years and the majority were female (79.3%). The prevalence of presarcopenia was 20%, sarcopenia was 15.1% and found higher in females than males (10.1% and 4.9%), and severe sarcopenia was 3.1%. Physical activity level was evaluated by using Global Physical Activity Questionnaire (GPAQ) that a factor associated with sarcopenia was statistically significant at level of $p < 0.001$, however, it had no relationship with a history of falls ($p = 0.31$).

Based on these results, physical activity and activities in daily living practices should be promoted. Evaluating and monitoring the muscle strength as well as function are importance for public health management aimed at preventing and managing sarcopenia in Thai elderly.

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Frailty in chronic kidney disease and dialysis patietns

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Background: Advanced chronic kidney disease and end stage renal disease patients are at risk of frailty due to multiple reasons. Contributing factors include anemia, renal osteodystrophy, protein energy wasting, cardiovascular disease. They are at risk of cognitive impairment and cognitive frailty too. Dialysis treatment can worsen frailty in context of hypotension, electrolyte imbalance and fatigue and cramps. Frailty increases risk of death and decreases quality of life.

Objectives: The aim of this study is to assess current evidence of interventions used to prevent or reverse frailty in advanced chronic kidney disease and dialysis patients.

Methods: This is a systemic review of the existing literature. Literature search is performed via PUBMED, EMBASE and MEDLINE. Findings are then summarized and analyzed.

Results: Current evidence suggest multi domain exercise and nutrition are the preferred options in managing frailty. Regular and personalized nutritional counseling and support is beneficial for patients with sarcopenia. Exercise is shown to improve cognition. There is currently lack of evidence that more intensive dialysis or different modality of dialysis makes a difference in frailty in dialysis patients. Home based dialysis can be considered for frail patients.

Conclusion: There is lack of evidence of effective interventions that can reverse or prevent frailty in advanced chronic kidney disease patients. Limited evidence suggest that exercise and nutrition is important. Larger trials are needed.

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Effects of Preoperative Exercise and Amino Acid Supplementation in Frail Older Patients with Gastrointestinal Cancer: A Randomized Controlled Trial

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Background: Preoperative frailty is a significant risk factor for postoperative complications and poor prognosis in older patients undergoing gastrointestinal cancer surgery.
Objectives: To evaluate the impact of preoperative resistance training and amino acid supplementation on postoperative complications and the maintenance of physical function in frail older patients with gastrointestinal cancer.
Methods: In this randomized controlled trial, 45 frail older patients scheduled for gastrointestinal cancer surgery were assigned to either an intervention group, which performed resistance exercises and consumed amino acid-containing jelly for 14 days preoperatively, or a control group. The primary endpoint was the incidence of postoperative complications, while secondary endpoints included changes in physical function over time.
Results: Postoperative complications occurred in 48.1% of the control group and 44.4% of the intervention group, with no statistically significant difference. However, knee extension strength was better maintained in the intervention group at discharge compared to the control group (86.7% vs. 119.3%, p=0.044). Other physical functions showed no significant differences between the groups.
Conclusion: While the 14-day preoperative resistance exercise and amino acid supplementation program did not significantly reduce postoperative complications, it did help maintain knee extension strength at discharge. These results suggest that targeting physical function, a key component of frailty, through preoperative interventions can help maintain quality of life post-discharge. Preoperative interventions may help maintain physical function during the perioperative period, potentially improving postoperative recovery and quality of life in this vulnerable patient population. Further research is needed to optimize these interventions for better outcomes.

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Sarcopenia and employment among the older adult population - a longitudinal study in Japanese community-dwellers

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Background: As Japan's birthrate declines and the population ages, there is a growing need for the older population to be employed. However, physical and mental factors may play a significant role in the employment of the older population.
Objectives: To clarify the relationship between sarcopenia and employment in the older Japanese population and to contribute to employment support for the older population.
Methods: Data from this study were collected as a part of the National Institute for Longevity Sciences - Longitudinal Study of Aging (NILS-LSA). Repeated measures data on employment status and sarcopenia were collected from 2,350 older Japanese community-dwellers aged 60 to 91 years who participated in any of the 1st to 7th wave examination (1997-2012). Sarcopenia was identified according to the Asian Working Group for Sarcopenia 2019 criteria. The longitudinal association of employment with sarcopenia was examined by generalized estimation equation (GEE), controlling for age, sex, education years, history of chronic disease, smoking, alcohol drinking, and survey waves.
Results: The prevalence of sarcopenia at the first participation was 4.9%, and the employment rate was 38.0%. The association between sarcopenia and employment was not significant, and interaction between sarcopenia and age was also not significant, controlling for all covariates in the GEE model. The result was similar in analysis without controlling for covariates except for sex and age.
Conclusion: Sarcopenia was not associated with employment status in older Japanese community-dwellers. The older population in Japan is highly motivated to work, regardless of their physical condition.

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Effects of ACcuraTe feedback from physical actIVity monitoring and on Educational intervention for frail adults in a Preventive Care facility (ACTIVE-PC): A randomized controlled trial

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Background: We developed a system that centrally manages multiple persons' physical activity (PA) using an accelerometer with near-field communication.
Objectives: This study examined the usefulness of a multi-person PA management system (improvement in PA and accuracy of staff management) in two long-term care prevention facilities targeting frail individuals.
Methods: Forty-seven subjects (age: 80.0; male: 36.2%) were randomly divided into two groups and lent the accelerometer. All the subjects set individual goals for PA over 3 months and underwent goal-based exercise training for these months. The intervention group received educational intervention using the PA management system for the entire period, while the control group used the system only for the last month. An analysis of covariance was performed to compare the difference in step counts due to system use and the staff's accuracy in ascertaining PA (error rate between actual measured steps and staff-predicted steps).
Results: Wearing adherence to the accelerometer during the 3-month training was higher in the intervention group (85.9%) than in the control group (78.6%). After being adjusted for baseline step counts, the intervention group tended to take more steps at 3 months than the control group (difference: 560.3 steps; 95% confidence interval: -13.0 to 1133.6). Staff management was also more accurate in the intervention group (error rate: 55.3%) than in the control group (error rate: 131.65%) at 3 months.
Conclusion: A multi-person PA monitoring system could be used by frail community dwellers by themselves or others for PA management and increased PA.

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Association between eating out and incident disability among community-dwelling Japanese older adults: a longitudinal cohort study

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Background: The effect of eating out on older adults' health lacks clarity.
Objectives: This study aimed to clarify the association between eating out and the incident disability among community-dwelling older adults.
Methods: Participants comprised 629 non-disabled adults aged ≥65 years from the seventh survey (baseline: 2010−2012) of the National Institute for Longevity Sciences- Longitudinal Study of Aging. Participants were divided into two groups: "eating out" (ranging from 'less than once a week' to 'daily') and "never." Disability was defined as requiring a care need level ≥1 certificated by long-term care insurance from the baseline through August 31, 2020. Cox proportional hazard models calculated the hazard ratios (HR) and 95% confidence intervals (CI) of eating out on the incident disability, adjusting for possible covariates (reference: never eating out). Analyses were stratified by frailty status using the modified CHS criteria.
Results: With a median follow-up period of 8.9 years, 20.5% of participants developed a disability. Eating out was associated with a lower risk of incident disability (HR, 0.59; 95% CI: 0.41−0.86). In the pre-frail and frail groups, eating out was associated with a lower risk of incident disability (HR: 0.65, 95% CI: 0.43−0.99), although no significant association was found in the robust group.
Conclusion: We found that eating out is linked to a lower risk of incident disability, especially among pre-frail and frail older adults. Eating out may be effective in preventing incident disability.

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Development of a frailty index assessable for intrinsic capacity: An initial analysis among older Japanese community-dwellers

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Background: Incorporating the concept of intrinsic capacity proposed by WHO into the frailty index (FR-IC index) could help predict the disability risk in older people.
Objectives: To develop and validate the FR-IC index among older community dwellers.
Methods: A 35-item FR-IC index (0: Robust to 1: Severe frailty) comprising 14 domains was developed according to the method by Theou O et al. by incorporating the concept of intrinsic capacity: vision, hearing, nutrition, cognition, vitality, and psychological well-being. To test predictive validity, age- and sex-adjusted Cox proportional hazard models estimated hazard ratios for incident disability (care need levels ≥1) by quartiles of FR-IC index (32 items, three items were missing in this cohort), among 1,179 participants aged ≥ 60 (mean±standard deviation [SD]: 71.3±7.4 years, 51% male) from the National Institute for Longevity Sciences - Longitudinal Study of Aging 7th study wave (2010-2012).
Results: The mean±SD of the FR-IC index was 0.08±0.05 (range: 0−0.38). During a mean follow-up of 9.0±2.8 years, 284 (24%) individuals developed disability. Compared to the lowest quartile, adjusted hazard ratios for incident disability through the second to fourth quartiles were 1.47 [95% confidence interval: 0.90−2.48], 2.04 [1.30−3.33], and 2.64 [1.70−4.28], respectively. The area under the curve of the FR-IC index for incident disability was 0.86.
Conclusion: The FR-IC index predicts future disability in older Japanese community-dwellers. Further studies should examine its validity among older adults in other settings.

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Relationship between Asymptomatic Phase of Heart Failure and Physical Activity on Bone Mineral Density among Community-dwelling Women

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Background: Heart failure is associated with decreased bone mineral density(BMD), but whether asymp-tomatic phase of heart failure(HF) is also at risk of decreased BMD has not been well ad-dressed. In addition, physical activity(PA), which is closely associated with HF, has also been known lower BMD, however, there is limited evidence regarding the interaction effect of these two factors on BMD.
Objectives: To examine how asymptomatic HF and PA affect BMD among community-dwelling women.
Methods: This cross-sectional study included 282 community-dwelling women(age 57.9±12.6years). BMD was determined using osteo sono assessment index by quantitative ultrasonography, and 1SD or less was defined as low BMD. The average daily calorie consumption measured by an activity tracker was ad-opted as the measurement of PA, and 1SD or less was defined as low PA. HF stage was classified according to ACCF/AHA guideline, and no subject presented with symptomatic HF(stage C or higher).
Results: Asymptomatic HF (stage A or B; OR, 2.672 [95% CI,1.153-6.195]) and low PA (OR, 3.022 [95%CI, 1.106-8.257]) both are independently associated with BMD even in the adjusted mod-el, and their interaction term was not statistically significant (OR,1.924[95%CI,0.349-10.600]). We classified subjects into four groups according to the presence or absence of asymptomatic HF and low PA, and found that only subjects with asymptomatic HF and low PA had a signifi-cant risk of low BMD(OR,9.119[95%CI,2.268-36.667]).
Conclusion: Even in the asymptomatic stage of HF was at risk of low BMD, and the coexistence of asymptomatic HF and low PA showed a greater risk of low BMD in community-dwelling women.

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Effects of Belt Electrode Skeletal Muscle Electrical Stimulation on Institutional-ized Elderly Residents with Restricted Physical Activity Due to a Cluster of COVID-19

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Background: Belt electrode electrical stimulation (B-SES) has been reported as a potential al-ternative to conventional exercise therapy, but whether the effects of B-SES on im-proving physical function in institutionalized elderly has not been well addressed.
Objectives: To investigate the efficacy of B-SES in institutionalized elderly who were restricted physical activity due to a cluster of COVID-19 at an assisted living residence.
Methods: This randomized controlled trial included 15 elderly residents (age 82.8±10.4, 40% male). Subjects were divided into two groups according to intervention method: a conventional mus-cle strengthening training group (CON group; 8 subjects), in which individual intervention was provided under the direct supervision of a physical therapist, and a B-SES group (7 subjects). The training period was set at 4 weeks.
Results: There were no significant differences between pre- and post-intervention values for leg circumference and body composition in both groups, and the main effects and interactions in two-way analysis of covariance (ANCOVA) were not significant. Regarding motor function, there was a significant improvement in knee extension muscle strength between the two groups before and after the intervention (CON group: 8.6±4.5 vs. 16.5±7.0 kgf, p value 0.012; B-SES group: 9.0±7.3 vs. 15.1±7.3 kgf, p value 0.018), and the main effect in the two-way ANCOVA was also signifi-cant (main effect p value 0.003, interaction p value 0.687).
Conclusion: B-SES showed the same intervention effects as muscle strengthening training with individual intervention by a physical therapist for institutionalized elderly with limited physical activity.