Australian and New Zealand Society for Sarcopenia and Frailty Research

2022 ANNUAL MEETING • HYBRID • 7–9 JULY

Meeting Handbook & Program

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References: 1. Baier S *et al. JPEN J Parenter Enteral Nutr* 2009;33(1):71–82. **2.** Ensure® Plus Strength Product Label. **3.** Deutz N E *et al. Clin Nutr* 2016;35(1):18–26. **4.** Ekinci O *et al. Nutr Clin Pract* 2016; 31(6): 829-835. **5.** Malafarina V *et al. Maturitas* 2017;101:42–50.

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Australian and New Zealand Society for Sarcopenia and Frailty Research

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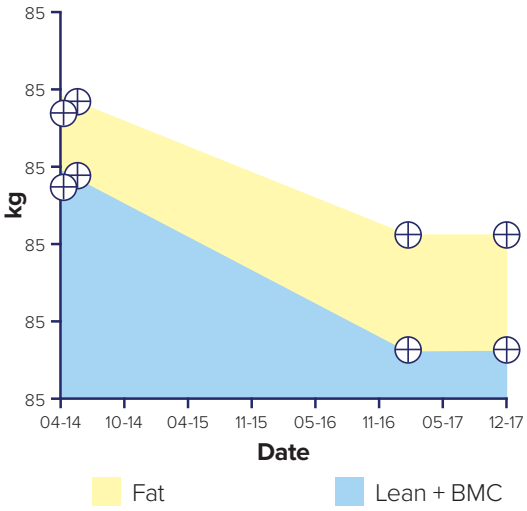

Adipose Indices

Measure	Result
Total Body % Fat	**27.0**
Fat Mass/Height^2 (kg/m^2)	4.86
Android/Gynoid Ratio	0.96
% Fat Trunk/% Fat Legs	1.10
Trunk/Limb Fat Mass Ratio	1.23
Est. VAT Mass (g)	209
Est. VAT Volume (cm^3)	226
Est. VAT Area (cm^2)	43.3

Lean Indices

Measure	Result
Lean/Height^2 (kg/m^2)	12.3
Appen. Lean/Height^2 (kg/m^2)	5.28

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References 1. Jankowski, L et al. Quantifying Image Quality of DXA Scanners Performing Vertebral Fracture Assessment Using Radiographic Phantoms. 2006 DHM-08251 in Agile. **2.** F. Cosman, J. et al. Spine fracture prevalence in a nationally representative sample of US women and men aged 40 years: results from the National Health and Nutrition Examination Survey (NHANES) 2013-2014. Published online: 07 February 2017 International Osteoporosis Foundation and National Osteoporosis Foundation 2017.

Australian and New Zealand Society for Sarcopenia and Frailty Research

2022 ANNUAL MEETING • HYBRID • 7–9 JULY

Welcome

It is my pleasure to welcome you to the fifth Annual Meeting of the Australian and New Zealand Society for Sarcopenia and Frailty Research. Following a successful meeting in Sydney in 2019 together with multiple years of COVID related interruptions, it is with great pleasure that the 2022 conference will be held at the Translational Research Institute, Brisbane, Australia.

Given the unprecedented trend in population aging, both sarcopenia and frailty are becoming increasingly prevalent. As such, this not only threatens the functional independence and health-related quality of life of our older population, but also contributes to high healthcare costs. Therefore, identifying, preventing and managing these conditions is paramount to support healthy ageing. The theme of this year's meeting is **Mechanisms**, **Measurement** and **Management**.

Speakers at this year's conference will include local and international experts, emerging researchers and participants from across the research and practice spectrum. New additions to this meeting include pre-conference workshops and a clinical update session that will be open to a wider group of clinicians. This national conference is a multi-disciplinary meeting that will be attractive to researchers, scientists and clinicians across multiple disciplines including exercise physiology, physiotherapy, nutrition, medicine, nursing, epidemiology, health economics, and public health. As always, we will provide plenty of time for networking with colleagues to share ideas and discuss future collaborations.

I would also like to extend my sincere thanks to Professor Ruth Hubbard for starting this journey as conference convenor before being halted by COVID related interruptions. On behalf of our Scientific/Steering Committee, I would like to welcome you to Brisbane.

Dr Anthony Villani

Convenor

Australian and New Zealand Society for Sarcopenia and Frailty Research 2022 Annual Meeting

Lecturer Nutrition and Dietetics
Honours Coordinator, Health Sciences
Fellow of the Higher Education Acadmey
School of Health and Behavioural Sciences, University of the Sunshine Coast

Local Organising Committee

Dr Anthony Villani, Convenor
Professor Ruth Hubbard, Co-Convenor
Professor Sue Kurrle
Associate Professor Philip Sheard
Professor Itamar Levinger
Dr Natasha Reid
Prof Rob Daly
Prof Andrea Maier

Scientific Committee

Professor Gordon Lynch (Chair)
Professor Andrea Maier
Professor Robin Daly
Associate Professor Philip Sheard
Professor Sue Kurrle
Dr René Koopman
Prof Itamar Levinger

With thanks to the following:
Dr Natasha Reid, Dr Jackson Fyfe, Dr Lara Vlietstra, Dr Paul Jansons, Dr Tu Nguyen

ANZSSFR Council

President: Professor Andrea Maier
President Elect: A/Professor Solomon Yu, SA
Immediate Past President: Professor Robin Daly, VIC Secretary: Clin. Prof Charles Inderjeeth, WA
Treasurer: Dr Itamar Levinger, VIC
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Dr Linda Xu – NSW and ACT
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Dr Mark Sim – Western Australia
Dr Mark Q Thompson – South Australia
Dr Lara Vlietstra – New Zealand

ANZSSFR Secretariat

Nina Wiltshire anzssfr@gmail.com
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Meeting Secretariat

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President's Welcome

It is my pleasure to welcome you to the 2022 Annual Meeting of the Australian and New Zealand Society for Sarcopenia and Frailty Research (ANZSSFR) in Brisbane. As President of ANZSSFR it has been a pleasure to work closely with the local organising and scientific committee, led by Dr. Anthony Villani and Prof. Ruth Hubbard. Together, they have put together an exciting program. The journey toward our 5th Annual Meeting was not as smooth as we hoped. The COVID-19 pandemic changed and often challenged our individual life, our working life and our society. As a consequence, normal activities such as our Annual Meeting, had to be rescheduled. Due to the tremendous work of many members, we were able to build further on our society and can now meet in person with a fabulous program.

We have an outstanding mix of internationally renowned speakers covering basic, clinical and translational research, as well as a diverse range of symposia, oral and poster presentations from our emerging researchers. Many researchers and clinicians will also follow the meeting online, enabling international attendance in times of uncertain border controls and travel restrictions. Whether you are joining the conference in person or virtually, I invite and encourage you to attend all sessions and actively participate in our entire meeting. I encourage everyone to ask questions, network with colleagues, share ideas and explore collaborations. This is what so many of us have missed during the past two years.

I would also like to thank all of our abstract reviewers for all of their hard work in reviewing all of our outstanding abstract submissions. In particular a special mention to our event organiser, Lara Malcom from the Meeting People, who has done a fantastic job in not only organising a sensational event, but for being incredibly flexible and accommodating when we had to reschedule. I would like to extend a special thank you to our sponsors; Abbott (Silver) and Hologic (Bronze), along with our exhibitors; AMSL Medical, Fresenius Kabi and SOZO by ImpediMed. It is with their support that this event has been made possible.

I welcome you to Brisbane and hope that you enjoy the 5th Annual ANZSSFR meeting.

Andrea B. Maier, MD PhD FRACP
President – ANZSSFR

Oon Chiew Seng Professor in Medicine, Healthy Ageing and Dementia Research, Yong Loo Lin School of Medicine, National University of Singapore

Co-Director Centre for Healthy Longevity, National University Health System, Healthy Longevity Translational Research Programme (HLTRP)

Honorary Professor of Medicine, University of Melbourne

Professor of Gerontology, Vrije Universiteit Amsterdam, The Netherlands

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General Information

Venue

Translational Research Institute
The University of Queensland
37 Kent Street,
Woolloongabba Queensland 4102

https://www.tri.edu.au/translational-research-institute-australia

All sessions will be located on the ground floor of the TRI. The plenary sessions will be held in the Auditorium Room. The exhibition, catering and posters will be located outside the Auditorium.

Registration Desk

The registration desk will be open at the following times:

Thursday 7th July	14:00 - 20:00
Friday 8th July	08:00 - 17:30
Saturday 9th July	07:45 - 12:45

Name Badges

Each conference delegate will receive a name badge on registration. The badge will be your official pass and must be worn to gain entry to all sessions, lunch and refreshment breaks.

Speaker Preparation

All speakers must report to the Audio Visual Technician located in the back of the Auditorium Room. Please load your talk with the technician during the breaks prior to your session. It is preferable to load at least two sessions prior to your session.

Poster Presenters

All Posters are up for the duration of the meeting. Posters should be portrait and no more than 1 metre wide x 1.2 metres long. Posters can go up from Thursday afternoon from 2 pm and should be removed by the end of morning tea at 11 am on Saturday. Poster authors should stand by their posters during morning tea on both days to answer queries in relation to your research. Velcro will be provided to affix your poster to the boards.

Abstract Book

All abstracts are available online for downloading prior to the start of the Meeting. Please refer to the link *Meeting Handbook* to obtain a copy to save to your device. No printed abstract books or programs will be provided during the meeting.

WIFI

WIFI will be available at the TRI. A code will be given to you at the time of the Meeting.

Catering Breaks and Special Diets

All catering breaks will be located outside of the auditorium 2 with the exhibitions. We are very grateful for the support of our sponsors and encourage you to take the time to visit them during the breaks. The waiting staff have been advised of any special diets to date. Please see the staff at the Registration Desk or the wait staff to locate your requirements.

Mobile Phones

Please ensure that all mobile phones are switched to silent mode during scientific sessions.

Conference and Social Events

Welcome Reception

Date: Thursday 7th July 2022
Time 6.30pm – 8.00pm
Venue: Exhibition Area (with the posters).

A great networking opportunity that will allow you to catch up with colleagues and mingle with delegates attending the meeting and viewing the posters. Included in full and in-training registration fees.

All delegates must indicate on the registration site whether they will be attending this function.

Cost: Included with full registration.

Meet the Professor Breakfast Sessions

Date: Saturday 9th July 2022
Time 8.00am – 9.00am

Please arrive 10 minutes prior to the start of the session.

Venues:
Breakfast 1: Professor Renuka Visvanathan - SPARQ-ED Room
Title: Frailty in Space

Breakfast 2: Science Communication; the 2022Delphi Process Dissemination Group - Auditorium
A/Prof David Scott and Dr Jesse Zanker

Invited Speakers

Professor Andrea Maier

Oon Chiew Seng Professor in Medicine, Healthy Ageing and Dementia Research, Co-Director of the Centre for Healthy Longevity
@AgeSingapore, National University of Singapore, Singapore
Honorary Professor of General Medicine and Aged Care
@AgeMelbourne | The University of Melbourne
Professor of Gerontology
@AgeAmsterdam | Vrije Universiteit Amsterdam, The Netherlands

Prof Andrea Maier graduated in Medicine at the Medical University Lübeck (Germany) in 2003. She then registered as a specialist Internal Medicine-Geriatrician at the Leiden University Medical Centre, the Netherlands in 2009. Her research is driven by her passion to unravel ageing mechanisms and the interaction of ageing and age-related diseases, with a particular focus on sarcopenia.

Professor Gordon Lynch

Professor Gordon Lynch is Director of the Centre for Muscle Research in the Department of Anatomy and Physiology at The University of Melbourne. His research on muscle adaptation and plasticity, injury and regeneration, investigates causes and treatments for muscle wasting and weakness relevant to ageing, cancer, and the muscular dystrophies.
Gordon Lynch received his Ph.D. in Physiology from The University of Melbourne (1992) and completed postdoctoral training at The University of Michigan (1995-1997) while a NHMRC C.J. Martin Fellow. He was awarded the A.K. McIntyre Medal (1995) from the Australian Physiological Society, an ARC Research Fellowship (1998) and NHMRC R.D. Wright Research Fellowship (1998), then appointed Lecturer in Physiology at The University of Melbourne (1999). He was promoted through the ranks to Professor (2008) and served as Head (Department Chair) of the Department of Physiology (2011-2016). He has >220 papers (Nature, Cell, Cell Metabolism, Physiological Reviews) and a textbook 'Sarcopenia' on age-related muscle wasting and weakness.
His inspirational mentoring has been recognised through national and University awards. He co-Founded Fitness2live (2000-2009), one of the world's first online health companies, later sold to Medibank, and was Research Manager at Medibank Health Solutions (2009-2015). He has authored >1000 health monographs and his weekly national broadcast media work on ABC Radio since 2002 has seen him interviewed on more than 950 occasions and featured in newspapers, magazines, TV news/lifestyle shows and Twitter (@GordonSLynch). He won a National Journalism Award (Asthma Council, 2002), and Research Australia's Advocacy Award (2019) and was a Finalist for Australia's Eureka Prizes for Promoting Understanding of Science (2006) and Scientific Research (2013). In 2015 he received the Woodward Medal in Science and Technology – the most prestigious award for research excellence at The University of Melbourne. He was President of the Australian Physiological Society (2017-2020) and is Scientific Director of the Australian and New Zealand Society for Sarcopenia and Frailty Research.

Associate Professor Michele Callisaya

Associate Professor Michele Callisaya is a NHMRC Boosting Dementia Research Leadership fellow at Monash University and senior physiotherapist at Peninsula Health. Her research and clinical interests focus on improving the cognitive and physical health of older Australians including those with frailty, falls, stroke and dementia. She has >$10 million in research funding and >100 publications in these areas. Her presentation will focus on the impact of cognition on falls in older people.

Professor Sarah Hilmer AM

Sarah Hilmer (BScMed(Hons) MBBS(Hons) FRACP PhD) is Head of Department of Clinical Pharmacology and a Senior Staff Specialist geriatrician at Royal North Shore Hospital; and Conjoint Professor of Geriatric Pharmacology at the University of Sydney. She is a practicing clinical pharmacologist and geriatrician; teaches geriatric medicine and clinical pharmacology; and has institutional, state, national and international leadership roles in medicines management. Her translational research program in Ageing and Pharmacology at the Kolling Institute conducts basic, clinical and population studies to understand relationships between medication use, prescribing and geriatric outcomes, including frailty.

Professor Renuka Visvanathan

Professor Renuka Visvanathan (MBBS FRACP PhD MBA) is the Head of Unit of the Aged and Extended Care Services at the Queen Elizabeth Hospital in Central Adelaide Local Health Network. She is Project Lead to the National Health and Medical Research Council Centre of Research Excellence in Frailty and Healthy Ageing and foundation member to the World Health Organisation's Clinical Consortium in Healthy Ageing. She is also on the Scientific Advisory Board to the International Conference of Frailty and Sarcopenia Research. Until recently, she was on the executive of the Registry of Senior Australians.

Renuka is the Year 5 Course Advisor as well as the metropolitan geriatrics and general practice course coordinator in the University of Adelaide's Medical School Program. She is a clinician working both in public and private. With a h index of 34, she has a broad range of research interest including nutritional frailty and gerontechnology and is especially interested in translation research for the benefit of older people. She has published widely and is on the Editorial Board of the Journal of Frailty and Ageing and the Journal of Nutrition Health and Ageing.

Clinical Update Speakers

Opening address: Emeritus Professor Roland Sussex OAM, FQA, Chevalier des Palmes Académiques

Roland (Roly) Sussex (M.A. Hons Canterbury; PhD London) is a specialist in language, communication and culture, and health communication. He was Professor of Applied Language Studies at the University of Queensland from 1989 until 2010. Before that he taught Linguistics and Russian at the University of Reading (UK) and Monash University in Melbourne, and was the foundation professor of Russian at the University of Melbourne from 1977 to 1989.

He is currently Research Professor in the Institute for Teaching and Learning Innovation, and in the School of Languages and Cultures, at the University of Queensland. Since "retiring" he has become involved in social issues as a public intellectual.

He was chair of the Library Board of Queensland from 2009 to 2014, and then Deputy Chair (2014-2016). He was President of the Alliance Française of Brisbane (2010-2017), and is currently President of the English Speaking Union of Queensland (2018-).

In 2012 he was made Patron of the Institute of Professional Editors. He is co-editor of the international journal *Intercultural Communication Studies,* and is a member of the editorial boards of a number of academic journals.

His current research is focused on language, culture and society, technology, and, more recently, pain and health. He is a member of the PainLang Research Group at the University of Queensland, which is investigating the use of language in the diagnosis, treatment and management of pain (http://www.uq.edu.au/painlang/).

His most recent major publications are *The Slavic languages* with Paul Cubberley, Cambridge University Press, 2006); Andy Kirkpatrick and Roland Sussex (eds), *English as an international language in Asia: Implications for language education*. Berlin and London: Springer-Verlag, 2012); and Andy Curtis and Roland Sussex (Eds). (2018). *Intercultural communication in Asia: Education, language and values*. Berlin and London: Springer Verlag. And of course *Word for today* (University of Queensland Press, 2021).

Roly Sussex wrote a weekly column on language for the Brisbane *Courier-Mail* from 2006 to 2021. His talkback radio program A Word in Your Ear has been broadcast every week to Queensland on ABC radio since 1997, and for the last 20 years to South Australia. His Queensland broadcasts are podcast by the ABC:

- https://www.abc.net.au/radio/brisbane/programs/saturdaymorning/a-word-in-your-ear/
- https://www.abc.net.au/radio/brisbane/programs/saturdaymorning/woofties/
-

When he is not engaged in researching and writing about language, communication, culture and health, he works on his garden and acreage, rides road bikes and mountain bikes, and indulges his passion for classical music.

He was awarded the Medal of the Order of Australia in 2012, and was a made a Chevalier des Palmes Académiques by the French Government in 2017, and a member of the Queensland Academy of Arts and Sciences in 2020.

Dr Robert O'Sullivan

Dr Robert O'Sullivan is a Senior Staff Specialist Geriatrician and General Physician at the Royal Brisbane & Women's Hospital. He is the President Elect of the Australian and New Zealand Society for Geriatric Medicine, was the Co-Chair of Queensland Health's Statewide Older Persons' Health Clinical Network from 2016 until 2021, and Deputy Chair of the Queensland Dementia, Ageing and Frailty Network from September 2021 until June 2022. His professional interests include acute hospital care of adults across the life span (in particular older people), dementia care, and physician education and training.

Professor Susan Kurrle

Sue is a geriatrician practising at Hornsby Ku-ring-gai Hospital in northern Sydney and at Batemans Bay Hospital in southern NSW. She is the Clinical Network Director for Rehabilitation and Aged Care in Northern Sydney Local Health District, and she holds the Curran Chair in Health Care of Older People in the Faculty of Medicine and Health at the University of Sydney.
Her research and practice interests centre on frailty, dementia, delirium, and intergenerational programs. She currently leads an NHMRC funded Frailty project looking at identification and management of frailty in hospital patients with GP follow up in the community. She was recently involved as medical adviser and commentator for the International Emmy award winning ABC TV series 'Old People's Home for 4 Year Olds' which included how frailty can be managed in community dwelling older people.

Invited Symposium Speakers

Dr Matt Piper

Matt graduated with a PhD from UNSW in 2000. From there, he undertook postdocs at TUDelft (The Netherlands) and University College London (UK). In 2011, he was awarded a Royal Society University Fellowship and started his own lab at UCL working on the effects of diet on ageing in *Drosophila*. Upon being awarded a Future Fellowship to continue this work, Matt relocated his lab to Monash in 2016. Throughout his career he has worked on the role of central nitrogen metabolism and its role in metabolic physiology and ageing.

Professor Luigi Fontana
MD PhD, FRACP

Luigi Fontana is an internationally recognised physician scientist and one of the world's leaders in the field of nutrition and healthy longevity in humans. His pioneering studies on the effects of dietary restriction in humans have opened a new area of nutrition-related research that holds tremendous promise for the prevention of age-related chronic diseases and for the understanding of the biology of human aging.

Professor Fontana is the Leonard P. Ullmann Chair of Translational Metabolic Health at the Charles Perkins Centre, where he directs the Healthy Longevity Research and Clinical Program. He is also a Professor of Medicine and Nutrition in the Faculty of Medicine and Health at the University of Sydney and a Clinical Academic in the Department of Endocrinology at the Royal Prince Alfred Hospital. Fontana is an Adjunct Professor of Medicine at Washington University School of Medicine in St.Louis, USA.

Professor Fontana was a Full Professor of Medicine and Nutritional Sciences at Washington University in St.Louis (USA) and Brescia (Italy) Schools of Medicine, and co-director of the Longevity Research Program at Washington University. Fontana graduated with highest honors from the Verona University Medical School (1994), where he completed his internship and residency in Internal Medicine (1999). He also received a Ph.D. in Metabolism and Clinical Pharmacology from the University of Padua Medical School (2003).

Professor Fontana has published over 130 manuscripts in prestigious journals including Science, Nature, Cell, New England Journal of Medicine, JAMA, BMJ, CA Clinical Journal cancer, Nature reviews Mol Cell Biol, Cell Metabolism, Lancet Diabetes Endocrinol, Circulation, Journal American College of Cardiology, Diabetes, Aging Cell and PNAS. He has been invited to present his work at international conferences and top medical schools and research institutes around the world, including Harvard University, Cambridge University, Yale University, Universitè Paris "Pierre et Marie Curie", Max Plank Institute of Aging, Baylor College of Medicine, Buck Institute for Research on Aging, Spanish National Cancer Research Centre, National University of Singapore among others.

Professor Fontana is the recipient of three prestigious awards: the 2009 American Federation Aging Research (AFAR) Breakthroughs in Gerontology Award and the 2011 Glenn Award for Research in Biological Mechanisms of Aging and the 2016 Vincent Cristofalo Award of the American Federation Aging Research. He is a Scientific Member of the Board of Directors of the American Aging Association.

Professor Fontana is also an environmentalist. In 2013, he wrote a perspective article with Daniel Kammen on the beneficial role of efficient use of energy and food in promoting human, environmental, and planetary health, and sustainable economic development. Fontana and colleagues believe that it is possible to substantially enhance human and environmental health, societal wealth and well-being, but this requires a profound transformation in the way we live, and a new environment-centred industrial and economic system. They argue that most of the knowledge and technology to transform the world and begin a new industrial revolution already exist today. We only need to relinquish the idea of producing more energy, food, and other products at lower cost in favour of a new paradigm that opts for less but high-quality energy, food and materials for a healthier life and environment. They also claim that "both individual and societal wealth, happiness, and well-being do not depend merely on the acquisition of material goods and on economic growth, but are powered by our physical and psychological health, the quality of life and the richness of our social relationships, and foremost by the health of the environment that supports all life on earth, our Natural Capital that must be preserved".

Associate Professor Ingrid Hickman

Associate Professor Ingrid Hickman is an Advanced Accredited Practicing Dietitian with a PhD in metabolic medicine from the University of Queensland. For the last 10 years she has led a multidisciplinary clinical research team as the principal research fellow with the Nutrition and Dietetic department at the Princess Alexandra Hospital in Brisbane. Her career has focused on translating scientific evidence supporting 'food as medicine' into improved clinical care for people with chronic metabolic conditions. From mechanisms of disease progression through to patient centred co-design of health services, A/Prof Hickman's eclectic approach to medical research aims to find solutions to health care problems and build research capacity in clinical staff.

Invited Symposium Speakers

Associate Professor David Scott

Associate Professor David Scott is a National Health and Medical Research Council (NHMRC) Emerging Leadership Fellow (Level 2) based at Deakin University in Melbourne, Australia. He is an exercise scientist and completed a PhD on associations of health behaviours with age-related declines in skeletal muscle mass and function (known as "sarcopenia") in older people at the University of Tasmania in 2010. He has since published over 170 peer-reviewed journal articles and three book chapters, and regularly provides presentations at national and international conferences.

David has received two NHMRC fellowships, as well as a number of awards including a Victorian Young Tall Poppy Award and American Society of Bone and Mineral Research (ASBMR) Rising Star Award. He currently leads several clinical trials exploring the effects of exercise and nutrition interventions on improving body composition, physical function and bone health in older populations, with a recent focus on the use of digital tools to support behaviour change. He has expertise in musculoskeletal imaging and clinical assessments of physical function in older adults and is the inaugural Chair of the Australian and New Zealand Society for Sarcopenia and Frailty Research's Task Force on Sarcopenia Diagnosis and Management.

Dr Stefanie Mikolaizak

Dr Stefanie Mikolaizak is a senior research fellow at Robert Bosch Medical Foundation in Germany and a senior market access associate at AbbVie pharmaceutical research and development.

She is a physiotherapist with current registrations in Germany and Australia and obtained her PhD in public health and community medicine from UNSW Sydney in 2016. Following a post-doc in Germany, Stef returned to Australia to finish her health economics degree.

Stef's expertise lies in the use of allied health to prevent functional decline and maintain quality of life in younger and older people. She has over 14 years of falls-prevention and ageing research experience, with a main role being project-coordinator and management for both local and international multidisciplinary projects. Ongoing involvement span EU IMI projects, management of local clinical trials, managing Leading Better Value Care programs and since 2020 working as a health economist in market access.

Stef's research aims to promote health and quality of life through economically sustainable, equitable and efficient use of health resources. Within all her academic projects a main focus is to better understand the importance of intervention adherence and how this mediates treatment effect.

Professor Maria Fiatarone Singh AM

Professor Maria Fiatarone Singh, M.D., FRACP, a geriatrician, has held the inaugural John Sutton Chair of Exercise and Sport Science, Faculty of Health Sciences, and Professorship, Sydney Medical School since 1999. Her research, teaching and clinical career has focused on the integration of geriatric medicine, exercise, and nutrition to improve quality of life in older adults, and she is recognised internationally for this work spanning over 3 decades.

Maria has designed and carried out many clinical trials and longitudinal studies in Australia, the USA, Norway, and France, including large multi-centre trials of exercise and chronic disease prevention and treatment. She has published extensively, having authored/edited 3 books and over 370 peer-reviewed journal articles, book chapters, position stands, and reviews, with an h-Index of 73. She has been awarded research funding exceeding AUD $68 million to conduct research internationally.

Overview of the Frailty Targeted Call for Research Grants

Dr Benignus Logan

Benignus is completing his final year of training to become a Geriatrician. He is a PhD candidate at the University of Queensland, where his program of work is looking at frailty and goals of care in frail older people with moderate to severe chronic kidney disease.

Workshop Speakers

Workshop 1

Practical assessment of malnutrition, sarcopenia and frailty

Dr Grace Rose, Heidi Johnston and Adrienne Young

This workshop will discuss the available evidence and recommended appropriate techniques and considerations for assessment of sarcopenia, malnutrition, and body composition. Following an initial presentation about theoretical considerations of each topic, delegates will be provided with small group practical demonstrations and practice of assessment techniques and case studies related to each assessment area, and individual questions and considerations will be addressed.

Dr Grace Rose

Dr Grace Rose is a Postdoctoral Research Fellow and Accredited Exercise Physiologist at the University of Queensland. Her expertise surrounds the between-day accuracy and reliability of body composition assessment. Grace regularly provides body composition assessment workshops at international/ local events that discuss practical recommendations regarding appropriate pre-testing requirements for measurement and which technique may be best.

Heidi Johnston

Heidi is an Accredited Practising Dietitian specialising in the field of advanced liver disease and liver transplant. Her areas of interest include the feasibility of implementing new assessment techniques to allow for the timely identification of sarcopenia and frailty. Heidi is currently undertaking a PhD examining the reliability of frailty and sarcopenia assessments in potential liver transplant candidates and investigating the implications of frailty, sarcopenia and myosteatosis on pre, peri and post-transplant outcomes.

Adrienne Young

Adrienne is an Advanced Accredited Practicing Dietitian at RBWH and Senior Research Fellow at the University of Queensland. Her research to date has focused on malnutrition and improving nutrition care for older people in hospital. Through this research and clinical practice, she has completed 1000s of nutrition assessments, and regularly trains dietitians and students in malnutrition screening and assessment.

Workshop Speakers

Workshop 2

Optimising prescribing for frail older inpatients – Session prepared by Duncan Long, Alex Karlovic, Dr Leila Shafiee Hanjani, Dr Nazanin Ghahreman-Falconer, Karl Winckel and Ching-Tin Hung

This workshop will provide a brief overview of frailty and its identification in clinical practice, as well as the challenges of prescribing in older people and people with frailty. In the second half of the workshop, attendees will have the opportunity to work on a hypothetical patient example in groups and discuss how to optimise medications for a frail older adult.

Alex Karlovic

Alex Karlovic, BPharm, MPharm is the senior pharmacist for the Geriatric Evaluation and Management in the Home team at the Princess Alexandra Hospital.

Karl Winckel

Kark Winckel is a pharmacist working at the Princess Alexandra (PA) Hospital and the University of Queensland Australia. He has an interest in a wide range of clinical areas including cardiology, mental health and geriatrics, however his main interest is in education and training. He has coordinated extended training for nurses, allied health care workers, and doctors. He has also been heavily involved in designing and co-ordinating training programs for hospital pharmacists and intern pharmacists both within the hospital, and nationwide with the Society of Hospital Pharmacist Australia. As a conjoint member of staff working at the University of Queensland, Karl coordinates 2 courses in the Masters of Clinical Pharmacy program and is involved in teaching in a wide range of areas including cardiology. Karl's research interest is primarily around clozapine and other antipsychotic use, and antifactor Xa level monitoring for heparin use.

Dr Leila Shafiee Hanjani

Dr Leila Shafiee Hanjani is a Research Fellow with the Ageing and Geriatric Medicine unit at the Centre for Health Services Research, The University of Queensland. She completed her PhD with The University of Queensland in 2021 focussing on optimising medication prescribing in older people with dementia. Leila is a pharmacist by training and completed a Master of Clinical Pharmacy at the University of Queensland in 2014. Leila's research primarily focuses on improving and optimising medication use and safety in older people. Her other research interests include research related to medication management in frailty, and the role of technology in medication management.

Day 1 – Thursday 7th July 2022

CLINICAL UPDATE SESSION

14:00-18:00	Registration Desk Open — AUDITORIUM FOYER	
	PRE-CONFERENCE WORKSHOPS	
14:30-16:00	**WORKSHOP 1** — AUDITORIUM **Practical assessment of malnutrition, sarcopenia and frailty - Dr Grace Rose, Heidi Johnston, Adrienne Young** *This workshop will discuss the available evidence and recommended appropriate techniques and considerations for assessment of sarcopenia, malnutrition, and body composition. Following an initial presentation about theoretical considerations of each topic, delegates will be provided with small group practical demonstrations and practice of assessment techniques and case studies related to each assessment area, and individual questions and considerations will be addressed.*	**WORKSHOP 2** — SEMINAR ROOM **Optimising prescribing for frail older inpatients – Session prepared by Duncan Long, Alex Karlovic, Dr Leila Shafiee Hanjani, Dr Nazanin Ghahreman-Falconer, Karl Winckel and Ching-Tin Hung** *This workshop will provide a brief overview of frailty and its identification in clinical practice, as well as the challenges of prescribing in older people and people with frailty. In the second half of the workshop, attendees will have the opportunity to work on a hypothetical patient example in groups and discuss how to optimise medications for a frail older adult.*
16:00-16:15	*Short break* — AUDITORIUM FOYER	
16:15-16:30	*Chair: Dr Natasha Reid* **Welcome to Country – Shanice Martin** **Meaning of the words Sarcopenia and Frailty: Emeritus Professor Roland Sussex, OAM** *Emeritus Professor of Applied Language Studies, University of Queensland* — AUDITORIUM	
16:30-18:30	**CLINICAL UPDATE SESSION: INNOVATIONS IN THE MANAGEMENT OF FRAILTY AND SARCOPENIA ACROSS THE AUSTRALIAN STATES** — AUDITORIUM *Chair: Cassandra Smith*	
16:30-17:10	*Dr Robert O'Sullivan* Title: QLD Frail Older Person's Collaborative Program	
17:10-17:50	*Professor Sue Kurrle, Genevieve Maiden and Helen Tuxworth* Title: NSW Frailty Taskforce	
17:50-18:30	*Followed by Q&A with the speakers*	
18:30-20:00	**Welcome Reception** — ATRIUM AND AUDITORIUM FOYER	

Day 2 – Friday 8th July 2022	
08.30-09:00	OFFICIAL WELCOME AND OPENING — AUDITORIUM *Chair: Dr Anthony Villani, Convenor* Opening address: *Prof Andrea Maier, President ANZSSFR* Speaker: *Professor Andrea Maier* Title: Evidence update: screening, diagnosing and intervening sarcopenia
09:00-9:45	PLENARY SESSION 1 — AUDITORIUM *Chair: Dr Paul Jansons* Speaker: *Professor Gordon Lynch – The University of Melbourne* Title: Muscling up against Ageing
09:45-10:50	OUSTANDING ASTRACT PRESENTATIONS *Chair: Dr Jackson Fyfe*
09:45-09:57	*Dairy Supplementation Preserves Appendicular Muscle Mass, but Not Function in Institutionalised Older Adults: A Cluster-Randomised Controlled Study* Dr Sandra Iuliano, S Poon, J Robbins, Dr X Wang, Prof E Seeman
09:57-10:10	*Impact of frailty on outcomes between patients with COVID-19 and non-COVID viral pneumonitis: A retrospective multi-centre study* A/Prof Ashwin Subramaniam, Prof K Shekar, A/Prof C Anstey, Prof R Tiruvoipati, Prof D Pilcher
10:10-10:23	*Chair Stand Test Should Not Be Used to Diagnose Probable Sarcopenia in Geriatric Rehabilitation Inpatients: RESORT* Laure Verstraeten, N de Haan, E Verbeet, J van Wijngaarden, Prof C Meskers, Prof A Maier
10:24-10:36	*The safety and efficacy of testosterone therapy on musculoskeletal health and clinical outcomes in men: A systematic review and meta-analysis of randomised placebo-controlled trials* Dr Ben Kirk, JBuratto, S Phu, Professor G Duque
10:37-09:49	*Mental health diagnoses, frailty, and outcomes in a large cohort of Australian inpatients* Dr Santosh Baral, Dr N Reid, Dr N Warren, Dr D Siskind, Dr E Gordon, Dr R Hubbard
10:50-11:30	*Morning Tea* — AUDITORIUM FOYER
11:30-13:00	INVITED SYMPOSIUM 1 — AUDITORIUM THE ROLE OF NUTRITION IN HEALTHY LIFE EXPECTANCY *Chair: Dr Ben Kirk*
11:30-12:00	Speaker: *Dr Matt Piper – Monash University* Title: Lifespan extension through dietary modification
12:00-12:30	Speaker: *Professor Luigi Fontana – University of Sydney* Title: Role of nutritional and exercise interventions in healthy aging
12:30-13:00	Speaker: *Associate Professor Ingrid Hickman – The University of Queensland* Title: Challenges of implementation of dietary recommendations
13:00-14:00	*Lunch break* — AUDITORIUM FOYER
14:00-14:30	Title: Overview of the Frailty Targeted Call for Research grants — AUDITORIUM *Chair: Dr Natasha Reid* Speakers: *Professor Sue Kurrle, Professor Sarah Hilmer AM and Dr Benignus Logan*
14:30-15:30	INVITED SYMPOSIUM 2 — AUDITORIUM INCREASING ADHERENCE TO EXERCISE PROGRAMS *Chair: Dr Natasha Reid*
14:00-14:30	Speaker: *Associate Professor David Scott, Deakin University* Title: Using technology to increase exercise adherence
14:30-15:00	Speaker: *Dr Stefanie Mikolaizak* Title: Exercise in young seniors for prevention of functional decline
15:00-15:30	Speaker: *Professor Maria Fiatarone Singh AM – The University of Sydney* Title: Exercise in the older frailer population

Day 2 – Friday 8th July 2022 continued…	
15:30-16:00	*Afternoon Tea* AUDITORIUM FOYER
16:00-16:45	PLENARY SESSION 2 AUDITORIUM *Chair: Dr Julee McDonagh* Speaker: *Professor Sarah Hilmer AM – The University of Sydney* Title: Understanding medication use in frailty: from bench to bedside
16:45-16:35	EMCR Session *Chair: Dr Jack Dalla Via* AUDITORIUM
16:45-16:50	Vitamin D Supplementation and Exercise for Improving Physical Function, Body Composition and Metabolic Health in Overweight or Obese Older Adults with Vitamin D Deficiency: A Randomised, Double-Blind, Placebo-Controlled Trial Mr Jakub Mesinovic
16:50-16:55	Carotid atherosclerosis and fall-related hospitalisation risk: The Perth Longitudinal Study of Ageing Women Mr Abadi Gebre
16:55-17:00	Dietary Vitamin K1 intake is associated with lower long-term injurious falls: The Perth Longitudinal Study of Ageing Women Ms Cassandra Smith
17:00-17:05	*Questions*
17:05-17:10	Association of sleep characteristics with low muscle strength: the Hypnolaus cohort study Dr Ronaldo Piovezan
17:10-17:15	The FRAilty MEasurement in Heart Failure (FRAME-HF) project Dr Julee McDonagh
17:15-17:20	The FRAIL-NH Scale for Frailty Screening in Aged Care: A Systematic Review Ms Shin J Liau
17:20- 17:25	*Questions*
17:30	CONCLUSION
18:00	*Networking drinks hosted by the EMCR Committee at Brisbane Brewing Co, 601 Stanley Street, Woolloongabba*

Day 3 – Saturday 9th July 2022		
08:00-09:00	MEET THE PROFESSOR BREAKFAST SPARQ-ED ROOM Prof Renuka Visvanathan *Frailty in Space*	Science Communication; the 2022 Delphi Process Dissemination Group AUDITORIUM A/Prof David Scott and Dr Jesse Zanker
09:00-09:45	PLENARY SESSION 3 AUDITORIUM *Chair: Dr Julee McDonagh* Speaker: *Associate Professor Michele Callisaya – Monash University* Title: Disentangling the relationship between gait, frailty and dementia	
09:50-10:50	ORAL COMMUNICATIONS AUDITORIUM *Chair: Dr Mia Schaumberg*	
09:50-10:00	*Increase in motor neurone excitability, but not muscle mass, is associated with increases in strength and functional capacity in older adults after high-intensity power training* Mr Lucas Orssatto, Dr Patrick Rodrigues, Ms Karen Mackay Phillips, Prof Anthony Blazevich, Dr David Borg, Mr Tiago Souza, Dr Raphael Sakugawa, A/Prof Anthony Shield, Dr Gabriel Trajano	
10:00-10:10	*Using the Clinical Frailty Scale to Characterise Physical Function Recovery Trajectories of Hospitalised Adults Referred to a Physiotherapy Rehabilitation Service: A Retrospective Observational Cohort Study* Dr Jennifer Jones, T O'Dea, C Michael, T Clohessy, L Gao, E Gerstman, M Hindson, R McGaw, Dr R Morris, J Rose, Professor S Berney, Professor D Berlowitz	

Day 3 – Saturday 9th July 2022 continued…	
10:00-10:20	*Delivery of Home-Based Exercise Training in Older Adults Facilitated by voice-activated intelligent personal assistants: A 12-week Feasibility Trial* Dr Paul Jansons, Dr J Dalla Via, Professor R Daly, Dr J Fyfe, Dr E Gvozdenko, Associate Professor D Scott
10:20-10:30	*Mediterranean diet adherence is associated with greater skeletal muscle strength, physical function and muscle quantity in community-dwelling older adults* Corey Linton, Dr M Schaumberg, Dr H Wright
10:30-10:40	*Codesigning care transition from ED to home: Being Your Best – an innovative approach to frailty* Dr Judy Lowthian, Dr M Green, Dr C Meyer, Professor A Hutchinson, Mrs F Sutherland
10:40-11:10	*Morning Tea* AUDITORIUM FOYER
11:10-11:55	New Zealand Update AUDITORIUM *Chair: Dr Lara Vlietstra* Speakers: Dr Ruth Teh, Professor Debra Waters and A/Professor Chrystal Jaye
11:55-12:35	CLOSING PLENARY SESSION 4 AUDITORIUM *Chair: Dr Jack Dalla Via* Speaker: *Professor Renuka Visvanathan – University of Adelaide* Title: Frailty in Australia – Findings from the National Health and Medical Research Council Centre of Research Excellence in Frailty and Healthy Ageing
12:35-12:45	AWARDS AND CLOSURE *Chair: Dr Anthony Villani, Convenor and Prof Andrea Maier, ANZSSFR President*

POSTER PRESENTATIONS

P1 Frailty associations with socioeconomic status, healthcare utilisation and quality of life among older women residing in regional Australia
Dr Shi-Jynn Yong, Dr Stella M Gwini, Ms Monica C Tembo, Dr Boon L Ng, Dr Chong H Low, Prof Robert C Malon, Prof Trisha L Dunning, Prof Julie A Pasco, Prof Mark A Kotowicz

P3 Frailty Research in Australian and New Zealand Acute Inpatient Settings Involving Older People: A Scoping Review
Dr David Yu, Dr James Smyth, Associate Professor Solomon Yu, Dr Olga Theou, Professor Renuka Visvanathan

P4 Screen and Intervene: An initiative to establish a primary care Frailty Clinic
Dr Saleena Gul Arif, Dr Yu Na Kim

P5 Feasibility and acceptability of a remotely delivered, home-based, pragmatic resistance 'exercise snacking' intervention in community-dwelling older adults: A pilot randomised controlled trial
Dr Jackson Fyfe, Dr Jack Dalla Via, Dr Paul Jansons, Associate Professor David Scott, Professor Robin Daly

P7 Lower Psoas Muscle Area is associated with increased mortality after endovascular aneurysm repair in older adults
Professor Charles Inderjeeth, Dr Jian Ting, Dr Kien Chan, Mr Warren Raymond, Dr Joy Lu, Dr Eileen Zang, Dr Ricky Kwok, Prof Shirley Jansen

P8 Myocardial injury after noncardiac surgery (MINS) in vascular surgery is associated with frailty
Professor Charles Inderjeeth, Dr Poh Chua, Dr Kien Chan, Mr Raymond Warren, Dr Dale Currigan, Ms Lucy Stopher, Professor Shirley Jansen

P10 Association of adherence to a Mediterranean diet with excess body mass, muscle strength and physical performance in overweight or obese adults with or without type 2 diabetes: two cross-sectional studies
Amy Buchanan, Dr Anthony Villani

P11 Characteristics and outcomes of frail patients with COVID-19 admitted to ICU: An individual patient data meta-analysis
Dr Ashwin Subramaniam, A/Prof Christopher Anstey, Prof J. Randall Curtis, Mrs Sushma Ashwin, Dr Mallikarjuna Ponnapa Reddy, Prof David Pilcher, Prof Kiran Shekar

P12 Defining ICD-10 surrogate variables to estimate the modified frailty index: a Delphi-based approach
Dr Ashwin Subramaniam, Prof Ravindranath Tiruvoipati, Dr Jai Darvall, Prof Velandai Srikanth, Prof Michael Bailey, Prof David Pilcher, Prof Rinaldo Bellomo

P13 Timely goals of care documentation in frail patients in the COVID era: A retrospective multi-site study
Dr Ashwin Subramaniam, Prof David Pilcher, Prof Ravindranath Tiruvoipati, Prof Michael Bailey

P14 Comparison of the predictive ability of clinical frailty scale and hospital frailty risk score to determine long-term survival in critically ill patients: A multicentre retrospective cohort study
A/Prof Ashwin Subramaniam, Dr Ueno, Prof Ravi Tiruvoipati, Prof Velandai Srikanth, Prof Michael Bailey, Prof David Pilcher

P15 Protein interventions with exercise to prevent or treat sarcopenia in older adults: a systematic review
Ms Isobel Stoodley, Ms Lily Williams, Dr Bronwyn Berthon, Dr Hayley Scott, Professor Lisa Wood

P16 Assessments of activities of daily living and frailty for nursing home residents vis a vis transfer to the emergency department: a scoping review
Dr James Smyth, Dr Kandiah Umapathisivam, Dr Ivanka Hendrix, Adjunct Professor Hugh Grantham, Associate Professor Glenn Arendts, Professor Renuka Visvanathan

POSTER PRESENTATIONS

P17 Determinants of changes in muscle mass, handgrip strength, and physical performance during hospitalisation to geriatric rehabilitation: RESORT
Mr Jacob Pacifico, Dr Esmee Reijnierse, Prof Kwang Lim, Prof Andrea Maier

P18 Frailty index, not age, predicts treatment outcomes and adverse events for older adults with cancer
Dr James Fletcher, Dr Natasha Reid, Professor Ruth Hubbard, Ms Robyn Berry, Ms Michelle Weston, Professor Euan Walpole, Dr Rahul Ladwa

P21 Is sarcopenia associated with anxiety symptoms and disorders? A systematic review and meta-analysis protocol
Emma West, Associate Professor Lana Williams, Kayla Corney, Professor Julie Pasco

P22 Indices of balance and gait are severely impacted in patients with osteosarcopenia
Ms Kayley Miksa, Dr Danielle Debruin, Sara Vogrin, Professor Gustavo Duque, Dr Myrla Sales, Professor Alan Hayes

P24 Feasibility of Bioelectrical Impedance Analysis to Assess Body Composition in Geriatric Rehabilitation Inpatients: RESORT
Laure Verstraeten, Dr Janneke van Wijngaarden, Dong Yeol Kim, Prof Carel Meskers, Prof Andrea Maier

P25 The profile of frail older people admitted to hospital and the FORTRESS trial
Heather Block, Selena Hill, Rosanna Tran, Keri Lockwood, Dr Linda Xu, Professor Ian Cameron, A/Professor Kate Laver, Professor Maria Crotty, Professor Catherine Sherrington, Dr Annette Kifley, Professor Kirsten Howard, Professor Dimity Pond, A/Professor Tuan Nguyen, Professor Susan Kurrle

P26 The SARC-F is a useful screening tool in those with primary sarcopenia but insufficient to discern disability from sarcopenia in ageing polio survivors
Dr Nigel Quadros, Dr Timothy Lathlean, Mr Michael Jackson, Dr Mahesh Umapathysivam, Dr Kandiah Umapathysivam

P29 Nutrition intervention informed by indirect calorimetry compared to predictive equations to achieve weight goals in geriatric rehabilitation inpatients: The NEED study
Mrs Jeewanadee Hettiarachchi, Dr Kate Fetterplace, Prof Andrea Maier, Dr Esmee Reijnierse

P30 Exploring Predictors of Osteosarcopenia in Older Women
Ms Kayley Miksa, Dr Myrla Sales, Dr Danielle Debruin, Ms Sara Vogrin, Professor Gustavo Duque, Professor Alan Hayes

P31 Healthcare professional attitudes to implementation of frailty interventions
Dr Kisani Manuel, Ms Heather Block, Professor Maria Crotty, Professor Susan Kurrle, Professor Ian Cameron, Ms Keri Lockwood, Associate Professor Kate Laver

P32 SARC-F Questionnaire is a Useful Screening Tool for Identifying Sarcopenia in Patients Affected by Long Arthroplasty Waiting Times (LATE) in the South Australian Public Healthcare System - Pilot Study
Mr Wen Po Jonathan Tan, Associate Professor Peter Smitham, Associate Professor David Campbell, Associate Professor Solomon Yu, Dr Tiffany Kaye Gill, Dr Kandiah Umapathysivam

P33 The Effects of Interactive Exergame on Sarcopenia in Community-Dwelling Older Adults
Ms Ya-Hsuan Tu, Mr Shi-Bo Wang, Dr Shu-chun Lee

P34 Translation and Validation of the Taiwanese Version of the Sarcopenia Quality of Life (SarQoL®-TW) Questionnaire, a Quality of Life Questionnaire Specific for Sarcopenia
Dr Shu-chun Lee, Dr Cheng-Fen Chang, Dr Jiun-Yi Wang, Ms Pei-Jung Liang

P35 A Judo-Based Exercise Program to Reduce Falls and Frailty Risk in Older Adults: A Pilot and Feasibility Study
Dr Agathe Daria Jadczak, Dr Meera Verma, Michael Headland, Dr Graeme Tucker, Prof Renuka Visvanathan

POSTER PRESENTATIONS

P36 Longitudinal interactions between HR-pQCT bone density and D3CR muscle mass (or HR-pQCT bone density and muscle volume) in predicting fractures: The Osteoporotic Fractures in Men study (MrOs)
Dr Ben Kirk, Dr Stephanie L Harrison, Dr Jesse Zanker, Professor Gustavo Duque, Dr Peggy M Cawthon

P37 Diagnostic power of sit-to-stand muscle power, grip strength and gait speed for identifying recurrent falls and fractures in older adults: implications for sarcopenia diagnosis
Dr Ben Kirk, Ms Chloe French, Professor Gustavo Duque

P38 Relationship between plasma homocysteine and bone density, lean mass, muscle strength and physical function in 1,480 middle-aged and older adults: Data from NHANES
Dr Ben Kirk, Dr Jatupol Kositsawat, Dr Sara Vogrin, Professor Gustavo Duque

P39 Is osteosarcopenia associated with a greater likelihood of fractures than osteopenia/osteoporosis or sarcopenia alone? Cross-sectional data from an outpatient clinic
Dr Ben Kirk, Dr Simon Zhang, Dr Sara Vogrin, Dr Myrla Sales, Dr Christel Harijanto, Professor Gustavo Duque

P40 Associations between Leukocyte Telomere length and Osteosarcopenia in 20,400 adults aged 60 years and over: Data from the UK Biobank
Dr Ben Kirk, Dr Chia-Ling Kuo, Dr Meiruo Xiang, Professor Gustavo Duque

P41 Uncontrolled Diabetes Might Increase the Risk for Frailty and Higher BMI Is Linked to a Decreased Risk for Frailty
Dr Yuna Kim, Dr Saleena Arif

P42 The community-dwelling persons with frailty or prefrailty were diagnosed with COVID less than those with robust
Dr Yuna Kim, Dr Saleena Arif

CONTRIBUTED ABSTRACTS

Outstanding Abstract Presentations

Dairy Supplementation Preserves Appendicular Muscle Mass, but Not Function in Institutionalised Older Adults: A Cluster-Randomised Controlled Study

Dr Sandra Iuliano[1,2], Ms Shirley Poon[1], Ms Judy Robbins[1], Dr Xiaofang Wang[1], Prof Ego Seeman[1]
[1]University of Melbourne, Australia, [2]AIMSS, Australia

Aims: Protein-energy malnutrition exacerbates loss of muscle mass and function, increasing risk of falls. We hypothesised that correcting protein intake preserves muscle mass and function in older adults.

Methods: This 2-year cluster-randomised controlled intervention involved 60 aged-care facilities. Thirty facilities were randomised to a dairy-enhanced menu, 30 facilities continued their existing menus. Consented residents (n=272, 71% females, mean age 87.8±7.7years) were assessed at baseline and month 12 for body composition (densitometry), grip strength (dynamometer), gait speed (6m) and physical function (short physical performance battery; SPPB). Group differences were determined using the mixed-effects model adjusted for facility (cluster) and baseline value.

Results: Intervention increased dairy intake from 2.0 to 3.5 servings/day providing 12±6g protein, achieving 69±15g (1.1g/kg body weight) protein daily. Controls consumed < 2 dairy servings/day maintaining an intake of 58±14g protein/day (0.9g/kg body weight). Weight remained stable with intervention (0.3kg, 95%CI -0.8 to 1.4, P=0.563) but decreased in controls (1.4kg; 95%CI 0.6 to 2.1, P=0.0001) due to declines in appendicular lean mass (0.3kg, 95%CI -0.6 to 0.0, P=0.028) and fat mass (0.8kg, 95%CI -1.6 to -0.2) P=0.017). In both groups, grip strength (P<0.01) and SPPB score (P<0.05) declined by 6-7% and 1.5 points respectively. Gait speed remained unchanged.

Conclusion: Correcting inadequate protein intake in aged-care residents maintains appendicular lean mass but not physical function.

Outstanding Abstract Presentations

Impact of frailty on outcomes between patients with COVID-19 and non-COVID viral pneumonitis: A retrospective multi-centre study

A/Prof Ashwin Subramaniam[1,2,3], Prof Kiran Shekar[4], A/Prof Chris Anstey[5], Prof Ravi Tiruvoipati[1,2], Prof David Pilcher[3,6]
[1]Peninsula Health, Frankston, Australia, [2]Monash University, Peninsula Clinical School, Frankston, Australia, [3]School of Public Health and Preventive Medicine, Melbourne, Australia, [4]The Prince Charles Hospital, Chermside, Australia, [5]Bond University, Gold Coast, Australia, [6]Alfred Health, Melbourne, Australia

Aim: We aimed to evaluate the association of frailty on clinically relevant outcomes in patients with suspected or confirmed COVID-19 infection, admitted to intensive care units (ICUs) in Australia and New Zealand.

Methods: In this multicentre, retrospective, observational cohort study based on data from the Australian and New Zealand Intensive Care Society Adult Patient Database from 135 public and private ICUs across Australia and New Zealand, all patients aged ≥16 years admitted to ICUs between January 2020 and December 2020 with admission diagnostic codes for viral pneumonia or acute respiratory distress syndrome (ARDS), and a documented clinical frailty scale (CFS) were included. Patients coded as having ARDS or viral pneumonitis due to COVID-19 were compared to those listed with these conditions due to other causes. The primary outcome was hospital mortality. Secondary outcomes included ICU mortality, ICU and hospital length of stays and discharge destination.

Results: 1294 patients were studied of whom 488 (37.7%) had COVID-19. A higher proportion of patients with COVID-19 were male (62.1% vs. 49.6%; p<0.001), than patients without COVID-19. There was no difference in hospital mortality between the 2 groups (13.7% vs. 12.2%; p=0.43). The logistic regression to assess the impact of frailty, adjusted for Australia and New Zealand risk of death (ANZROD) score, sex, and need for mechanical ventilation showed that hospital mortality was similar between the two groups. The overall median length of ICU and hospital stays were longer for patients with COVID-19 than those without COVID-19, more specifically for CFS 1-3 category.

Conclusion: The impact of frailty on hospital mortality was similar for patients with and without COVID-19.

Outstanding Abstract Presentations

Chair Stand Test Should Not Be Used to Diagnose Probable Sarcopenia in Geriatric Rehabilitation Inpatients: RESORT

Laure Verstraeten[1], Nina de Haan[1], Eline Verbeet[1], Janneke van Wijngaarden[2], Prof Carel Meskers[3], Prof Andrea Maier[5]
[1]Department of Human Movement Sciences, @AgeAmsterdam, Vrije Universiteit Amsterdam, Amsterdam Movement Sciences, Amsterdam, Netherlands, [2]Danone Nutricia Research, Utrecht, Netherlands, [3]Department of Rehabilitation Medicine, Amsterdam University Medical Center, Amsterdam Movement Sciences, Amsterdam, Netherlands, [4]Department of Medicine and Aged Care, @AgeMelbourne, The Royal Melbourne Hospital, The University of Melbourne, Melbourne, Australia, [5]Healthy Longevity Translational Research Program, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore

Aim: According to both the European (EWGSOP2) and Asian sarcopenia definitions (AWGS2019), handgrip strength (HGS) and chair stand test (CST) can be used interchangeably as initial diagnostic measures. The aim was to assess the agreement between sarcopenia prevalence using either HGS or CST, and their association with adverse outcomes in geriatric rehabilitation inpatients.

Method: REStORing health of acutely unwell adulTs (RESORT) is an observational, longitudinal cohort of geriatric rehabilitation inpatients. Cohen's kappa (κ) was used to assess the agreement between sarcopenia prevalence (no, probable, confirmed and severe sarcopenia) according to EWGSOP2 and AWGS2019 using either HGS or CST. Associations between HGS and CST and readmission, institutionalisation and mortality were assessed by binomial regression.

Results: Patients (n = 1250, 57% females) had a median age of 83.1 years (interquartile range: [77.5-88.3]). There was no agreement between probable sarcopenia prevalence using HGS or CST for EWGSOP2 and AWGS2019 respectively (HGS: 70.9% and 76.2%; CST: 95.5% and 98.4%; κ = 0.08 and 0.02). Agreement between confirmed and severe sarcopenia prevalence using either HGS or CST was strong to almost perfect. HGS was associated with three-month institutionalisation and three-month and one-year mortality, whereas CST was not associated.

Conclusions: HGS and CST cannot be used interchangeably as diagnostic measures for probable sarcopenia in geriatric rehabilitation inpatients. CST is not useful to predict adverse outcomes in geriatric rehabilitation inpatients.

Outstanding Abstract Presentations

The safety and efficacy of testosterone therapy on musculoskeletal health and clinical outcomes in men: A systematic review and meta-analysis of randomised placebo-controlled trials

Dr Ben Kirk[1], Mr Jared Buratto[1], Mr Steven Phu[2], Professor Gustavo Duque[1]
[1]Department of Medicine, The University of Melbourne, Melbourne, Australia, [2]School of Population Health - Faculty of Medicine, University of New South Wales, Sydney, Australia

Aim: To examine the safety and efficacy of testosterone therapy on musculoskeletal health and clinical outcomes in men.

Method: This review was registered on PROSPERO (ID: CRD42021260532) and followed PRISMA guidelines. Electronic databases (Medline, Embase, Web of Science, Central) were searched for randomised controlled trials (RCTs) reporting on the effects of testosterone therapy versus placebo on any primary (bone density, muscle mass, fat mass, muscle strength/function) or secondary (falls, fractures, disability, adverse events) outcome in men (≥18 years). A random effects meta-regression examined the effects of testosterone on prespecified outcomes.

Result: 1732 men (testosterone: n=905; placebo: n=826) across 16 RCTs were included, with 15 RCTs including older adults (mean age: 77.1 ±7.6 years). Baseline serum testosterone ranged from a mean of 7.5 ± 0.3 to 18.9 ± 1.2 nmol/L (n=4 RCTs included low/hypogonadal men). Testosterone administration included intramuscular injections (n=4), gels (n=8), capsules (n=3) and patches (n=1). Compared to placebo, 6 months of testosterone therapy increased hip bone density (+0.018g/cm2, 95% CI: 0.006, 0.029, p=0.001, I2=0.01%) and total lean mass (+1.44kg, 95% CI: 0.71, 2.18, p=0.001, I2=0.0%) but effects for handgrip strength (standardised mean difference: +0.03, 95% CI: -0.16, 0.23, p=0.74, I2=0.00%) and total fat mass (-0.62 kg, 95% CI: -1.78, 0.53, p=0.29, I2=0.00%) did not reach statistical significance. Risk of bias across RCTs was low and all outcomes had moderate or high certainty of evidence. Few RCTs reported on falls, fractures or disability outcomes and the incidence of (serious) adverse events was low.

Conclusion: Testosterone is effective at increasing hip bone density and total lean mass (high certainly of evidence) in middle-aged and older men, but effects are unclear for other outcomes. Further RCTs are needed to clarify the safety and efficacy of testosterone on musculoskeletal health, and the optimal dose, duration and method of administration still requires attention.

Outstanding Abstract Presentations

Mental health diagnoses, frailty, and outcomes in a large cohort of Australian inpatients

Dr Santosh Baral, Dr Natasha Reid[2], Dr Nicola Warren[3], Dr Dan Siskind[3], Dr Emily Gordon[2], Dr Ruth Hubbard[2]
[1]Department of Geriatrics, Gold Coast University, Southport, Australia, [2]Centre for Health Services Research, University of Queensland, Brisbane, Australia, [3]Metro South Addiction and Mental Health Service, Brisbane, Australia

Aims: Frailty and mental health conditions are prevalent among hospital in-patients. However, little information is available about how these conditions interact with one another. The aim of this study was to understand the association of frailty with presence of a mental health (MH) diagnosis, and to understand if length of stay and discharge destination among older hospital inpatients are influenced by MH diagnoses.

Methods: Data from patients assessed using the interRAI acute care assessment were collected between 2006-2018 from 27 hospitals in Queensland, Australia. Frailty was defined using the frailty index (ranging from 0-1) across 52 measured deficits. MH diagnoses were entered by nurses and derived from patients' records. Diagnoses included: depression, anxiety, PTSD, bipolar, personality, and psychotic disorders.

Results: From a total of 7,755 patients included, 1,372 were classed as having a MH diagnosis. Patients with MH were younger (76.6 vs 79.4 years, $p < 0.001$) and had a significantly higher level of frailty (FI = 0.48) compared to non-MH patients (FI = 0.45; p diff < 0.001). Seventy percent of MH patients were classed as severely frail (FI > 0.40) versus 61% of non-MH patients ($p < 0.001$). There was no difference in length of stay between groups. While MH patients were more likely to be discharged to a residential aged care facility (30% vs 25%; $p = 0.004$), the association of FI with discharge destination did not vary statistically significantly with the presence of a MH diagnosis.

Conclusion: Patients with mental health diagnoses tended to be younger, with a higher mean FI and likelihood of severe frailty compared to patients without MH diagnoses. For acute care patients with mental health diagnoses, assessment of frailty should be prioritised.

EMCR Session

Vitamin D Supplementation and Exercise for Improving Physical Function, Body Composition and Metabolic Health in Overweight or Obese Older Adults with Vitamin D Deficiency: A Randomised, Double-Blind, Placebo-Controlled Trial

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Aim: Vitamin D supplementation may have non-skeletal health benefits and enhance exercise responsiveness, particularly in those with low vitamin D concentrations. We investigated whether, compared with placebo, vitamin D supplementation taken prior to and during a 12-week exercise program improves metabolic health, body composition or physical function in overweight and obese older adults with vitamin D deficiency.

Method: Fifty overweight and obese older adults (mean±SD age: 60±6 years; BMI 30.6±5.7) with vitamin D deficiency (baseline serum 25-hydroxyvitamin D [25(OH)D] levels <50nmol/L) were recruited. Participants were randomly allocated to receive either vitamin D3 (4000 IU/day) or matching placebo for six months. Between months 3-6, all participants completed a 12-week multi-modal exercise program (aerobic and resistance exercise) at a frequency of three days per week (one supervised and two home-based sessions) while continuing with vitamin D/placebo. Mean changes in biochemical parameters, body composition and physical function at three and six months were compared between groups.

Results: At three months, vitamin D supplementation increased serum 25(OH)D levels (placebo: 2.5±14.7nmol/L; treatment: 43.4±18.4nmol/L; P<0.001) and reduced stair climb times (placebo: 0.3±1.0sec; treatment: -0.2±1.0sec; P=0.046). At six months, vitamin D supplementation combined with multi-modal exercise reduced waist circumference (placebo: 1.3±7.3cm; treatment: -3.0±6.1cm; P=0.02) and decreased waist-to-hip ratio (placebo: 0.01±0.05; treatment: -0.03±0.05; P=0.005). Vitamin D supplementation had no effect on gait speed (primary outcome) or other biochemical, body composition or physical function parameters when taken alone, or in combination with exercise.

Conclusion: Vitamin D supplementation increased 25(OH)D levels and augmented waist circumference losses following a multi-modal exercise program in overweight and obese older adults with vitamin D deficiency. Vitamin D supplementation alone also reduced stair climb times. Future trials should focus on populations with moderate or severe vitamin D deficiency as they are more likely to experience therapeutic benefits from vitamin D supplementation.

EMCR Session

Carotid atherosclerosis and fall-related hospitalisation risk: The Perth Longitudinal Study of Ageing Women

Mr Abadi Gebre[1,2], Dr Marc Sim[1,3], Dr Jack Dalla Via[1], Dr Alexander Rodríguez[1,4], Prof Jonathan Hodgson[1,3], Dr Catherine Bondonno[1,3], Prof Peter Thompson[3,5], Prof Richard Prince[1,3,6], Assoc Prof Joshua Lewis[1,3,7]

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Aims: Stroke is associated with a higher risk of falls. However, little data exists examining the relationship between carotid atherosclerosis (surrogate marker of cerebrovascular disease) and falls. As such, we investigated the association between measures of carotid atherosclerosis including carotid plaque and common carotid intima media thickness (CCA-IMT) with long-term fall-related hospitalisation.

Methods: Community-dwelling older Western Australian women (N = 1116, age = 75.1 ± 2.7 y) were included. B-mode carotid ultrasound was used to assess the presence of focal carotid plaque, and CCA-IMT at baseline. Six images of the left and right common carotid arteries (three per side) were used to obtain a mean and maximum CCA-IMT. Focal carotid plaque was defined as a focal increased thickness ≥1 mm of the intima-media layer. Fall-related hospitalisations were identified from linked health record over 11.5 years.

Results: 428 (38.4%) women experienced a fall-related hospitalisation. In a multivariable adjusted model, presence of any carotid plaque was associated with 44% greater relative hazard for a fall-related hospitalisation (HR 1.44 95%CI, 1.18-1.76). Associations persisted after adjustment for measures of muscle function including hand grip strength and timed-up-and-go performance. Each SD increase in mean (SD 0.13) (HR 1.10 95%CI, 1.00-1.21) and maximum (SD 0.15) CCA-IMTs (HR 1.11 95%CI, 1.01-1.22) were also associated with greater risk of falls.

Conclusion: Measures of carotid atherosclerosis were associated with a higher long-term risk of injurious falls independent of measures of muscle function. Further investigations into the importance of clinical and subclinical vascular disease for assessing falls risk are warranted.

EMCR Session

Dietary Vitamin K1 intake is associated with lower long-term injurious falls: The Perth Longitudinal Study of Ageing Women

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Aim: Benefits of dietary Vitamin K for musculoskeletal health remain unclear. We examined the association between dietary Vitamin K1 and K2 intake with fall related hospitalizations over 14.5 years in community-dwelling older Australian women (n=1373, ≥70 years).

Methods: Vitamin K1 and K2 intake at baseline (1998) was estimated using a validated food frequency questionnaire and a new Australian Vitamin K nutrient database we have recently developed by chemical analysis of Australian foods, supplemented with published data. Over 14.5 years, complete injurious fall 535 (39.7%), related hospitalizations were captured using linked health data. Muscle function (grip strength and timed-up-and-go; TUG), plasma Vitamin D status (25OHD) and the ratio of undercarboxylated osteocalcin (ucOC) to total osteocalcin (tOC) from serum was assessed at baseline.

Results: Estimates of dietary Vitamin K1 intake were supported by a significant inverse association with ucOC:tOC; a marker of Vitamin K status (r=-0.12, p<0.001). Compared to women with the lowest Vitamin K1 intake (Quartile 1, <61 ug/d), women with the highest Vitamin K1 intake (Quartile 4, ≥99 ug/d) had lower hazards for an injurious fall (HR 0.74 95%CI 0.59-0.93), independent of 25OHD levels, as part of multivariable-adjusted analysis. These women also had 29% lower odds (OR 0.71 95%CI 0.52-0.97) for slow TUG performance (>10.2 s) but not weak hand grip strength (<22 kg). Spline analysis suggested a nadir in the relative hazard for a fall-related hospitalizations at a Vitamin K1 intake of ~100 ug/day. No significant association between Vitamin K2, muscle function and falls was observed.

Conclusion: In community-dwelling older women, Vitamin K1 intake above 100 ug/day, but not Vitamin K2 intake, is associated with lower risk for falls, possibly related to effects on neuromuscular co-ordination. It should be noted that the dietary sources of Vitamin K1 (green leafy vegetables) and K2 (animal-based products) are very different and that these data refer to a substantial influence of diet that may be modifiable.

EMCR Session

Association of sleep characteristics with low muscle strength: the Hypnolaus cohort study

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Objective: Investigate associations between objective and subjective indicators of sleep disorders and low muscle strength (LMS) in different ageing groups and genders from a population-based cohort study.

Methods: Polysomnographic and subjective sleep data from participants (40-80 years) of the HypnoLaus study (Lausanne, Switzerland) were cross-sectionally analyzed. Indicators of sleep disorders were assessed by questionnaires a full-night complete polysomnography. LMS was defined according to the diagnosis of sarcopenia (grip strength <27 kg [men] and <16 kg [women]). Results obtained by multivariate logistic regression were controlled for confounders.

Results: 1902 participants (mean [SD] age, 57.4 [10.5] years; 761 [40.1%] older adults; 968 [50.9%] female) were enrolled. Objective short (<6.2h) and long sleep durations (>8.5h) were associated with LMS (OR=1.74, 95%CI=1.07-2.82; OR=6.66, 95%CI=3.45-12.87, respectively). Increased nighttime wakefulness >90min and severe OSA (AHI>30) were associated with LMS (OR=1.60, 95%CI=1.01-2.56; OR=2.36, 95%CI=1.29-4.31, respectively). In older adults >60 years, these associations persisted, and reduced sleep efficiency was associated with LMS (aOR=1.81, 95%CI 1.05-3.13). Objective long sleep duration was associated with LMS in both genders and severe OSA predicted LMS among women (aOR=2.64, 95%CI 1.11-6.24).

Conclusions: Early sarcopenia markers were affected by long sleep duration since middle-age in both genders. Muscle strength was more susceptible to effects of other indicators of inappropriate sleep duration and quality in older age. Additionally, the results supported a potential role of sarcopenia on age-related OSA. Our findings providing evidence towards intricate relationships between sleep and muscle health are potential supports to public health and clinical research proposals on preventive and therapeutic strategies against the increasing morbimortality observed with ageing.

EMCR Session

The FRAilty MEasurement in Heart Failure (FRAME-HF) project

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Aim: The FRAME-HF project aims to determine the most suitable and clinically relevant frailty assessment method in adults living with heart failure.

Method:
Design: Prospective cohort study
Setting and participants: The FRAME-HF project was undertaken at St Vincent's Hospital, Sydney, Australia. Individuals aged ≥18 years with a diagnosis of heart failure (n=131) and Cardiovascular clinicians (n=39) were recruited.
Statistical analyses: Firstly, the correlation and agreement between clinician estimates of frailty (e.g., the 'eyeball test') and formal frailty assessment were compared using a spearman's correlation coefficient and a weighted kappa statistic. Secondly, the performance of six frailty instruments in predicting composite mortality and rehospitalisation at 12 months were compared using multiple logistic regression.

Results: Subjective clinician estimates of frailty did not show a strong correlation or agreement to the formal frailty assessment. Correlation between clinician-estimated frailty and formal frailty was fair (rs = 0.52 [p= <0.00]). Agreement between clinician-estimated frailty and formal frailty was also fair (0.33; 95% CI: 0.23 -0.43 [p= <0.00]). There was no significant difference in predictive performance between the six frailty instruments in this cohort.

Conclusion: Further work is needed to confirm these results in a larger cohort. A validated frailty instrument for use in adults with heart failure is needed, one that is quick and easy to use in a resource-restricted clinical environment. Subjective clinician estimates of frailty are unreliable and should not replace formal frailty assessment in clinical practice.

EMCR Session

The FRAIL-NH Scale for Frailty Screening in Aged Care: A Systematic Review

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Aims: To synthesise the literature on the use of the FRAIL-NH scale including frailty prevalence, cross-sectional associations, predictive validity, concurrent validity, and cross-cultural adaptations.

Methods: A comprehensive literature search was performed on MEDLINE, EMBASE, CINAHL, and Cochrane Library between January 2015 to June 2021. Primary studies that used the FRAIL-NH scale were eligible for inclusion irrespective of study designs and publication language.

Results: A total of 40 studies conducted across 20 countries were included; majority in Australia (n=14), followed by China (n=6), and Spain (n=3). The scale has been cross-culturally adapted into Brazilian Portuguese, Chinese, and Japanese. The most common FRAIL-NH cut-offs used for frail and most frail were ≥2 and ≥6, respectively. Frailty prevalence ranged from 15.1-79.5% (frail) to 28.5-75.0% (most frail) when defined using these cut-offs. FRAIL-NH was predictive of falls (n=2), hospitalization or length of stay (n=4), functional or cognitive decline (n=4), and mortality (n=9) over a median of 12 months follow-up. FRAIL-NH was compared to 16 other scales, and was correlated with Fried's phenotype (FP), Frailty Index (FI), and FI-Lab. Four studies reported fair-to-moderate agreements between FRAIL-NH and FI, FP, and the Comprehensive Geriatric Assessment. The sensitivity and specificity of different cut-offs were assessed in 10 studies, with ≥8 having the highest sensitivity (94.1%) and specificity (82.8%) for classifying residents as frail based on FI; whereas two studies reported an optimal cut-off of ≥2 based on FI and FP, respectively.

Conclusion: The FRAIL-NH scale has been increasingly used globally and adapted into three languages. Despite the various cut-offs applied, FRAIL-NH was associated with higher care needs and demonstrated good agreement with other well-established but more complex frailty scales. FRAIL-NH demonstrated predictive validity for adverse health outcomes across different settings, highlighting its value in guiding care for frail residents in residential aged care facilities.

Oral Communications

Increase in motor neurone excitability, but not muscle mass, is associated with increases in strength and functional capacity in older adults after high-intensity power training

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Aim: This study investigated the effects of high-intensity power training on intrinsic motor neurone excitability, strength, functional capacity and muscle mass in older adults.

Method: Seventeen participants (68.5±2.8 years) completed a 2-week non-exercise control period followed by 6 weeks of resistance training. Surface electromyographic signals were collected using two 32-channel electrodes placed over soleus to investigate motor unit discharge rates. Paired-motor unit analysis was used to calculate delta frequency (ΔF) as an estimate of motor neurone excitability during (a) triangular-shaped contractions to 20% of maximum torque capacity. Maximal strength, plantarflexor muscle mass and functional capacity tests were also assessed.

Result: For the 20% triangular-shaped contractions, ΔF (0.58-0.87 pps; $p \leq 0.015$) and peak discharge rates (0.78-0.99 pps; $p \leq 0.005$) increased after training, indicating increased motor neurone excitability. Maximal strength and all functional capacity test increased after the training period ($p<0.001$). Also, moderate-to-very large correlations ($r=0.39$-0.82) were observed between changes in 20% triangular-shaped contraction ΔF and changes in peak discharge rates, maximal strength and measures of functional capacity. There were no changes in measures of plantar flexor muscle mass.

Conclusion: Our findings indicate that increased motor neurone excitability is a potential mechanism underpinning training-induced improvements in motor neurone discharge rate, strength, and motor function in older adults. This increased excitability is likely mediated by enhanced motor neurone calcium and sodium persistent inward currents amplitudes. These findings suggests that changes in motor neurone physiology might be explored as a new mechanism to prevent age-related decline in muscle strength and functional capacity.

Oral Communications

Using the Clinical Frailty Scale to Characterise Physical Function Recovery Trajectories of Hospitalised Adults Referred to a Physiotherapy Rehabilitation Service: A Retrospective Observational Cohort Study

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Aim: To describe physical function recovery trajectories and responsiveness to physical rehabilitation using categories of the Clinical Frailty Scale (CFS) for hospitalised adults referred to the physiotherapy Early Rehabilitation service at Austin Health in Victoria, Australia.

Method: A retrospective observational cohort study from January 1 2019 to December 31 2020 of patients with a CFS score recorded in the electronic medical record. Physical function was assessed using the modified Iowa Level of Assessment Scale (mILOA), a 37-point scale with higher values representing greater physical disability. The mILOA was completed at the beginning (pre-mILOA) and end (post-mILOA) of the physiotherapy Early Rehabilitation program. Physical function outcomes were compared across the CFS with analysis of variance and Kruskal-Wallis test.

Result: We analysed 736 patients with a CFS score ranging from one to seven (CFS score = patients: 1=31, 2=99, 3 = 136, 4=141,5=157, 6=119, 7=53). Pre-mILOA scores were completed for 96% (n=708) of patients and physical disability increased with CFS score (CFS score = median (IQR) mILOA score: 1=18 (9, 27), 2=19 (11, 26), 3=20 (13, 27), 4=21 (16, 27), 5=23 (18, 29), 6=26 (21, 30), 7=31 (29, 32) p <0.001). Post-mILOA scores were completed for 63% (n=466) of patients. The greatest improvement in mILOA scores from pre- to post-were observed in patients who were less frail and exceeded the minimally clinical important difference of 5.8 points (CFS score = change in mILOA score mean (SD): 1=-10(7), 2=-9 (8), 3=-8 (7), 4=-9 (7), 5=-7 (7), 6=-7 (6), 7=-3 (5) p < 0.001).

Conclusions: Hospitalised adults with less frailty had a better physical function recovery trajectory following a physiotherapy Early Rehabilitation program. These findings provide opportunity to predict recovery, explore rehabilitation dose-response and target health care resources in future research.

Oral Communications

Delivery of Home-Based Exercise Training in Older Adults Facilitated by voice-activated intelligent personal assistants: A 12-week Feasibility Trial

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Aim: The aim of this study was to evaluate the feasibility of using voice-activated intelligent personal assistants (VIPAs) to remotely deliver and monitor an individually-tailored, home-based exercise program to older adults living independently and alone.

Method: This was a 12-week, prospective, single-arm feasibility study in 15 adults aged 60 to 89 years living independently and alone in the community. All participants were prescribed a home-based muscle strengthening, weight-bearing impact and balance exercise program consisting of 2-4 daily, 10-minute sessions delivered using VIPAs (Amazon Alexa Echo Show 5; "Alexa") and prescribed by an exercise physiologist using a novel software program ("Buddy Link"). Exercises were individualized based on participant voice responses to Alexa questions. Study outcomes were feasibility (retention, adherence, and adverse events), usability (System Usability Scale) and changes in quality of life (European Quality of Life Scale), and lower-extremity function (30 second sit-to-stand test).

Results: All 15 participants (mean±SD; age 70.3±4.3 years) completed the study (retention 100%). Mean adherence to the exercise program was 115% (i.e., collectively all participants were prescribed 8640 exercises but completed 9944 exercises) with no adverse events reported to be related to the intervention. System usability scored as above average (75/100). All other exploratory outcomes did not significantly following the 12-week intervention (all P>0.05).

Conclusions: This feasibility study indicates that it is safe and feasible for community-dwelling older adults living alone to participate in a home-based exercise program delivered and monitored remotely by exercise professionals using VIPAs. The next step is to determine whether such an approach is effective for improving clinical outcomes such as physical function.

Oral Communications

Mediterranean diet adherence is associated with greater skeletal muscle strength, physical function and muscle quantity in community-dwelling older adults

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Introduction: Evidence suggests a beneficial effect of a Mediterranean diet on functional disability in older adults and decreased risk of sarcopenia and frailty. This study aimed to explore associations between Mediterranean diet (MedDiet) adherence, sarcopenia symptomology, and frailty in community-dwelling older adults from a non-Mediterranean country.

Methods: Adults aged 65-85 years (n=135, 72.3±4.8 years, 71.1% female) residing on the Sunshine Coast, Australia were recruited. Skeletal muscle strength was assessed with handgrip strength (HGS) and 30-second sit-to-stand (STS) test, physical performance with timed-up-and-go (TUG), and skeletal muscle mass with appendicular skeletal mass adjusted for body size (ASM/height2). Fried's frailty phenotype criteria identified participants as frail, pre-frail or not-frail. MedDiet adherence was assessed with the Mediterranean Diet Adherence Screener (MEDAS), a score ≥6 indicating greater adherence. Spearman rank correlations investigated associations between dietary adherence, muscle strength, physical function, and muscle quantity adjusted for age, gender, comorbidities, waist circumference and physical activity. Significance was set at $p<0.05$.

Results: Sarcopenia was identified in n=2 (1.5%), frailty in n=3/128 (2.3%) and pre-frailty in n=51/128 (40.8%). Multimorbidity was reported by 23% of participants with 30.4% (n=41) identified as underweight and 17.0% (n=23) as overweight. In total n=84 (62.0%) reported MedDiet adherence, and those with greater adherence had higher STS frequencies (15.2±5 vs. 13.6±4.4, $p<0.05$). MEDAS was positively associated with HGS ($r=0.23$, $p<0.05$). Individual dietary components of the MEDAS were associated with frailty and sarcopenia: low vegetable intake was associated with frailty ($r=-0.21$, $p<0.04$), a higher fish intake with greater HGS ($r=0.20$, $p<0.04$) and lower TUG ($r=-0.21$, $p<0.05$), and a higher legume intake with ASM adjusted for height ($p=0.25$, $p<0.05$).

Conclusions: Greater adherence to a MedDiet was associated with better skeletal muscle strength, physical function and higher muscle quantity whilst higher vegetable intake was associated with non-frailty in this group of community-dwelling older adults.

Oral Communications

Codesigning care transition from ED to home: Being Your Best – an innovative approach to frailty

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Aim: Frailty is characterised by increased vulnerability and decline of physical and cognitive reserves. It mainly affects older people, leading to a cascade of repeated hospitalisations and loss of independence. Frailty and pre-frailty are modifiable with interventions including physical exercise, cognitive training, social connection and improved nutrition, especially in group settings. Uptake of referrals to services following Emergency Department (ED) discharge is sub-optimal, indicating that a more proactive, person-centred and integrated approach is required. In this context, our aim was to co-design a program to help pre-frail and frail older community dwellers following ED discharge, by increasing resilience and promoting independence.(1)

Method: We engaged healthcare consumers and healthcare professionals from three hospitals and a home-based nursing service in metropolitan Melbourne, Australia. We drew on Boyd et al's theoretical framework for codesign incorporating six steps: engage, plan, explore, develop, decide and change.

Results: From co-design sessions with 23 healthcare consumers and 17 healthcare professionals, frailty was perceived to affect physical and mental wellbeing. The co-design process resulted in the Being Your Best program incorporating a holistic approach, that aimed to improve health and wellbeing and mitigate the effects of frailty through community- or home- based physical activities, nutritional support, cognitive training and social support. These four domains, Moving Well, Eating Well, Thinking Well, and Connecting Well, are supported by research evidence.

Conclusion: Promoting community or home-based services for pre-frail and frail older people can raise awareness and may help in reducing the effects of frailty and improving personal wellbeing, leading to increased resilience and independence, and less re-hospitalisations.
Being Your Best is now being tested for feasibility and acceptability with patients recently discharged from ED.(2)

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Poster Presentations

P1

Frailty associations with socioeconomic status, healthcare utilisation and quality of life among older women residing in regional Australia

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Aim: This study examined the association between frailty and socioeconomic status (SES), healthcare utilisation and quality of life (QOL) among older women in south-eastern Australia.

Method: Based on cross-sectional data from 360 women participants (ages >60yr) from the Geelong Osteoporosis Study, multinomial logistic regression was conducted with frailty groupings as outcome. Results were reported as odds ratios (OR) with 95% confidence interval (CI).
Frailty was identified using a modified version of the Fried's phenotype. Weight and height were measured. Individual measures of SES and healthcare utilisation were documented by questionnaire. Area-based SES was determined by cross-referencing residential addresses with the Australian Bureau of Statistics Index of Relative Socio-economic Advantage and Disadvantage (IRSAD). QOL was measured using the Australian World Health Organisation Quality of Life Instrument (WHOQoL-Bref).

Result: Sixty-two (17.2%) participants were frail, 199 (55.3%) were pre-frail and 99 (27.5%) were robust. Frail participants were older (OR 1.15, 95% CI 1.08-1.21) and had higher body mass index (OR 1.10, 95% CI 1.03-1.18) than robust participants. Frailty was associated with lower education (secondary education vs no secondary education: OR 0.20, 95% CI 0.05-0.72) but not with marital status, occupation or IRSAD. Strong associations with frailty were demonstrated for all WHOQoL-Bref domains. Frailty was associated with more primary care doctor visits (16.1% frail, 6% pre-frail, 0% robust participants had >3 visits over a 4-week period, p<0.001) but not with hospital presentations.

Conclusions: In this population-based study, lower education is associated with frailty in older women. Findings from this study highlights the significant impact frailty has on older women, indicating reduced QOL and increased primary care doctor visits. More research is required to address whether increasing health literacy of older women can improve frailty outcomes.

Poster Presentations

P3

Frailty Research in Australian and New Zealand Acute Inpatient Settings Involving Older People: A Scoping Review

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Aim: The objective of this study is to perform a scoping review of frailty research in acute care settings of older adults in Australia and New Zealand.

Method: Only original research studies of frail hospitalised older adults using validated frailty scales were included. We searched PubMed, CINAHL, PsychINFO and Embase databases from January 2010 to December 2020.

Result: Of the 880 studies found, 62 were deemed eligible. The most common scales used were Frailty Index (FI) and Edmonton Frailty Scale (EFS), followed by Clinical Frailty Scale (CFS). There were limited articles measuring frailty prevalence specifically and most of the studies utilised frailty to measure longitudinal outcomes. Frailty scales predicted overall adverse outcomes statistically significantly in 70% with mortality, length of stay and post-acute care institutionalisation being the most measured. However, research gaps have been identified such as dedicated frailty prevalence studies as well as screening and intervention methods for frailty.

Conclusion: This is the first scoping review to document the current state of frailty research evidence in older people in the Australasian acute inpatient setting. Whilst there has been increasing research and recognition of frailty's major health impacts, gaps identified here can be used to guide further research focusing on improving health outcomes and optimising healthcare costs.

Poster Presentations

P4

Screen and Intervene: An initiative to establish a primary care Frailty Clinic

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Aim: Frailty is a syndrome of physiological decline characterized by increased vulnerability to adverse health outcomes. Frail patients may present with weakness, fatigue, malnutrition, and reduced tolerance to medical and surgical interventions. Frailty has recently gained much attention due to the impact of frailty on the COVID-19 illness trajectory and the potential for functional decline related to social isolation and confinement during the pandemic. Our goal is to measure the incidence of pre-frailty and frailty and identify patients who may benefit from targeted interventions.

Method: We secured a grant from the Massachusetts League of Community Health Centers to establish a weekly Frailty Clinic encompassing physical strength, cognition, psychological, and social functioning domains. The clinic will cater to adults 22 years and older with uncontrolled hypertension, uncontrolled diabetes, or Charlson Comorbidity Index > 6, focusing on patients with language or other social barriers. This clinic will have access to a multidisciplinary team, including a nutritionist, pharmacist, and social service case managers based in our outpatient internal medicine department. The clinic will operate weekly from December 2021 until May 2022. At the visit, the geriatrician will administer standardized frailty assessment tools, perform a comprehensive physical exam, functional and psychological assessment, measure handgrip strength, calculate gait speed, assess weight, nutritional status, and social determinants of health.

Result: Patients screening positive for frailty or pre-frailty will get follow-up labs, e.g., CBC, CMP, TSH, Vitamin D, and albumin, and a bone density scan to assess muscle mass if otherwise indicated for routine osteoporosis screening. We will record frailty diagnoses using appropriate ICD-10 codes for accurate risk stratification and refer for physical therapy, deprescribing, nutrition, or behavioral health as indicated.

Conclusions: Timely interventions to prevent or reduce frailty may improve patient health outcomes by increasing patients' independence in the community, decreasing healthcare utilization, institutionalization, and mortality.

Poster Presentations

P5

Feasibility and acceptability of a remotely delivered, home-based, pragmatic resistance 'exercise snacking' intervention in community-dwelling older adults: A pilot randomised controlled trial

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Aim: To determine the feasibility and acceptability of undertaking a home-based resistance 'exercise snacking' intervention (performed either once, twice, or thrice daily) when delivered and monitored remotely in older adults.

Methods: 38 community-dwelling older adults [aged 69.8 ± 3.8 y (mean ± SD), 63% female] were randomly allocated to four weeks of home-based resistance 'exercise snacking' (nine minutes per session) undertaken once (n = 9), twice (n = 10), or thrice (n = 9) daily, or usual-activity control (n = 10). Exercise adherence and adverse events were assessed using an exercise diary, and intervention acceptability was explored using an online questionnaire. Physical function [static balance, 5-times sit-to-stand (STS), and 30-second STS tests] was assessed remotely at baseline and follow-up via videoconferencing.

Results: The intervention was feasible with 100% participant retention, high adherence (87% overall), and only two adverse events from a total of 1317 completed 'exercise snacks'. Participants found the exercise intervention enjoyable (75% reported their enjoyment as "a great deal" or "a lot") and most (82%) reported they would continue similar exercise at home. Participants also appreciated the simple and brief (albeit frequent) nature of the program and that it addressed health aspects perceived to be important. Changes in physical function following the intervention were, however, similar to controls.

Conclusion: Resistance 'exercise snacking' may be a feasible strategy for engaging older adults in home-based resistance exercise when delivered and monitored remotely. The findings of this pilot feasibility trial support the need for longer-term studies in larger cohorts to determine the effectiveness of resistance 'exercise snacking' approaches for improving physical function in older adults.

Poster Presentations

P7

Lower Psoas Muscle Area is associated with increased mortality after endovascular aneurysm repair in older adults

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Introduction: Psoas muscle area (PMA) is an easily measured surrogate marker of sarcopenia. However, the evidence is conflicted as to whether PMA is associated with poorer post-operative outcomes. This study aimed to further explore the relationship between PMA and outcomes post asymptomatic infrarenal endovascular aortic repair of aneurysm (EVAR).

Methods: A retrospective observational study reviewed people aged over 65 years undergoing EVAR from 1/1/2013 to 31/12/2017. PMA was measured at mid L4 vertebral body on preoperative computer tomography scan. Primary outcome was survival in days from operation. Secondary outcomes were 30-day readmissions related to EVAR, post-operative complications and length of stay measured in days.

Results: Ninety-seven patients (mean age 77.5 years, 78% male) were assessed. Patients in the lowest PMA tertile had an increased unadjusted 5-year mortality (HR 2.31, 95%CI 1.02-5.24, p=0.045). Adjustment for BMI showed also an increased 5-year mortality (HR 2.91, 95%CI 1.16-7.34, p=0.023). Adjustment for age, sex and BMI also showed that patients in the lowest PMA tertile had an increased 5-year mortality (HR 2.76, 95%CI 1.08, 7.03; P=0.034). Adjustment for frailty, in the form of modified frailty index, showed only a minimal attenuation of the association (HR 2.30, 95%CI 0.99, 5.34; p=0.054).
After adjusting for BMI patients with the lowest tertiles of PMA for either sex had increased total LOS (β 0.33, 95%CI 0.04, 0.63; P=0.028). Risk of death was also increased (OR 3.53, 95%CI 1.21, 10.27: P=0.021). 30-day readmissions, complications and discharge destination were not influenced by PMA.

Conclusion: The lowest tertile of PMA, as a surrogate marker for sarcopenia, was associated with increased mortality in patients undergoing EVAR. Adjustment for frailty showed a minimal attenuation of this association Although sarcopenia is a complex phenomenon and the literature surrounding it is still evolving, PMA may form one component of risk assessment in patients undergoing EVAR.

Poster Presentations

P8

Myocardial injury after noncardiac surgery (MINS) in vascular surgery is associated with frailty

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Background: Myocardial infarction after non-cardiac surgery (MINS) is defined as an asymptomatic elevation in high-sensitivity cardiac troponin (Hs-cTnI) secondary to myocardial ischaemia occurring within 30-days post-surgery.

Method: Vascular patients aged 50 years or older who underwent major vascular surgery were prospectively included. Hs-cTnI was captured with routine add on to pre- and post-operative blood tests up to 3 days post-surgery. Patients were scored using scored using the Clinical Frailty Scale (CFS) on admission. The RCRI was utilised to evaluate the preoperative cardiac risks.

Results: 127 patients were included (mean age 71.0 ± 10.1, 70.1% females). The baseline medical co-morbidities predictor of MINS includes heart failure (32.7%, n=17/52, p=0.011); atrial fibrillation (32.7%, n=17/52, p= 0.018); coronary artery disease (61.5 %, n= 32/52, p = 0.002), and diabetes 55.8% (n=29/52, p = <0.001). The incidence of MINS was 40.9% (n=52/127). Patients with MINS were frail with CFS score 4 to 5 (OR 3.02, 95%CI 1.36, 6.68; P=0.007) and CFS 6 to 7 (OR 3.60, 95%CI 1.14, 11.37; P=0.029). The MINS group had a high RCRI score of ≥ 3 (51.9% (n=27/52); P=0.001). 15.4% (n=8/52) had heart failure, 25% (n= 13/52) had myocardial infarction, 1.9% (n= 1/52) had cardiac revascularisation and one patient had stroke post-surgery in the MINS group. Overall, 3.9% (n=5/127) of participants died at 30-days (5.8% in MINS vs 2.7% no MINS; P=0.388). There was a higher rate on the overall BMT rate on admission vs discharge (74.8% vs 85.8%, p= 0.745).

Conclusions: High incidence of MINS found in vascular patients, particularly in the frail group. A simple cardiac biomarker (Hs-cTnI) during the perioperative period distinguished those patients at risk of 30-day mortality or subsequent cardiovascular complications.

Poster Presentations

P10

Association of adherence to a Mediterranean diet with excess body mass, muscle strength and physical performance in overweight or obese adults with or without type 2 diabetes: two cross-sectional studies

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Aim: Overweight and obesity in older adults is associated with disability and is exacerbated by the presence of type 2 diabetes (T2DM). There is emerging evidence that adherence to a Mediterranean diet (MedDiet) reduces adiposity and attenuates physical disability. These cross-sectional studies explored the associations of adherence to a MedDiet with body mass index (BMI), adiposity, muscle strength, and physical performance in older adults without diabetes and in middle-aged or older adults with T2DM.

Method: MedDiet adherence was assessed using the Mediterranean Diet Adherence Screener. Fat mass and percent body fat were assessed by dual energy X-ray absorptiometry. Muscle strength was assessed using hand-grip strength, while physical performance was assessed using the Short Physical Performance Battery and gait speed.

Result: A total of n = 87 participants with T2DM (T2DM sample: 71.2 ± 8.2 years, BMI: 29.5 ± 5.9) and n = 65 participants without diabetes (non-T2DM sample: 68.7 ± 5.6 years, BMI: 33.7 ± 4.9) were included in these analyses. In the T2DM sample, when controlled for age, gender, and appendicular lean mass index, adherence to a MedDiet was inversely associated with BMI, fat mass, and percent body fat. However, this was no longer maintained in the fully adjusted models. Although, adherence to a MedDiet was positively associated with gait speed (β = 0.155; p = 0.050) independent of all covariates used.

Conclusions: Adherence to a MedDiet may be a suitable dietary strategy for preserving lower body physical function in middle-aged and older adults with T2DM. However, these findings should be further investigated using well-designed randomised controlled trials and prospective cohort studies with a wider range of adherence scores to investigate temporal associations.

Poster Presentations

P11

Characteristics and outcomes of frail patients with COVID-19 admitted to ICU: An individual patient data meta-analysis

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Aim: Frailty is often used in clinical decision-making for patients with COVID-19, yet studies have found a variable influence of frailty on outcomes in those admitted to the intensive care unit (ICU). We evaluated the characteristics, and outcomes of frail patients admitted to ICU with COVID-19.

Methods: In this individual patient data meta-analysis, we contacted the corresponding authors of sixteen eligible studies published between December 1st, 2019 and February 28th, 2021 reporting on patients with confirmed COVID-19 admitted to ICU with a documented clinical frailty scale (CFS). We obtained individual patient data from 7 studies with documented CFS were included. We classified patients as non-frail (CFS = 1-4) or frail (CFS = 5-8). The primary outcome was hospital mortality. We also compared the use of mechanical ventilation (MV) and the proportion of ICU bed-days between frailty categories.

Results: Of the 2001 patients admitted to ICU, 388 (19.4%) were frail. Increasing age, sequential organ failure assessment (SOFA) score, CFS ≥4, use of MV, vasopressors, renal replacement therapy and hyperlactatemia were risk factors for death in a multivariable analysis. Hospital mortality was higher in frail patients (65.2% vs. 41.8%; p<0.001), with adjusted mortality increasing with a rising CFS score beyond 3. Younger and non-frail patients were more likely to receive MV. Frail patients spent less time on MV (median days [IQR] 9 [5-16] vs. 11 [6-18]; p=0.012) and accounted for only 12.3% of total ICU bed-days.

Conclusions: Frail patients with COVID-19 were commonly admitted to ICU and had greater hospital mortality but spent relatively fewer days in ICU when compared with non-frail patients. Frail patients receiving MV were at greater risk of death than non-frail patients. Systematic review registration: Registration protocol in PROSPERO (CRD42020224255).

Poster Presentations

P12

Defining ICD-10 surrogate variables to estimate the modified frailty index: a Delphi-based approach

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Aim: There are currently no validated globally and freely available tools to estimate the modified frailty index (mFI). The widely available and non-proprietary International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) coding could be used as a surrogate for the mFI. We aimed to establish an appropriate set of the ICD-10 codes for comorbidities to be used to estimate the eleven-variable mFI.

Methods: A three-stage, web-based, Delphi consensus-building process among a panel of intensivists and geriatricians using iterative rounds of an online survey, was conducted between March and July 2021. The consensus was set a priori at 75% overall agreement. Additionally, we assessed if survey responses differed between intensivists and geriatricians. Finally, we ascertained the level of agreement.

Results: A total of 21 clinicians participated in all 3 Delphi surveys. Most (86%, 18/21) had more than 5-years' experience as specialists. The agreement proportionately increased with every Delphi survey. After the third survey, the panel had reached 75% consensus in 87.5% (112/128) of ICD-10 codes. The initially included 128 ICD-10 variables were narrowed down to 54 at the end of the 3 surveys. The inter-rater agreements between intensivists and geriatricians were moderate for surveys 1 and 3 (κ=0.728, κ=0.780) respectively, and strong for survey 2 (κ=0.811).

Conclusions: This quantitative Delphi survey of a panel of experienced intensivists and geriatricians achieved consensus for appropriate ICD-10 codes to estimate the mFI. Future studies should focus on validating the mFI estimated from these ICD-10 codes.

Poster Presentations

P13

Timely goals of care documentation in frail patients in the COVID era: A retrospective multi-site study

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Aim: Older frail patients are more likely to have timely goals of care (GOC) documentation than non-frail patients. To investigate whether timely documentation of GOC within 72 hours differed in the context of the COVID-19 pandemic (2020), compared with the pre-COVID era (2019) for older frail patients.

Method: Multi-site retrospective cohort study was conducted in two public hospitals where all consecutive frail adult patients aged ≥65 years were admitted under medical units for at least 24 hours between March 1st and October 31st, in 2019 and between March 1st and October 31st, 2020 were included. The GOC was derived from electronic records. Frailty status was derived from hospital coding data using Hospital Frailty Risk Score (frail≥5). The primary outcome was the documentation of GOC within 72 hours of hospital admission. Secondary outcomes included hospital mortality, rapid response call, intensive care unit admission, prolonged hospital length of stay (≥10 days), and time to the documentation of GOC.

Result: The study population comprised 2021 frail patients admitted in 2019, and 1849 admitted in 2020, aged 81.2 and 90.9 years respectively. The proportion of patients with timely GOC was lower in 2020, than 2019 (48.3% [893/1,849] vs. 54.9% [1,109/2,021]; p=0.021). After adjusting for confounding factors patients in 2020 were less likely to receive timely GOC (odds ratio=0.77; 95%-CI 0.68-0.88). Overall time to GOC documentation was longer in 2020 (hazard ratio=0.86; 95%-CI 0.80-0.93).

Conclusion: Timely GOC documentation occurred less frequently in frail patients during the COVID-19 pandemic than in the pre-COVID-19 era.

Poster Presentations

P14

Comparison of the predictive ability of clinical frailty scale and hospital frailty risk score to determine long-term survival in critically ill patients: A multicentre retrospective cohort study

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Aim: To compare the hospital frailty risk score (HFRS) with the clinical frailty scale (CFS) in critically ill patients in predicting long-term survival up to one year following ICU admission.

Methods: In this retrospective, multicentre cohort study from 16 public ICUs in the state of Victoria, Australia between 1st January 2017 and 31st June 2018, ICU admission episodes listed in the ANZICS Adult Patient Database registry with a documented CFS, that was linked with the Victorian Admitted Episode Dataset and the Victorian Death Index were examined. HFRS was calculated for each patient using the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) codes that represented pre-existing conditions at the time of index hospital admission. Descriptive methods, Cox proportional hazards and area under the receiver operating characteristic (AUROC) were used to investigate the association between each frailty score and long-term survival up to 1 year, after adjusting for confounders including sex and baseline severity of illness on admission to ICU (Australia New Zealand risk-of-death, ANZROD).

Main Results: 7,001 ICU patients with both frailty measures were analysed. The overall median (IQR) age was 63.7 (49.1-74.0) years; 59.5% (n=4,166) were male; the median (IQR) APACHE II score 14 (10-20). Almost half (46.7%, n=3,266) were mechanically ventilated. The hospital mortality was 9.5% (n=642) and 1-year mortality was 14.4% (n=1,005). HFRS correlated weakly with CFS (Spearman's rho 0.13 (95%CI: 0.10-0.15) and had a poor agreement (kappa=0.12, 95%CI: 0.10-0.15). Both frailty measures predicted 1-year survival after adjusting for confounders, CFS (HR=1.26, 95%CI: 1.21-1.31) and HFRS (HR=1.08, 95%CI: 1.02-1.15). CFS had better discrimination of 1-year mortality than HFRS (AUROC 0.66 vs 0.63 p<0.0001).

Conclusion: Both HFRS and CFS independently predicted up to 1-year survival following an ICU admission with moderate discrimination. The CFS was a better predictor of 1-year survival than the HFRS.

Poster Presentations

P15

Protein interventions with exercise to prevent or treat sarcopenia in older adults: a systematic review

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Aim: The loss of muscle mass, strength and function as we age (sarcopenia) is of growing health concern with our global ageing population. With limited pharmaceutical treatments available, lifestyle interventions such as exercise and protein intake are important for prevention and treatment. However, evidence supporting combining these interventions is variable. The aim of this systematic review and meta-analysis was to summarise the evidence for protein and exercise versus exercise alone on outcomes of muscle mass, strength and function in adults ≥65 years.

Methods: English language articles up to May 2020 were identified via MEDLINE, EMBASE, CINAHL and Cochrane online databases. 26 studies (n=2,720, median duration 12 weeks) were included, with varying protein types (65% milk-related products, 19% isolated amino acids), doses (median 15g, range 3-60g/day) and frequencies (81% daily, 19% after exercise only).

Results: Additional benefits of combined protein and exercise versus exercise alone were found for muscle mass gain (5/18 studies) and knee extension strength (3/17 studies) [SMD= 0.16, 95%CI (0.03, 0.30), p=0.02, I2= 7%, n=17], but not timed-up-and-go or handgrip strength. Protein with meals was superior for building muscle mass [SMD=0.55 (0.18,0.91), p=0.003], while between meals was beneficial for knee extension strength [SMD=0.47 (0.13, 0.80), p=0.006]. Supplementing only on exercise days was not effective for lean muscle mass accretion. Whole milk products were more effective for appendicular muscle gain [SMD=0.99, (0.24-1.74), p=0.010] and lean muscle [SMD=0.54 (0.14-0.94), p=0.008] compared with whey and amino acids. Protein serves >15g appeared positive for knee extension strength [SMD 0.21, 95%CI(0.00,0.41), p=0.05] however protein amount did not appear significant for other outcomes.

Conclusions: Combining protein with exercise is beneficial, especially for improving knee extension strength and lean muscle mass. There were no included studies that used only plant-based protein sources or whole food interventions, which would be of interest for future research.

Poster Presentations

P16

Assessments of activities of daily living and frailty for nursing home residents vis a vis transfer to the emergency department: a scoping review

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Aim: Frail patients from nursing homes (NH) are frequently transferred to the emergency department (ED) with significant problems. A significant proportion has severe frailty or dependence for activities of daily living. The questions arise about the tools and roles of assessments of activities of daily living and frailty in decision making both at the residential aged care services (RACS) in relation to transfer and in the ED with respect to assessment, treatment and admission or return.

Method: The scoping review on the questions involved literature searches in 4 databases followed by independent review of abstracts by two reviewers and full text screening leading to selection of relevant original studies.

Result: 34 studies were selected from 808 papers identified. Most of the ADL and frailty assessments were done in the RACS. In seven studies, ADL or frailty assessments at the RACS with engagement of carers, geriatricians, nurses, nurse practitioners or paramedics contributed to decreased or relatively low transfer rates. No results were found for roles of ADL or frailty findings in ED decision making on assessment or treatment. One study with enrolment of specialist ED nurses and frailty assessment showed decreased hospitalizations.

Conclusion: ADL and frailty assessments are seldom done and applied in the ED to decision making for RACS patients. With evidence of benefit from work in the RACS with decreased transfers as well as from one ED study leading to decreased admissions, there are gaps to pursue on the roles of ADL and frailty assessments in ED decision making and the related ED clinicians' perspectives.

Poster Presentations

P17

Determinants of changes in muscle mass, handgrip strength, and physical performance during hospitalisation to geriatric rehabilitation: RESORT

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Background: Hospitalised older adults are sedentary for up to 83% of their stay, which is alarming as after only 10 days of bedrest, healthy older individuals lose 6.3% of their lower limb muscle mass and strength. Loss of muscle mass/strength can result in sarcopenia, however geriatric rehabilitation presents the ideal chance to combat these changes as nutritional and exercise interventions are readily available. This study aimed to assess the changes in muscle mass, muscle strength, and physical performance over the course of geriatric rehabilitation, and the clinical determinants of these changes.

Methods: REStORing health of acutely unwell adulTs (RESORT) includes geriatric rehabilitation inpatients assessed for muscle mass (by bioimpedance electrical analysis), muscle strength (by handgrip strength), and physical performance (by the Short Physical Performance Battery (SPPB), gait speed, and chair stand test (CST)) at admission and discharge. Clinical determinants encompassed risk of malnutrition, malnutrition, activities of daily living (ADL)-dependence, instrumental ADL-dependence, high multimorbidity, and cognitive impairment. Differences in muscle mass, muscle strength, and physical performance between admission and discharge was assessed via linear regression, adjusted for age, sex, and physiotherapy contact hours.

Results: In 1660 patients (median age was 83.4 [77.7–88.5], 56.6% female), muscle strength (β=0.89, 95%CI=0.34-1.44), SPPB (β=1.76, 95%CI=1.58-1.94), gait speed (β=0.18, 95%CI=0.17-0.20), and CST (β=1.53, 95%CI=1.27-1.78) increased over the course of admission. Risk of malnutrition, ADL and instrumental ADL-dependence, and high multimorbidity were associated with increases in muscle strength, SPPB, gait speed, and CST. Malnutrition and cognitive impairment were also associated with increases in SPPB, gait speed, and CST. There was no association found for muscle mass.

Conclusion: Muscle strength and physical performance significantly increases over the course of geriatric rehabilitation admission. Risk of malnutrition, ADL and IADL-dependence, and high multimorbidity were identified as determinants of muscle strength and physical performance increase.

Poster Presentations

P18

Frailty index, not age, predicts treatment outcomes and adverse events for older adults with cancer

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Aim: Frailty is an indicator of individual vulnerability and differentiates health status among people of the same chronological age. It has been associated with adverse treatment outcomes in older adults with cancer. Measurement of baseline frailty using a multi-domain frailty index (FI) has been incorporated into routine practice. The aims of this study were to determine whether baseline FI was associated with treatment completion and adverse outcomes.

Methods: This retrospective cohort study examined the treatment outcomes of 227 patients aged 65 and older with solid malignancies who were referred for consideration of systemic therapy. The FI assessments were completed by a specialist geriatric oncology nurse prior to initial specialist oncologist appointments.

Results: The median FI (IQR) was 0.24 (0.15-0.31) and 43% of patients could be considered frail (FI > 0.25). FI was positively correlated with Eastern Cooperative Oncology Group (ECOG) performance status, however 28% of ECOG 0-1 patients were frail. In multivariable ordinal regression, FI was associated with treatment completion. Those who completed treatment were the least frail (FI median [IQR]: 0.20 [0.13-0.27]), compared with those who had incomplete treatment (FI median [IQR]: 0.23 [0.14-0.30]) or no treatment planned (FI median [IQR]: 0.29 [0.21-0.40]). Increasing FI was associated with treatment-related toxicity and unplanned hospital admissions. In univariable analysis, FI was associated with survival. Frail patients (FI > 0.25) had increased mortality in Kaplan Meier estimates (HR 4.04, 95% CI 2.18-7.47). Age was not a significant predictor of treatment completion, toxicities, or survival.

Conclusions: Baseline FI is a granular measure that can help to identify frailer older patients who are more likely to require tailored therapy and support, and less frail older patients who are more likely to tolerate systemic therapy.

Poster Presentations

P21

Is sarcopenia associated with anxiety symptoms and disorders? A systematic review and meta-analysis protocol

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Aim: Sarcopenia is associated with numerous adverse outcomes and has recently been linked to neurological and psychiatric disorders, including dementia and depression. Whether sarcopenia is related to other common psychiatric disorders, such as anxiety, is unclear. We aim to systematically identify and review the extant literature regarding the association between sarcopenia and anxiety symptomatology and/or disorders (anxiety) in adults.

Methods: A systematic search of CINAHL, Embase, MEDLINE Complete and PsycInfo databases will be undertaken to identify studies of interest. We will utilise a comprehensive search strategy designed to be inclusive of all definitions of sarcopenia and its putative components. Cross-sectional, case-control, cohort designs, and clinical trials (baseline data) examining the association between sarcopenia and anxiety in adults aged ≥18 years will be eligible for inclusion. Two reviewers will independently confirm study selection and assess methodological quality of included studies using the quality assessment tools published by the US National Heart, Lung and Blood Institute. Where heterogeneity is low, a meta-analysis will be performed to determine pooled odds ratio for the relationship between sarcopenia and anxiety. If sufficient data are available subgroup analyses will also be conducted. The groups will be designed based on diagnostic criteria for sarcopenia, sex, age, and country. If meta-analysis is not possible due to methodological heterogeneity a 'best evidence synthesis' will be performed instead. This review is registered with PROSPERO (registration number CRD 42020209420).

Results (to date): Databases were searched from inception to September 2021. 6,830 articles were retrieved of which 2,208 duplicates were removed, resulting in 4,622 unique records for review.

Conclusion: This study will be the first to systematically assess the literature on the association between sarcopenia and anxiety. The findings of this review will contribute to existing evidence on the burden associated with sarcopenia and provide direction for future research.

Poster Presentations

P22

Indices of balance and gait are severely impacted in patients with osteosarcopenia

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Aims: Osteosarcopenic individuals have a high falls and fracture risk contributing to an increased burden on health care and lower quality of life. Thus, there is a necessity to discover easily accessible predictors of osteosarcopenia, in order to ultimately develop common treatments and aid in preventative strategies. This study aimed to determine new sensitive balance and/or gait variables that can predict osteosarcopenia.

Methods: In a cross-sectional cohort study, 309 men and women aged 65 years completed a variety of clinical assessments, performed muscle strength and function tests, various posturography assessments and gait analysis (using GAITRite), and a whole-body dual-energy x-ray absorptiometry scan. Subsequently, participants were separated into one of three groups: osteopenia, osteoporosis and osteosarcopenia, for comparison and further analysis.

Results: Our data demonstrate that osteosarcopenic individuals performed worse than both osteopenia and osteoporosis in hand grip strength, gait speed, short physical performance battery scores, the timed up and go test, gait step and stride length, and single and double leg support times (all $p<0.001$). Compared to the osteopenia group, osteosarcopenia also demonstrated decreased gait cadence ($p=0.007$), and limits of stability (LOS; $p<0.001$). Posturography testing revealed larger elliptical areas of the eyes open ($p=0.003$), and eyes closed ($p= 0.043$) on firm platform, and increased sway velocity of the eyes open on firm platform ($p=0.007$) in the osteosarcopenia group compared to osteoporosis. LOS and eyes open ellipse area significantly contributed to the multivariable model ($p=0.029$ and $p=0.038$, respectively), suggesting that these balance parameters have predictive capabilities in identifying older adults with osteosarcopenia.

Conclusion: Older adults with osteosarcopenia demonstrated inferior strength, function and gait characteristics. Indices of balance were sensitive predictors for osteosarcopenia, and hence risk of falls and fractures, and could be easily implemented into routine assessment.

Poster Presentations

P24

Feasibility of Bioelectrical Impedance Analysis to Assess Body Composition in Geriatric Rehabilitation Inpatients: RESORT

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Aim: Sarcopenia is prevalent in 20-50% of geriatric rehabilitation inpatients, but it is often undiagnosed. The aim is to evaluate the feasibility of bioelectric impedance analysis (BIA) to measure muscle mass in routine clinical care in a cohort of geriatric rehabilitation inpatients.

Method: REStORing Health of acutely unwell adulTs (RESORT) is an observational, longitudinal inception cohort of geriatric rehabilitation inpatients. BIA (DSM-BIA, InBody S10, Biospace Co., Ltd, Seoul, South Korea) was implemented at admission and discharge as routine care performed by nursing staff. BIA feasibility was defined as completion rate (low: ≤25%, moderate: >25% - ≤50%, good: >50% - ≤75%, excellent: >75%), reasons for non-completion and need for remeasurement. Clinical characteristics associated with BIA completion and remeasurements were assessed.

Results: Patients (n = 1890, 56% females) had a median age of 83.4 years (interquartile range: [77.6-88.4]). Of the total cohort, 5.7% had a contra-indication (pacemaker/other electronic medical device) for BIA at admission and 4.5% at discharge. BIA was completed in 77.1% of patients eligible for BIA at admission and 63.2% at discharge indicating good feasibility; remeasurement was required in 7.4% and 6.9% respectively; 5.9% had a medical reason preventing BIA completion at admission and 3.7% at discharge (cast/dressing/bandage, amputation, contact isolation, other medical reason). Refusal and technical issues occurred in 1.6% and 0.7% at admission and 2.1% and 1.8% at discharge. Reason for non-completion was unknown/ missing in 14.7% at admission and 28.6% at discharge. Worse (instrumental) activities of daily living function and physical performance were associated with BIA non-completion and remeasurement.

Conclusions: BIA in routine clinical care in geriatric rehabilitation inpatients is feasible; completion rates may be enhanced further by reviewing barriers and enablers.

Poster Presentations

P25

The profile of frail older people admitted to hospital and the FORTRESS trial

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Aim: To describe a cohort of older people recruited to the Frailty in Older People: Rehabilitation Treatment Research Examining Separate Settings (FORTRESS) trial including their frailty status. Main reasons for trial ineligibility are described.

Method: Participant recruitment commenced December 2020. Inclusion criteria were: older people aged over 75 years admitted to six wards in the Southern Adelaide Local Health Network or Northern Sydney Local Health District. Participants were eligible if they did not have significant cognitive impairment (MMSE<24), were previously living at home, were expected to live longer than 12 months and did not have a new diagnosis for stroke. Participants were assessed for frailty during their hospital admission. Frailty was defined as a score of 3 or above on the FRAIL scale. Data were analysed and reported descriptively.

Results: 1969 patients admitted to the involved hospital wards were screened for frailty and suitability for FORTRESS to March 2022. 382 older people meeting the inclusion criteria admitted to hospital were identified as frail. Predominant reasons for ineligibility for FORTRESS include not meeting frailty criteria (31%), significant cognitive impairment (27%) and living in residential care (13%). Within participants, the most common contributors to frailty based on the FRAIL scale were: fatigue (73%), resistance (92%), lack of ambulation (95%); illness (22%); loss of weight (58%). A case study describing the frailty management intervention within the FORTRESS trial will be presented.

Conclusions: A large number of older people admitted to hospital were ineligible to participate in the FORTRESS trial due to not being frail and cognitive impairment. This highlights challenges in addressing physical and cognitive frailty. Common factors contributing to frailty include resistance (ability to walk up 10 steps); ambulation (ability to walk more than 200m); and fatigue. Understanding components of frailty can be beneficial in targeting relevant therapeutic interventions.

Poster Presentations

P26

The SARC-F is a useful screening tool in those with primary sarcopenia but insufficient to discern disability from sarcopenia in ageing polio survivors

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Aim: To determine if the SARC-F questionnaire is a suitable tool to detect sarcopenia in two cohorts: 1) age-matched otherwise healthy older adults; and 2) polio survivors.

Method: A cross-sectional study of polio survivors and matched controls was undertaken utilising validated screening tools. 42 older adults living in community South Australia: 12 otherwise healthy older adults and 30 polio survivors. Sarcopenia assessment was carried out using the SARC-F (strength, assistance walking, rise from a chair, climb stairs, and falls) questionnaire, grip strength to assess muscle strength, bioelectrical impedance (BIA) to measure central muscle mass, and gait speed to assess physical performance, distinguishing between those with primary and polio-related sarcopenia.

Result: There were significant differences ($p<0.001$) between the polio affected limb and the non-affected limb for leg circumference. Those screened as having sarcopenia (positive SARC-F score) had significant reductions in muscle strength and gait speed but not muscle mass. The presence of polio-related sarcopenia was negatively associated ($r2=0.422$, $p<0.001$) with nutritional state.

Conclusions: Our study demonstrated that while there were differences between the polio survivors and otherwise healthy controls in terms of screening via the SARC-F, it is helpful to discern between primary and secondary (i.e. disease related) sarcopenia in older adults. For, polio-related sarcopenia (i.e. significant muscular asymmetry), we assert that the SARC-F as a screening tool is not suitable. An alternative tool that combines objective data sensitive to differences across limbs, may be more appropriate in confirming sarcopenia in the polio-survivor population.

Poster Presentations

P29

Nutrition intervention informed by indirect calorimetry compared to predictive equations to achieve weight goals in geriatric rehabilitation inpatients: The NEED study

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Background: Predictive equations (EQ) have shown over, and underestimations of resting metabolic rate (RMR) compared to indirect calorimetry (IC). However, if the use of IC results in better clinical outcomes is unclear. This study aimed to assess if nutrition interventions informed by IC, compared to EQ, show greater improvements in achieving weight goals (primary outcome), muscle mass, strength, physical and functional performance (secondary outcomes) in geriatric rehabilitation inpatients.

Methods: The Nutrition, Energy, Expenditure, and Demands (NEED) is a quasi-experimental study. Geriatric rehabilitation inpatients (n=53) were recruited upon dietitian referral; allocation to the IC (n=22) or EQ (n=31) group was based on the admission ward. IC measured RMR was communicated to the treating dietitian for the IC group but concealed for the EQ group. Achieving weight goals was determined by comparing the weight goal set by the dietitian (gain/loss/maintenance) to the weight change from recruitment to discharge (>2% change: gain/loss, ≤2% change: maintenance). Appendicular lean mass, handgrip strength, short physical performance battery, activities of daily living (ADL) and instrumental ADL were assessed at admission and discharge. Food intake was assessed using plate waste observation. Between-group differences were determined using Chi-square or Mann-Whitney U tests.

Results: There were no between-group differences in baseline characteristics. The measured RMR was comparable between groups (median [interquartile range] IC 1271 [1111-1446], EQ 1302 [1135-1397] kcal/day) and significantly lower than the estimated RMR within both groups (IC 1587 [1462-1803], EQ 1603 [1419-1687] kcal/day). Energy intake was not different between groups. There were no between-group differences in achieving weight goals (IC: 15/22, EQ: 16/31) or in the secondary outcomes.

Conclusion: In this limit cohort of geriatric rehabilitation inpatients, nutrition interventions informed by IC compared to EQ did not show greater improvements in clinical outcomes. Comparable energy intakes between groups may explain the absence of differences in outcomes.

Poster Presentations

P30

Exploring Predictors of Osteosarcopenia in Older Women

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Aim: Osteosarcopenic individuals have higher falls and fractures risk than people solely with osteopenia, osteoporosis or sarcopenia. Hence, there is a necessity to discover easily accessible predictors of osteosarcopenia, in order to ultimately develop common treatments. This study aimed to determine any sensitive balance and/or gait variables that can predict osteosarcopenia in older women.

Method: In a cross-sectional cohort study, 235 women aged ≥65 years completed a series of questionnaires, underwent clinical assessments, performed muscle strength and function assessments: handgrip strength (HGS), short physical performance battery (SPPB), timed up and go (TUG), various posturography assessments and gait analysis (using GAITRite), and a whole body dual-energy x-ray absorptiometry (DXA) scan. Subsequently, participants were separated into one of three groups: osteopenia, osteoporosis and osteosarcopenia, for comparison and further analysis.

Result: Osteosarcopenia performed worse than osteopenia and osteoporosis in HGS, gait speed, TUG times, and gait single and double leg support times (all $p<0.001$). Compared to the osteopenia and osteoporosis groups, osteosarcopenia also attained lower SPPB scores ($p=0.008$ and $p<0.001$, respectively), and step and stride lengths (both $p=0.003$ and $p<0.001$, respectively). During balance tests, there were larger elliptical areas of the eyes open ($p=0.006$), and eyes closed ($p= 0.034$) on firm platform, and increased sway velocity of the eyes open on firm platform ($p=0.006$) in the osteosarcopenia group compared to osteoporosis. Furthermore, osteosarcopenic participants were unable to perform the foam eyes closed task compared to those with osteopenia or osteoporosis (66% vs 32.5% and 37.5%, respectively, $p<0.001$). The time spent in single and double leg support significantly contributed to the multivariable model ($p=0.027$ and $p=0.016$, respectively).

Conclusions: In comparison to osteopenia or osteoporosis alone, osteosarcopenic participants displayed many deficits in physical function. Single and double leg support time results suggest that these gait parameters have predictive capabilities in identifying older women with osteosarcopenia.

Poster Presentations

P31

Healthcare professional attitudes to implementation of frailty interventions

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Aim: Frailty guidelines recommend multi-component interventions but implementation of recommendations remains a challenge. The Frailty in Older People: Rehabilitation Treatment Research Examining Separate Settings (FORTRESS) trial aims to determine the effectiveness of an embedded individualised multicomponent frailty intervention (commencing in hospital and continuing in the community). Within the trial we are seeking to understand healthcare staff implementation attitudes and behaviour. This is important to understand so that implementation strategies can be targeted to increase the uptake of frailty interventions.

Method: An abbreviated form of the Determinants of Implementation Behaviour Questionnaire (DIBQ) was administered early in the intervention phase of the FORTRESS trial with staff across 2 health networks. The DIBQ is a validated questionnaire that can be used to assess determinants of healthcare professional implementation behaviour. Our abbreviated DIBQ consisted of 13 questions covering 5 domains of implementation behaviour.

Result: We received 30 responses from ward-based doctors, occupational therapists, physiotherapists, pharmacists, nurses and dietitians. Items with the highest levels of agreement were that delivering the frailty intervention was worthwhile (mean 5.9/7), satisfying for the health professional (mean 5.9/7) and could be tailored to individual needs (mean 5.4/7). Items with the lowest levels of agreement were confidence in delivering frailty intervention according to guidelines when patients were not motivated (mean 3.8/7), when there was little time (mean 4.2/7) and that delivering frailty intervention was something they would do automatically (mean 4.3/7).

Conclusions: Healthcare professionals believe the delivery of frailty interventions according to the guidelines is worthwhile, satisfying and can be individualised to patient needs. Challenges to frailty intervention for healthcare providers include patients with limited motivation, time pressures and a perception that frailty intervention isn't something they do automatically in day-to-day practice. Acknowledging these factors when implementing frailty interventions may increase uptake.

Poster Presentations

P32

SARC-F Questionnaire is a Useful Screening Tool for Identifying Sarcopenia in Patients Affected by Long Arthroplasty Waiting Times (LATE) in the South Australian Public Healthcare System - Pilot Study

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Aim: To determine whether the SARC-F questionnaire is a suitable tool to screen for sarcopenia in age and gender matched healthy older adults and patients in the waiting-list for total hip or knee arthroplasty (THA/TKA).

Method: This is a cross-sectional prospective pilot study of patients on the waiting-list for a THA/TKA within the South Australian public health system. Healthy participants were identified from the local bowling club, whereas patients were recruited from referrals by their General Practitioner to the Queen Elizabeth Hospital and Royal Adelaide Hospital for consideration for a total hip or knee arthroplasty. Assessments include validated screening questionnaires, physical measurements and bio-electrical impedance analysis. The main outcomes were descriptions of the feasibility of recruitment, randomisation and suitability of assessment tools.

Results: Over two recruitment drives, 27 healthy controls were recruited; following screening, 93% (25/27) met the inclusion criteria and 76% (19/25) were assessed over two months. Over the course of three weeks, 30 patients were telephoned; following screening, 80% (24/30) met the inclusion criteria and 50% (12/24) were assessed. 75% (9/12) of those assessed were widowed or single and the remaining 25% were not willing to participate. Preliminary data shows increased prevalence of sarcopenia and frailty in patients on the waiting-list. Screening of sarcopenia with SARC-F showed healthy controls scores ranging from 0-1 and waiting list patient ranging from 4-6. Those screened as having sarcopenia showed significant reductions in muscle strength, muscle quantity and physical performance.

Conclusion: This pilot study demonstrated two outcomes, namely a willingness in the patients to participate in the study, thus enabling a potential larger study. Secondly, SARC-F questionnaire is a useful tool to screen for sarcopenia. Our preliminary results obtained so far show an increased prevalence of sarcopenia in patients on the waiting list for THA/TKA.

Poster Presentations

P33

The Effects of Interactive Exergame on Sarcopenia in Community-Dwelling Older Adults

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Aim: To investigate the effects of interactive exergame on sarcopenia severity and criteria in community-dwelling older adults.

Method: The study adopted a quasi-experimental pretest–posttest control group research design. Fifty community-dwelling older participants were recruited from community centers in Taiwan and then divided into experimental (n=25) and control (n=25) groups. They were asked their demographic data namely age, sex, height, weight, education as well as comorbidity, and then evaluated sarcopenia including muscle mass, muscle strength and physical performance before and after intervention. Muscle mass was evaluated by a Bioelectrical Impedance Analysis and grip strength was measured by a dynamometer. Physical performance was examined by the 5x Sit To Stand (5STS) test and 6 Meters Walk Test (6MWT). Experimental group received individual interactive exergame for one hour per session, twice a week for 8 weeks while control group maintained their daily activities.

Results: No significant differences were found in all demographic data between groups. Experimental group had a significant improvement in muscle mass ($p=0.008$) and physical performance ($p=0.005$ in 5STS, $p=0.001$ in 6MWT) after 16-hour interactive exergame compared with control group. Approximately half of participants in experimental group reversed their severity to non-sarcopenia ($p<0.001$) while the severity remained the same in control group. However, grip strength was not changed after intervention.

Conclusions: This is the first study to investigate the effects of interactive exergame on sarcopenia. Our preliminary results indicate that 8-week interactive exergame had a significant impact on severity of sarcopenia and some sarcopenic criteria such as muscle mass and physical performance. The attendance rate is 100%, and no any minor or serious adverse events was reported during the intervention. Therefore, interactive exergame is fun, safe and effective intervention on improvement of sarcopenia for community-dwelling older adults.

Poster Presentations

P34

Translation and Validation of the Taiwanese Version of the Sarcopenia Quality of Life (SarQoL®-TW) Questionnaire, a Quality of Life Questionnaire Specific for Sarcopenia

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Aim: To translate and validate the Taiwanese version of the Sarcopenia Quality of Life Questionnaire (SarQoL-TW).

Methods: The study has two main steps, translation and validation, which was performed in accordance with the guidelines proposed by the questionnaire developers after receiving official permission. The translation and cultural adaption processes were conducted in five phases: initial translation, synthesis, backward translation, expert committee review, and test of the pre-final version. The validation of psychometric properties of the SarQoL consisted of 50 sarcopenic and 50 non-sarcopenic older adults living in community. They were asked their demographic data and to complete the SarQoL questionnaire. Only sarcopenic participants were required to complete the Short Form-12 Health Survey (SF-12) and the EuroQoL 5-dimension (EQ-5D) questionnaire and fill in the SarQoL questionnaire again in two-week time. Validation study includes assessment of its discriminative power, internal consistency, construct validity, test-retest reliability, floor and ceiling effects.

Results: The SarQoL questionnaire was translated without any major difficulties. The analysis of psychometric properties showed that older adults with sarcopenia had significantly lower scores in overall and partial domains of the SarQoL than those without. The Cronbach's alpha value of 0.846 indicates a high internal consistency. The SarQoL questionnaire revealed good correlation with similar domains of the SF-12 and EQ-5D questionnaires for convergent validity and weak correlations with different domains for divergent validity, confirming its construct validity. An excellent agreement between test and retest was found with an ICC of 0.970. Neither floor nor ceiling effects were observed.

Conclusion: Taiwanese version of the SarQoL is reliable and valid questionnaire, useful for the assessment of quality of life for older adults with sarcopenia in clinical practice and research.

P35

A Judo-Based Exercise Program to Reduce Falls and Frailty Risk in Older Adults: A Pilot and Feasibility Study

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Aim: While judo-based exercise programs can impact positively on health-related outcomes such as bone health, they are yet to be investigated for frailty prevention. This pilot and feasibility study aimed to examine the feasibility (i.e. recruitment, safety and compliance) and the effects of an 8-week supervised judo-based exercise program on physical function and quality of life in community-dwelling older people aged 65 years and older.

Methods: The supervised judo-based exercise program was conducted twice a week for 60 minutes per session over 8 weeks. Pre and post assessments included the following physical function measurements: Short Physical Performance Battery (SPPB), Timed Up and Go (TUG), Berg Balance Scale (BBS), and the Falls Efficiency Scale International (FES-I). Quality of life was assessed using the Short Form Health Survey-36 (SF-36).

Results: A total of 17 participants (mean age 74.3±6.2, range 66-87 years, 76.5% female) were included in the study. Most participants were healthy, had low (≤3) Charlson's Comorbidity Index scores (n=17, 100%), were well nourished (n=16, 94.1%), not sarcopenic (n=16, 94.1%), not frail (n=10, 58.8%), and not cognitively impaired (n=13, 76.5%), anxious or depressed (n=14, 82.4%). No serious adverse events or withdrawals were reported. Participants' compliance (i.e. attending sessions) was high (i.e. ≥81.2%). Significant improvements ($p<0.05$) were seen for physical performance (SPPB), mobility (TUG) and balance (BBS). No changes ($p\geq0.05$) were seen in quality of life (SF-36) or fear of falling (FES-I).

Conclusion: Findings suggest that the 8-week judo-based exercise program was feasible and safe in community-dwelling older adults. Given the improvements noted in physical performance, mobility and balance, this judo-based exercise program has the potential to improve frailty and frailty-related consequences such as falls. Further investigation through a randomized controlled trial is warranted.

Poster Presentations

P36

Longitudinal interactions between HR-pQCT bone density and D3CR muscle mass (or HR-pQCT bone density and muscle volume) in predicting fractures: The Osteoporotic Fractures in Men study (MrOs)

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Aim: Muscle and bone interact via biomechanical and biochemical features, suggesting that muscle loss during aging may influence bone loss and vice-versa. We examined if there is an interaction or additive effect between bone and muscle in estimating risk of fractures in older men.

Method: Prospective data from MrOs was used to build Cox proportional hazards models. Predictors included HR-pQCT volumetric bone mineral density (vBMD) (distal tibia), HR-pQCT muscle volume (diaphyseal tibia), and D3CR muscle mass (whole body). Incident fractures were self-reported every 4 months via questionnaires and centrally adjudicated by radiology reports. Potential confounders (age, race, clinical centre, alcohol, smoking, comorbidities, % fat, physical activity, cognition, fall history) and mediating factors (grip strength, chair stands, gait speed) were considered.

Result: 1,353 men (mean age: 84.2 ± 4.0 years, 92.7% white) were followed for 4.98 ± 1.5 years. In the unadjusted (continuous) model, there were no significant interactions (p ≥ 0.50 to 0.70) between muscle mass (kg) and total vBMD (mg/cm3) as risk factors for fractures (all, n=198; nonvertebral, n=169; vertebral, n=29). There were no significant interactions (p ≥ 0.12 to 0.46) between muscle volume (mm3) and total vBMD (mg/cm3) as risk factors for fractures (all, n=164; nonvertebral, n=138; vertebral, n=26). Compared to men in Quartiles(Q) 2-4 of muscle mass and Q2-4 of total vBMD, men in Q1 of both had increased risk of all fractures (HR: 2.14; 95% CI, 1.18–3.87) and nonvertebral fracture (HR 2.46; 95% CI,1.33–4.56) but the association for vertebral fracture (HR 1.10; 95% CI, 0.20–5.59) was not significant in the fully adjusted model. Confidence intervals overlapped (p >0.05) when visually inspecting other quartile groups in the fully adjusted model.

Conclusions: In this prospective cohort study of older men, there was no significant interaction or additive effect of bone and muscle on fracture risk.

Poster Presentations

P37

Diagnostic power of sit-to-stand muscle power, grip strength and gait speed for identifying recurrent falls and fractures in older adults: implications for sarcopenia diagnosis

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Aim: To examine the diagnostic power of sit-to-stand muscle power, grip strength and gait speed for identifying recurrent falls and fractures in older adults.

Method: Data from an outpatient falls and fractures clinic included anthropometry (height/weight), bone density (dual-energy x-ray absorptiometry), 5 times sit-to-stand time (stopwatch and standardised chair), grip strength (hydraulic dynamometer) and gait speed (4 metres). Sit-to-stand muscle power was calculated using a validated equation. Outcomes of falls (past 1 year) and fractures (past 5 years) were self-reported and cross-validated against medical records, radiology reports and discharge summaries. Binary logistic regressions considering for potential confounders (age, sex, body mass index, comorbidities, bone density) and receiver operating characteristics (ROC) curves were used in statistical analysis.

Result: 552 community dwelling older adults (median age: 78 years, interquartile range: 72, 83, 75.2% women) were included. In the fully-adjusted model, sit-to-stand muscle power (Odds ratio (OR): 3.90, 95% CI: 2.25, 6.73, p<0.001), grip strength (OR: 2.47, 95% CI: 1.37, 4.46, p<0.001) and gait speed (OR: 1.89, 95% CI: 1.09, 3.27, p=0.02) were inversely associated with recurrent (≥2) falls but only sit-to-stand muscle power and grip strength were inversely associated with recurrent fractures (p<0.05). Area under the ROC curves showed acceptable diagnostic power of sit-to-stand muscle power (AUC: 0.62, 95% CI: 0.58, 0.67, p<0.001), grip strength (AUC: 0.57, 95% CI: 0.52, 0.62, p=0.009) and gait speed (AUC: 0.59, 95% CI: 0.54, 0.64, p =0.001) for identifying recurrent falls. Sit-to-stand muscle power (AUC: 0.61, 95% CI: 0.55, 0.67, p=0.001) and grip strength (AUC: 0.58, 95% CI: 0.52, 0.64, p=0.019), but not gait speed (AUC: 0.54, 95% CI: 0.47, 0.61, p=0.248), were acceptable in identifying recurrent fractures.

Conclusions: Sit-to-stand muscle power offers the highest diagnostic power for identifying recurrent falls and fractures in older adults. These findings have implications for sarcopenia diagnosis in clinical practice.

Poster Presentations

P38

Relationship between plasma homocysteine and bone density, lean mass, muscle strength and physical function in 1,480 middle-aged and older adults: Data from NHANES

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Aim: Hyperhomocysteinemia induces oxidative stress and chronic inflammation (both of which are catabolic to bone and muscle); thus, we examined the association between homocysteine and bone density, lean mass, muscle strength and physical function in middle-aged and older adults.

Method: Data from 2001-2002 National Health and Nutrition Examination Survey (NHANES) was used to build regression models. Plasma homocysteine (fluorescence immunoassay) was used as the exposure and bone mineral density (BMD; dual-energy X-ray absorptiometry), lean mass (DXA), knee extensor strength (isokinetic dynamometer, newtons) and gait speed (over 6.1m; seconds) were used as outcomes. Potential covariates including demographic, lifestyle and clinical factors were considered in regression models.

Result: 1,480 adults (median age: 64 years [IQR: 56, 73]; 50.3% men) and 735 older adults (median age: 73 years [IQR: 69, 80]; 50.1% men) were included in the full and sub-group analyses, respectively. In multivariable models, homocysteine was positively associated with gait speed in the full population (β = 1.11, 95% CI: 1.05, 1.17, p <0.001) and sub-group (β = 1.09, 1.02, 1.17, p=0.01) analysis of older adults. Homocysteine was borderline negatively associated with knee extensor strength in the full population (β = 0.98, 0.96, 1.00, p=0.055) and negatively associated in the sub-group (β = 0.96, 95% CI: 0.92, 0.99, p=0.027) analysis of older adults. No statistical associations (p>0.05) were observed between homocysteine and BMD (at total, lumbar-spine or femur sites) nor between homocysteine and lean mass (at total and appendicular sites).

Conclusion: In this population-based study of middle-aged and older adults, we found consistent associations between plasma homocysteine and physical function (and similar trends for muscle strength). Longitudinal studies should now investigate the link between this biomarker and measures of muscle strength and physical function.

Poster Presentations

P39

Is osteosarcopenia associated with a greater likelihood of fractures than osteopenia/osteoporosis or sarcopenia alone? Cross-sectional data from an outpatient clinic

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Aim: To determine whether osteosarcopenia is associated with a greater likelihood of recurrent fractures than osteopenia/osteoporosis or sarcopenia alone.

Method: Body composition (bone density and appendicular lean mass via dual-energy x-ray absorptiometry), grip strength (hydraulic dynamometer) and gait speed (4 metres) were used to identify osteopenia/osteoporosis, sarcopenia and osteosarcopenia (osteopenia/osteoporosis plus sarcopenia). Osteopenia/osteoporosis was defined by WHO criteria (bone density T score below -1 SDs at forearm, hip or lumbar spine) and sarcopenia was defined by SDOC (grip strength and gait speed) or EWGSOP2 (lean mass, grip strength/gait speed) criteria. Number and type of fractures were self-reported and cross-validated via medical records, radiology reports, and discharge summaries. Logistic and negative binomial regressions were used to examine the association between the exposure and outcome while adjusting for potential confounders.

Result: Among 310 community-dwelling older adults (median age: 79, interquartile range: 73, 83; 80.0% women), a total of 501 minimal trauma fractures were reported. Prevalence of osteosarcopenia varied depending on the definition (SDOC: n=108, EWGSOP2: n=70). In multivariate analysis adjusting for age, sex and comorbidities, the likelihood of recurrent fractures (≥2) was higher in those with osteosarcopenia versus osteopenia/osteoporosis alone, irrespective of the definition employed (SDOC: odds ratio [OR]: 2.07, 95% CI: 1.22, 3.50, p=0.007; EWGSOP2: OR: 1.88, 95% CI: 1.07, 3.31, p=0.028). In multivariable analysis, the likelihood of vertebral fractures (SDOC: OR: 2.10, 95% CI: 1.07, 4.13, p=0.03; EWGSOP2: OR: 1.93, 95% CI: 0.97, 3.82, p=0.06), but not hip (SDOC: p= 0.798, EWGSOP2: p= 0.127) or nonvertebral (SDOC: p= 0.364, EWGSOP2: p= 0.159), was higher in osteosarcopenia versus osteopenia/osteoporosis alone. Comparisons with sarcopenia alone were not conducted due to the extremely low prevalence (SDOC: n=3, EWGSOP: n=3) of this condition.

Conclusion: In this high-risk population of older adults, osteosarcopenia was associated with a greater likelihood of recurrent fractures versus osteopenia/osteoporosis alone.

Poster Presentations

P40

Associations between Leukocyte Telomere length and Osteosarcopenia in 20,400 adults aged 60 years and over: Data from the UK Biobank

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Aim: Two mechanisms implicated in telomere shortening are oxidative stress and inflammation, both of which are linked to bone and muscle loss suggesting a pathological link between telomere attrition and osteosarcopenia. Using older adults aged 60 years and over in the UK Biobank, we examined the association between leukocyte telomere length and osteosarcopenia.

Method: Baseline leukocyte telomere length was measured using a multiplex qPCR technique and expressed as the amount of the telomere amplification product (T) to that of a single-copy gene (S) (T/S ratio). Osteosarcopenia data was defined by WHO criteria (femoral neck bone density T score ≤ −1) for osteopenia/osteoporosis plus either the EWGSOP2 (low appendicular lean mass/height2 and low grip strength) or SDOC (low grip strength and slow walking pace) criteria for sarcopenia. Binary or multinomial logistic regression models were used to associate telomere length and osteosarcopenia or its components, adjusting for age, sex, race, education, deprivation, alcohol, smoking, BMI/weight, physical activity.

Result: Among 20,400 older adults (mean age: 67.79 ± 4.9 years, 53% men), the prevalence of osteosarcopenia by EWGSOP2 (n = 96, 0.47%) or SDOC (n = 205, 1%) criteria was low. telomere length was not associated with osteosarcopenia by EWGSOP2 (Relative Risk (RR): 1.00, 95% CI: 0.82–1.23 comparing osteosarcopenia to normal (non-osteopenic, non-osteoporotic, and non-sarcopenic) per Standard Deviation (SD) increase in telomere length) or SDOC (RR: 0.95, 95% CI: 0.83–1.09) criteria. Longer telomere length was associated with a lower risk of slow walking pace (Odds Ratio: 0.92, 95% CI: 0.87–0.99 per SD increase in telomere length, p = 0.021). Telomere length was not associated with low grip strength, low bone density or low appendicular lean mass/height2 (p > 0.05).

Conclusions: In this population-based study, telomere length was not associated with osteosarcopenia; however, slow walking pace was.

Poster Presentations

P41

Uncontrolled Diabetes Might Increase the Risk for Frailty and Higher BMI Is Linked to a Decreased Risk for Frailty

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Diabetes, hypertension (HTN), and obesity are common chronic illnesses that have an effect on multiple organ systems. Persons with diabetes or HTN or obesity tend to have an accelerated aging process that places them at greater risk for developing frailty at an earlier age. However, the association between HTN, diabetes, obesity, and frailty syndrome remains unclear. We sought to evaluate the relationship between frailty and HTN, diabetes, and obesity.

We recruited patients aged ≥ 50 with HTN and/or diabetes into a frailty clinic in a community health center. 154 patients (mean age 73, men 81, women 73) were seen from 12/1/2021 – 4/7/2022. The study protocol included sociodemographic data, measures of blood pressure, A1c, body mass index, and frailty screening according to the internationally validated FRAIL scale.

29.85% and 52.5% of the patients with HTN met the criteria for frail and prefrail. 17.16% were found robust. 54.48% of the patients with HTN had uncontrolled HTN, and uncontrolled hypertension was more prevalent in the frail (50%) and prefrail(60.57%) than in the robust group(43.47%). Patients with diabetes were diagnosed with frail (28.23%), prefrail (60%), and robust (11.76%). Uncontrolled diabetes was found in 44.71% of the patients with diabetes and was more prevalent in the frail (66.67%) and prefrail(39.21%) than in the robust group (20%). Average BMIs in frail, prefrail, and robust groups are 25.27, 27.40, and 30.28.

The persons with uncontrolled diabetes were about 14% likely to develop frailty or prefrailty (RR 1.1417, P=0.0825). Uncontrolled HTN increases the risk of frailty by 10% (RR 1.0967, P = 0.2562). The persons with obesity and overweight had a 7% reduction in risk of frailty and prefrailty (RR 0.9326, P=0.3169). Intensive control of diabetes could prevent frailty development, and a higher BMI might be a protective factor for frailty. This hypothesis should be explored in future studies.

Poster Presentations

P42

The Community-Dwelling Persons with Frailty or Prefrailty Were Diagnosed with COVID Less Than Those with Robust

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Several studies found a significant association of frailty with COVID-19 severity to support the evidence for the application of frailty assessment. However, there were contradictory results in other studies. Plus, most of the studies looked at the impact of frailty on patients with COVID. We sought to evaluate the effect of COVID on frailty in community-dwelling patients with multi-ethnicity.

We recruited patients aged ≥ 50 with HTN and/or diabetes into a frailty clinic in a community health center. One hundred fifty-four patients (average age 73, men 81, women 73) were seen from 12/1/2021 – 4/7/2022. The study protocol included sociodemographic data, frailty screening according to the internationally validated FRAIL (fatigue, resistance, ambulation, illnesses, and loss of weight) scale, comorbidities, physical activity, cognitive status, and activities of daily living.

46 and 84 patients met the criteria for frailty and prefrailty. 15.22% and 17.86% of the patients with frailty and prefrailty had been diagnosed with COVID. Twenty-four patients were found robust, and 20.83% of the patients had been diagnosed with COVID.

Our study results showed that those with frailty or prefrailty were diagnosed with COVID less than those with robust (RR 0.9582, P=0.6660). These results contradicted our hypothesis that patients with frailty and prefrailty would be diagnosed with COVID more than others. We believed that this was because, in this particular group, patients with frailty and prefrailty were more careful not to contract COVID. More studies with a larger cohort are needed to investigate this further.