Issue 9, August 2022

ANZBMS Newsletter

ANZBMS-MEPSA-ANZORS 2022 Annual Scientific Meeting

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Welcome to the ANZBMS newsletter

Hope you are well!

In this issue, Prof Mark Forwood shares highlights of the ANZBMS-MEPSA-ANZORS 2022 meeting (p. 3), and Prof Mark Cooper comments on his appointment as the President-Elect (p. 4).

It was fantastic to be able to meet in person at this year's Annual Scientific Meeting! The meeting was a huge success; the program with top quality science presented along with numerous opportunities to network and meet other researchers in the field. The ANZBMS ECIC hosted networking and career development sessions, which were great opportunities to bring together members from the three societies at different career stages. Thank you to the sponsors, Program Organising Committee, and the ANZBMS ECIC committee for all their hard work! Please read the Program Organising Committee's overview of the meeting on p. 6!

A highlight of this year's meeting was the Great Debate: Therapeutics vs Exercise, with team Exercise coming out winners! An overview of this fun and informative debate is provided on pp. 7-8! Congratulations to all the award winners; more award details can be found on pp. 9-15.

In this issue, the Therapeutic Committee has provided details on updates and future plans (p. 16). The next Advanced Clinical Postgraduate Virtual Meeting will be held in October. More details on the meeting can be found on p. 17.

The 4th Herbert Fleisch Workshop is in Brugge, Belgium, 20-22 Nov 2022 (p. 19). The late-breaking abstract submission deadline is 1st September. Do not miss out on the ANZBMS International Travel award available for suitable applicants to apply to attend the H. Fleisch meeting (p. 19).

Our publication section continues to highlight the work of ANZBMS members (pp. 20-22).

We would like to thank Dr Natalie Wee (Outgoing Editor-in-Chief), Dr Emma West, and Dr Yaser Peymanfar for their contributions to the ANZBMS newsletter Editorial Board.

Do you have any news or successes to share or would like to provide feedback? Contact us at newsletter@anzbms.org.au

Happy reading!

ANZBMS Newsletter Editorial Board

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Niloufar Ansari

Martha Blank

Madhuni Herath

Hanh Nguyen

James Smith

President's comment

Professor Mark Forwood

ANZBMS President
Chair of Anatomy, School of
Pharmacy and Medical Sciences
Griffith University, Gold Coast

"Another turning point, a fork stuck in the road
Time grabs you by the wrist, directs you where to go
So make the best of this test, and don't ask why
It's not a question, but a lesson learned in time

It's something unpredictable, but in the end is right
I hope you had the time of your life"

(**Green day: "Good Riddance (Time of Your Life)"; 1997**)

ANZBMS Colleagues, we finally met face-to-face with MEPSA and ANZORS on the Gold Coast at the beginning of August. There was a positive vibe among the delegates, able to network, interact and ask questions directly (when there was time) for the first time in 3 years. This was reinforced by a successful social and educational program, including the Bones and Brews trivia evening, Speed Networking, and the customary festivities of the conference dinner (but was it a super-spreading event?). It was also gratifying to see good representation from our early career members, through to our most senior scientists and founding members of the Society. It is important to recognise the stewardship of the meeting from ASN Events, lead by Jim Fawcett and his team and sponsorship of our meeting, without which it would be difficult to deliver a high-quality event. I therefore want to thank Amgen (Platinum sponsor), Kyowa Kirin (Gold Sponsor) and our exhibitors: Echolight, GE, Gedeon Richter, Getz Healthcare, Hologic, Materialise, Theramex and our destination sponsors Tourism and Events Qld and the Qld Government.

The Program Organising Committee (POC) developed an excellent program and we thank the ANZBMS plenary speaker, Dr Andrew Burghardt, and the B.O.N.E. speakers Timo Damm and Monika Frysz for travelling and engaging with the meeting. The Early Career Investigator Committee (ECIC) sessions "Clinical Cases in Metabolic Bone Disease", and the "Career Development session" were also well attended and challenged attendees in different ways.

The Great Debate "Drugs are more effective for fracture prevention than exercise" was a wonderful example of the selective use of science and strategic good humour to win over an audience with rhetoric.

Craig Munns presided, Belinda Beck and Rob Daley prosecuted the case for exercise while Peter Ebeling and Mark Cooper accepted the brief for therapeutics. Belinda and Peter were delightfully partisan and inequitable presenting their brief of evidence, while Rob and Mark relied heavily on satire, irony and hyperbole in their advocacy. Regardless of the jury's vote, the court of public opinion declared entertainment the winner.

We presented many of our usual awards for high quality science and presentation, and they will be outlined in the newsletter. I would like to highlight the opportunity that Council has to recognise the contributions of members who have given extraordinary service to the society and who are leaders in the field of Bone and Mineral Research. This year, Council nominated Professors Ian Reid and David Findlay as Life Members and their nominations were endorsed unanimously by members at the AGM. In addition, Professor Rebecca Mason was awarded the ANZBMS Career Achievement Award which recognises outstanding and major scientific or clinical contributions, and excellence in teaching and service to and within the bone and mineral field. Professor Mason exemplifies this award through her pioneering and sustained contributions to the field through studies of Vitamin D, calcium and phosphorus.

Discussing the meeting with Ego, he challenges us all to ask "what did I learn during the conference?", "what new ideas, and collaborations were generated from this meeting", "what did early career trainees

President's comment

learn?" – these are important questions for us to reflect on our engagement with the content, and for the POC to consider how to stimulate positive answers to those questions.

At the AGM, I noted the resignation of Professor Gustavo Duque from his position as President-Elect. We congratulate Gustavo on his appointment as Kaufmann Chair in Geriatric Medicine and Director of the Centre for Research Excellence in Longevity at McGill University (Canada). I thank Gustavo for his excellent contributions to ANZBMS during his Council tenure and hope that he can maintain ongoing collaborations from his new positions in Canada. Following Gustavo's notification, the Council proposed the appointment of Professor Mark Cooper to the position of President-Elect, which was ratified unanimously at the AGM. I therefore welcome Mark to the position of President-Elect.

We now look forward to our 2023 Annual Scientific Meeting in Newcastle and your feedback from the Gold Coast Meeting will be important to drive the content and delivery of the meeting.

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https://experts.griffith.edu.au/18894-mark-forwood

President-Elect's comment

Professor Mark Cooper BMBCh, PhD, FRCP, FRACP, GAICD

Professor of Medicine – Head of Clinical School, Concord Clinical School, Faculty of Medicine and Health, University of Sydney

It was a great pleasure and honour to take on the role of President -Elect for ANZBMS at the recent Annual Scientific Meeting. I'd like to thank Gustavo Duque for the work he put in over the last year as a President Elect and wish him well on his new post in Canada.

Although based in the UK until 2013, I attended my first ANZBMS meeting in 2000 which took place on Hamilton Island. I was deeply impressed by the high quality of science presented at the meeting and the lively debate after the talks. As someone who has helped organise bone related meetings in the UK, Europe and the US, I can confidently say that the Annual Scientific Meeting continues to be one of the most rewarding bone meetings to attend internationally. After emigrating to Australia, I went on to serve as a Program Organising Committee Chair for 2 Annual Scientific Meetings and have organised the Postgraduate Meeting aimed at clinical trainees. As a councillor for 5 years and more recently the Secretary for the society, I now have an appreciation of the considerable effort the society puts into supporting its early career researchers and promoting the bone and mineral field more generally.

As President-Elect, I'll be working with Mark Forward and Natalie Sims (current and past Presidents) and the rest of the Council to continue to activities of the Society during these times. Priorities include petitioning for greater research funding for the bone and mineral field, supporting early and mid career researchers in this post pandemic phase, and advocating for better patient access to medicines and services in Australia and New Zealand.

Professor Duque's comment

Professor Gustavo Duque, MD, PhD, FRACP, FGSA

Professor and Chair of Medicine – Western Health

Director – Australian Institute for Musculoskeletal Science (AIMSS)

Melbourne Medical School, The University of Melbourne

Fifteen years ago, after arriving in Australia to assume the positions of Chair of Geriatric Medicine and Director of the Musculoskeletal Ageing Program at the University of Sydney, I arranged meetings with all the Australian world leaders in the musculoskeletal field to introduce myself and explore new collaborations. Something that caught my attention was that, without exception, they all advised me to join the Australia and New Zealand Bone and Mineral Society (ANZBMS).

This was a vital piece of advice that positively marked my academic career in Australia. I was not only welcomed to the Society but also invited to present on a regular basis. I also developed not only strong and productive collaborations but also lovely friendships with investigators from all over Australia and New Zealand. I was positively impressed by the high quality of our annual meetings, a recognition that I have heard from some of our former international speakers. More recently, I was glad to see that our early career investigators are taking an important role as future leaders in the field and the Society.

I would like to highlight the two most important moments that my ANZBMS membership has brought me during these 15 years. Being the inaugural recipient of the Phil Sambrook Award was a great honour since I knew about Phil for a long time and then had the unique opportunity of interacting with him in Australia on multiple occasions.

More recently, our members gave me the great honour of electing me as President-Elect, a position that allowed me to learn much more about the busy day-to-day activities of our Society.

After accepting the new positions as Full Professor, Kaufmann Chair in Geriatric Medicine and Director of the Centre for Research Excellence in Longevity at McGill University and investigator at the McGill University Health Centre Research Institute (musculoskeletal research team), I decided to resign from the position of President-Elect. I am convinced that ANZBMS needs a locally based Council that is actively involved with all our activities; thus, the reason for my decision, which my colleagues strongly supported at Council.

Although I will be moving to Canada this September, I will keep my membership with the Society and will try to attend our meetings regularly. Australia and New Zealand need Societies that, like ours, advocate for world-class musculoskeletal research. During this challenging time of limited funding and under-appreciation of the importance of musculoskeletal and ageing research in our countries, our Society should hold the torch that guides our leaders in government and universities to go back to the golden era of Australia and New Zealand musculoskeletal research that was widely recognised worldwide. I wish ANZBMS and all our members the best in their future endeavours. I am sure we will see each other again multiple times in the future; in the meantime, hasta pronto, dear friends.

The 2022 ANZBMS Program Organising Committee (POC) comprised of Ayse Zengin (Co-Chair), Peter Simm (Co-Chair), Hong Zhou (Co-Chair); Emma Buckels, Jiake Xu, Marc Sim, Kathryn Stok, Mike Rogers, Natalie Wee, Aris Siafarika, Michelle McDonald (former POC Chair), John Kemp (ECIC), and Melissa Cantley (ECIC). They have worked together to create a diverse, exciting and engaging program.

There were 95 abstracts submitted from ANZBMS. Out of 343 delegates (21 virtual delegates) registered for this year's combined ANZBMS/ANZORS/MEPSA meeting, 162 were ANZBMS members. Out of the 95 abstracts that were submitted, 20 were accepted for oral presentations, including 5 outstanding abstracts (supported by Amgen), 8 finalists for the Roger Melick Young Investigator award, 10 Christopher and Margie Nordin Young Investigator Poster Prize award, and 9 accepted as plenary posters.

The final program offers a variety of innovative science, with a balance of basic, clinical and translational research including four joint sessions with ANZORS and MEPSA. The first combined plenary session titled Musculoskeletal Imaging, where our international invited speaker Andrew Burghardt (UCSF) present, together with our national invited speaker Joshua Lewis (ECU) and the ECIC B.O.N.E Program speaker Timo Damm (Germany). Each speaker presented on novel analyses of bone imaging devices. Andrew Burghardt spoke about high resolution peripheral quantitative computed tomography (HR-PQCT). Josh Lewis presented on using Artificial Intelligence (AI) in determining abdominal aortic calcification via DXA vertebral scans. And finally, Timo Damm explained the intricacies of using AI in bone images. Musculoskeletal Management: insights from consumer groups & allied health had two plenary non-ANZBMS invited speakers. Ms Sandy Bevc who is the President of XLH Australia gave her perspective as a lived experience of this condition. This talk was followed by Prof. Anne-Marie Hill (UWA) who is an academic physiotherapist and highlighted the impact of falls. The session titled Lifecourse management of musculoskeletal health: paediatrics to adulthood had two invited speakers – Jenny Harrington and Anne Trinh. Both speakers presented on paediatric conditions and how to transition them into adult care, and real-world clinic experience from a clinical perspective – going from paediatric to adult care. Finally, the Cancer and Bone session was a joint session with the following speakers: Michelle McDonald, Claudia di Bella, and Ronald Sluyter.

This year we held the Great Debate session titled Therapeutics vs Exercise. Chaired by Craig Munns, speakers for the therapeutics team were Peter Ebeling and Mark Cooper, and the exercise team were Robin Daly and Belinda Beck. The debate was a major highlight by being informative, educational, and very entertaining.

Ayse Zengin, Peter Simm, and Hong Zhou

ANZBMS Program Organising Committee Co-Chairs

The Great Debate: Therapeutics vs Exercise

One of the highlights of the recent ANZBMS-MEPSA-ANZORS scientific meeting was the ANZBMS Therapeutics vs Exercise great debate 'Drugs are more effective for fracture prevention than exercise'. The debate was well attended by not only ANZBMS members but I'm sure some curious ANZORS and MEPSA society members. The session was expertly chaired by Dr Munns, who kept the comedy routine going on many occasions, including when he welcomed himself as chairperson. Four eminent speakers were invited to present on the panel: Peter Ebeling, Mark Cooper, Robin Daly, and Belinda Beck.

At the initial counting of hands for the affirmative, Chairperson Munns counted 35 after some cajoling. To open Prof Ebeling strode confidently to the podium and presented some compelling evidence from seminal drug Randomized controlled trials and meta-analyses using BMD as a surrogate endpoint for fracture reduction, including findings from our esteemed colleague from across the ditch, Dr Ian Reid, who was in attendance. Prof Ebeling presented evidence of the efficacy of more modern anabolic therapies (in comparison to anti-resorptive therapies), along with a rather dubious posthumous quote from Archie Cochrane that he was "unimpressed with the effects" of exercise on fall-related fracture, and findings of the Osteo-cise exercise intervention trial (with his name tactfully blanked on the co-authors list), which was received with a giggle from the audience. Prof Ebeling also presented findings from a couple of

intervention trials conducted by his esteemed opponent Prof Beck (LIFTMOR-M and MEDEX-OP trials) to show that the small effect of exercise on total hip BMD does not reach the surrogate threshold effect.

Next to sprint up to the podium was Prof Beck to open for 'team exercise' aka 'the negative', with her first slide displaying the myriad benefits of exercise on musculoskeletal health and risk factors associated with falls and fall-related fracture (over and above the effects of therapeutics on bone mass). Prof Beck went on to show evidence that the lack of effect seen in previous exercise trials versus medications was due to the conservative nature of previous interventions prior to the testing of higher intensity exercise, and the fact that most benefit to the proximal femur is structural adaptation not captured by BMD measures. She also noted the high non-responder rates of many osteoporosis medications. It was clear that lines had been drawn in the sand and the

The Great Debate: Therapeutics vs Exercise

stage was set for the second speakers of each time!

Prof Cooper for team therapeutics was next, and disclosed that he didn't receive any money from drug companies, but he had however injured himself many times in the gym! Data was presented on the dangers of the gym; presentations in Australian emergency departments due to gym-related injuries have been on the increase (however, this included many young individuals I suspect doing risky things in the gym). Hilarity ensued following his argument that exercise increases longevity which therefore leads to a substantially greater fracture rate.

To round out team exercise Prof Daly proclaimed that there was one prescription for BMD, falls and fracture prevention – exercise is medicine – but many clinicians do not promote exercise due to a lack of adequate training. Probably the funniest clips in Prof Daly's presentation were Ego Seeman attempting to swim (or potentially not drown) in a World Osteoporosis Day video promoting non-weight bearing activity and Prof Ebeling proclaiming in a recent podcast the single most important thing individuals could do to prevent osteoporotic fracture was to 'move it or lose it' - in other words, exercise is most important.

Unquestionably the take home message was that the focus of osteoporosis therapy should be shifted to improving physical function in order to improve bone strength and reduce falls in order to reduce minimal trauma fracture. Overall, while there may have been some light-hearted digs at the opposition, both teams presented some compelling evidence supporting both medications or exercise, however, the final count in support of the motion was only 15, so team exercise converted many in the audience and were victorious on the day.

Dr Amy Harding
Research Associate
Menzies Health Institute Queensland, School of Health Sciences and Social Work, Griffith University, QLD

We are recruiting new members!

We are seeking expressions of interest to fill **5 positions** in our ANZBMS Newsletter editorial board. If you are interested to join our team, please contact us at **newsletter@anzbms.org.au**

Member achievements

ANZBMS Career Achievement Award

This esteem award recognises outstanding and major scientific or clinical contributions, and excellence in teaching and service to and within the bone and mineral field.

Professor Rebecca Mason
The University of Sydney

ANZBMS Honorary Life Membership

ANZBMS Honorary Life Membership recognises long and distinguished service within the bone and mineral field.

Professor David Findlay
The University of Adelaide

Professor Ian Reid
University of Auckland

Member achievements

2022 ANZBMS – Bone Health Foundation Grants-in-Aid

Following a thorough and rigorous process conducted by the ANZBMS and Bone Health Foundation (BHF) Research Panel and in accordance with criteria determined by the ANZBMS and BHF Boards the 2022 Grants-in-Aid were awarded as follows:

Associate Professor Nathan Pavlos

University of Western Australia

For the project "*Unlocking the Therapeutic Potential of a Novel 'Dual Action' Target for Bone-Wasting Diseases*".

This proposal will establish the preclinical utility of a novel 'dual action' molecular target in osteoclasts that, when inhibited, attenuates bone resorption by osteoclasts and concomitantly stimulates bone formation by osteoblasts.

Dr Sandra Iuliano

The University of Melbourne

For the project "*Evaluating the efficacy of a Bone-Health Nutrition Training Program for food service staff in aged care: a food-based approach to fracture risk reduction*".

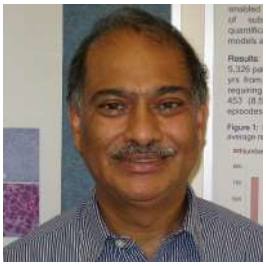
The project aims to scale-up the outcomes of a successful nutritional intervention (increasing high-protein, high-calcium dairy foods to 3.5 servings daily in high-risk groups) into a Food Service Training Program for aged-care staff to increase availability of these foods to all residents in aged-care.

Member achievements

AMGEN-ANZBMS Outstanding Abstract Awards

These awards recognise ANZBMS members that submitted the highest ranked abstracts to this year's Annual Scientific Meeting.

Professor John Eisman
Garvan Institute of Medical Research
Fracture risk in women with osteoporosis treated with gastro-resistant (ec) risedronate versus immediate release risedronate or alendronate: a claims data analysis in the United States



Professor Charles Inderjeeth
North Metropolitan Health & University of Western Australia
Treating osteoporosis and dementia with anti-dementia medication acetylcholinesterase inhibitors may have therapeutic benefits on osteoporotic bone by attenuating osteoclastogenesis and bone resorption

Dr Brya Matthews
University of Auckland
Epidemiology of fractures in different ethnic groups across the lifespan in New Zealand

Professor Michael J Rogers
Garvan Institute of Medical Research
Bisphosphonates may boost immune responses to pulmonary infection by acting on tissue-resident macrophages in the lung

Professor Ming-Hao Zheng
The University of Western Australia
Endothelial cells require mitochondrial transfer from osteocytes to promote vascularization in cortical bone

Member achievements

Christine and T. Jack Martin Research Travel Grant

This grant is offered by the ANZBMS to facilitate travel to undertake bone and mineral research in any aspect of basic or clinical science.

Ahmed Al Saedi
Australian Institute for Musculoskeletal Science (AIMSS)

Niloufar Ansari
Monash Institute of Pharmaceutical Sciences

Martha Blank
St Vincent's Institute of Medical Research

Pholpat Durongbhan
The University of Melbourne

Prof Philip Sambrook Young Investigator Travel Award

This award is offered to an outstanding early career researcher to present their work at an overseas conference.

Natalie Hyde
Deakin University

Member achievements

Kaye Ibbertson Award

The award recognises the productivity of the early and mid-career investigators, in terms of published clinical and/or basic research, in the field of metabolic bone disease.

Natalie Wee
St Vincent's Institute of Medical Research

Sol Posen Research Award

The prize is awarded annually based on the best paper published by an early investigator in the 18 months prior to the closing date of the award.

Kai Chen
The University of Western Australia

Roger Melick Young Investigator Award

The prize is awarded to young members of the Society working towards a higher degree based on abstract quality, and best oral presentation at the Annual Scientific Meeting.

Kaitlyn Flynn
The University of Queensland

Identifying genes involved in hip osteoarthritis and describing the cells in which they are differentially expressed

Member achievements

Christopher & Margie Nordin Young Investigator Poster Award

The prize is awarded to young members of the Society working towards a higher degree based on abstract quality, and best poster presentation at the Annual Scientific Meeting.

Selwin Gabriel Samuel
Mater Research Institute

Pathogen-associated molecular patterns produced by infectious microbes worsen Neurogenic Heterotopic Ossifications after spinal cord injury

ANZBMS Highest Ranked Student Abstract

The prize, of a single free registration, will be awarded to the student first author of the abstract that receives the highest score from the scoring committee.

Tian Nie
University of Melbourne

Estradiol increases bone mass and strength in a pre-clinical mouse model of male-to-female transition during adulthood

ANZBMS Clinical Cases in Metabolic Bone Diseases Winner

Lucy Collins
Royal Melbourne Hospital

An unusual cause of hypercalcemia in two siblings

Amgen/Healthy Bones Australia/ANZBMS Clinical Grants Program

Shejil Kumar
Royal North Shore Hospital

Congratulations!














Therapeutics Committee

1) Welcome to new members and thanks to those leaving:

Name	Day job	Status on committee
Richard Prince	Adult Endocrinology (Perth)	Chair 2017 - current
Ivone Johnson	ANZBMS Executive Officer	Executive Officer
Mark Forwood	ANZBMS President	2021 - current
Peter Sim	Paediatric Endocrinology (Melbourne)	2018 - current
Grahame Elder	Nephrology (Sydney)	2018 -current
Alan Doube	Rheumatology (Hamilton)	2020 -current
Belinda Beck	Director of Research, The Bone Clinic (Gold Coast)	2020 -current
Christian Girgis	Adult Endocrinology (Sydney)	2022 - current
Mathis Grossmann	Adult Endocrinology (Melbourne)	2022 - current
Hanh Nguyen	Adult Endocrinology (Melbourne)	2022 - current
Wei Wen Chen	Adult Endocrinology (Sydney)	2022 - current
Sabashini Ramchand	Post graduate Student (Boston)	2018 - 2022
Craig Munns	Paediatric Endocrinology (Sydney)	2018 - 2022
Nick Pocock	Nuclear Medicine (Sydney)	2018 - 2022
Fran Milat	Adult Endocrinology (Melbourne)	2018 - 2022

2) Ongoing issues 2022 - 2023:

a. Introduction of burosumab into practice

While awaiting the decision of the PBAC on the exact indications for the prescription of burosumab it is important to collect the information such a prescription may require. These may include serum and urine PO4, radiological evidence of osteomalacia and genetic testing. A Working Party is examining the issues around accessing specialist testing.

b. Romosozumab

We await the PBAC decision on expansion of the indications for romosozumab to increasing the T score from -3 to -2.5 for the prescription of romosozumab after fracturing while on antiresorptives and, first line prescription of romosozumab – an interesting new concept in therapy, already available to patients on private script.

c. Risedronate

We are informed that Theramex is considering an extension of the once a week version of risedronate Actonel C.

d. Anastrazole treated women post breast cancer

Unfortunately little progress has been made in finding a pharmaceutical manufacturer prepared to make an application to the PBAC for a therapy to prevent bone loss in this situation.

3) New plans

Up-to-date advice to colleagues:

The Committee discussed the possibility of extending the work of the committee to producing "Up-to-date advice to colleagues" on various topics. These could be published, presented and made available on the ANZBMS website. It was considered that this would allow the Committee to provide timely advice to members on Therapeutics that would not need as much detailed review of evidence as is currently required in a Guideline document.

Topics such as Renal bone disease, Stopping denosumab, Exercise, Osteonecrosis of the jaw, and Dietary calcium and vitamin D were discussed. Therapeutics would be grateful for suggestions for such topics from members and be prepared to consider supporting those.

Prof Richard Prince, Chair of Therapeutics Committee

Advanced Clinical Postgraduate Meeting

This October, update your clinical skills in bone and mineral disorders.
The Clinical Practice Committee is proud to present this year's Advanced Clinical Postgraduate Virtual Meeting **(Saturday October 29, Sunday October 30).**

Over two half-days on zoom, a panel of experts will cover a wide range of themes from challenging cases in osteoporosis to the latest concepts in sequential therapies and high-imminent fracture risk. Skeletal health in patients with cancer, renal disease, inflammatory conditions and the very elderly will also be covered.

Presentations will be clinically focused, pragmatic and interactive. This meeting is ideal for clinicians at any stage - advanced trainees, mid-career or senior clinicians – seeking an up-to-date revision in bone and mineral disorders.

Registration is now open! Register **here**.
Full details and meeting program can be found here: https://www.anzbms.org.au/advanced-clinical-postgraduate-meeting.asp

Please direct any questions to *christian.girgis@sydney.edu.au*

A/Prof Christian Girgis, Chair of Clinical Practice Committee

Meet our newest ANZBMS members

Selwin Samuel

@SamuelSelwin

Affiliation: PhD Student, Mater Research Institute

Research category: Translational

Research interests: I am interested in understanding the innate immune system and its role in bone formation and resorption. I am also interested in studying the pathways involved in musculoskeletal pathologies and identifying various drug targets to prevent and treat those pathologies.

What do you hope to gain from joining ANZBMS? ANZBMS is a platform for both lab-based and clinical researchers in the field of musculoskeletal research. So I look forward to gaining comprehensive knowledge of bone-related disorders and helping reinforce the bridge between bench and bedside research.

Carlie Bauer

@carlie_bauer1

Affiliation: PhD Candidate, Victoria University Institute for Health and Sport

Research category: Clinical

Research interests: Effect of exercise on hormones involved in bone-muscle-fat interaction with ageing.

What do you hope to gain from joining ANZBMS? Hear from leaders in the field to stay up to date with exciting new research and explore mutual interests.

IFMRS news

IFMRS Herbert Fleisch Workshops 2022

IFMRS is happy to announce that the Herbert Fleisch 2022 Workshops will take place in Brugge, Belgium (20-22 November). The late-breaking abstract submission deadline is **1st September**.
The H. Fleisch Workshop is a 3-day residential workshop designed to bring together international investigators and young and mid-career scientists working in musculoskeletal research for a few days of learning, discussion and networking, with the hands-on participation of some of the top scientists in this field, all of whom will be present for the duration of the event.
Six excellent international speakers and experts in the field will stay for the duration of the event and be available for hands-on discussions with attendees.

- ***Professor Duncan Bassett (Imperial College London):*** *Genetics and large-scale omics technologies in bone research*
- ***Professor Georg Schett (Friedrich-Alexander-Universität Erlangen-Nürnberg):*** *Cellular pathogenesis and inflammation in rheumatoid arthritis*
- ***Professor Ernestina Schipani (University of Pennsylvania):*** *Hypoxia signalling and cell metabolism in the skeleton*
- ***Professor Eileen Shore (University of Pennsylvania):*** *Lessons from rare genetic diseases*
- ***Professor Clifford Rosen (Maine Medical Center):*** *Irisin and the cross-talk between muscle and bone*
- ***Professor Anna Teti (University of L'Alquila):*** *Bone pathology/malignancy and therapy research*

To learn more about the upcoming event, including the program and registration options, please visit:
https://www.ifmrs.org/h-fleisch-workshop-2022/.

Join the HubLE community today!

To share your ideas and learn from our international community, visit our website **www.huble.org** and view the latest content from the HubLE community.

ANZBMS Awards

ANZBMS International Travel Award

This award is offered by the ANZBMS for suitable applicants to attend the Herbert Fleisch Workshop in Brugge, Belgium, from 20-22 November 2022

Applications close: 2 September 2022

Member publications

Ng CA, Scott D, Sim M, Zhu K, Siafarikas A, Hart NH, Tan J, Chivers P. Physical activity estimated by osteogenic potential and energy expenditure has differing associations with bone mass in young adults: the raine study. *Arch Osteoporos.* 2022. 17:67. doi: 10.1007/s11657-022-01100-1

What is the background of the study?

Physical activities involving high and rapid impact have significant effects on bone health. Studies have historically utilised physical activity questionnaires that assess metabolic equivalents (METs) reflecting the metabolic rate of a given exercise, but not its mechanical loading intensity or rate. This may in part explain why physical activity has been reported to have inconsistent associations with bone mineral density (BMD). To better evaluate the effectiveness of bone-targeted exercises, questionnaire-assessed physical activities need to be quantified by the intensity and frequency of the ground reaction forces they generate based on principles of the evidence-based osteogenic index described by Turner and Robling (2003). This approach has been adopted in the Bone-specific Physical Activity Questionnaire (BPAQ) by Weeks and Beck (2008).

This study aimed to investigate how physical activity loading scores, assessed at ages 17 and 20 years, (a) compares with physical activity measured in METs, and (b) is associated with bone mass at age 20 years in the Raine Study.

What did you find and what message do you want readers to take away?

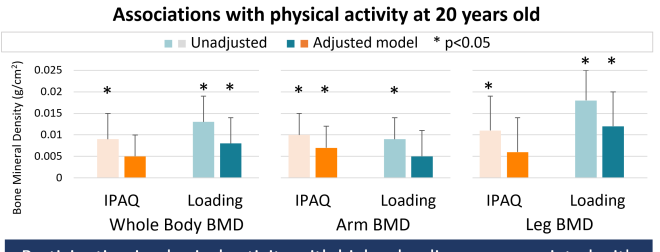
We estimated bone loading scores over the past week from the METs-based International Physical Activity Questionnaire (IPAQ) based on previously determined load ratings used in the BPAQ. There were clinically relevant disagreements between self-reported IPAQ and loading score estimates, indicating that they cannot be used interchangeably as they assess different aspects of physical activity. Loading scores, but not IPAQ scores, demonstrated significant positive associations with whole-body and leg BMD at ages 17 and 20 years. Conversely, IPAQ scores, but not loading scores, demonstrated significant positive associations with arm BMD at age 20 years. Thus, using both energy expenditure questionnaire outcomes and bone-loading estimates can improve our understanding of the location-specific skeletal benefits of physical activity.

What is an application of your finding?

Our approach of adapting an energy expenditure-based physical activity questionnaire to output loading scores can support retrospective re-analyses of existing cohort studies where self-reported physical activity has been assessed and effects on bone health are of interest. We also hope that these findings serve as impetus for investigators to utilise estimates of loading scores, as can be obtained via the validated BPAQ, in future cohort studies and trials. Obtaining these measures can help further elucidate the long-term effects of activity involving high and rapid impact on skeletal outcomes in both young and older populations.

Did you face any challenges during the study?

The format of the IPAQ differs substantially from the BPAQ, and so we had to make some challenging decisions on how to appropriately attribute load ratings to certain activities. As such, there are some assumptions which apply to our method, but we believe that the observed associations support this approach for estimating loading from METS-based physical activity questionnaires.



Participation in physical activity with higher loading was associated with whole-body and leg BMD, while higher energy expenditure (IPAQ scores) was associated with arm BMD.

Member publications

Feleke M, Feng W, Song D, Li H, Rothzerg E, Wei Q, Kōks S, Wood D, Liu Y, Xu J. Single-cell RNA sequencing reveals differential expression of EGFL7 and VEGF in giant-cell tumor of bone and osteosarcoma. *Exp Biol Med (Maywood).* 2022. 247:1214-1227. doi: 10.1177/15353702221088238

What is the background of the study?

Angiogenesis is the complex biological process that involves the development of new blood vessels. Pathological angiogenesis might be involved in the onset and advancement of various cancers including Osteosarcoma (OS) and Giant Cell Tumour of Bone (GCTB). Single-cell RNA sequencing (scRNA seq) is a new emerging technology that provides an opportunity to investigate cell lineages, novel cell subpopulations, regulatory networks between genes, and cell-specific biological characteristics in different biological processes. In this bioinformatic study, we have used scRNA seq data to determine if pro-angiogenic factors, epidermal growth factor-like domain-containing protein 7 (EGFL7) and vascular endothelial growth factor (VEGF)-A-D are differentially expressed genes in single cells of OS and GCTB.

What did you find and what message do you want readers to take away?

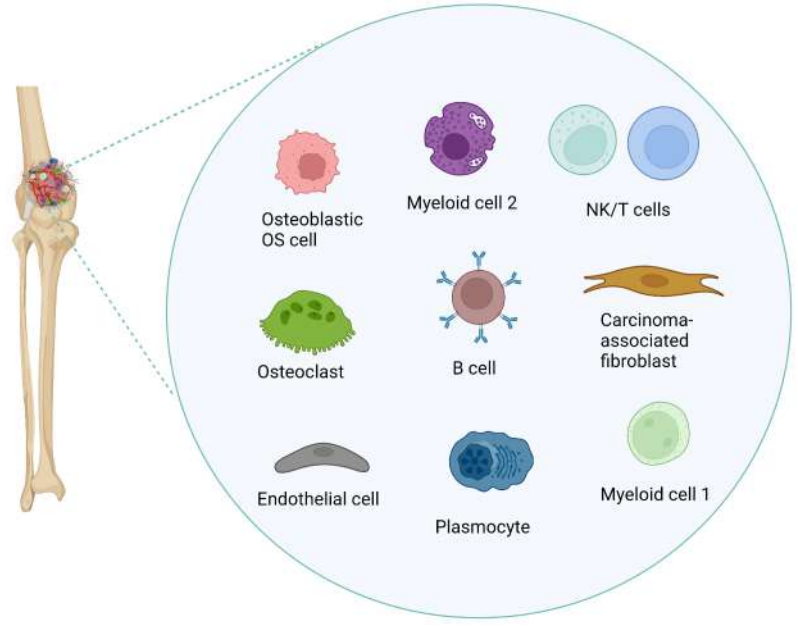
Our study provides evidence of intercellular and intracellular heterogeneity in OS and GCTB. The results from our study further reveal that EGFL7 and VEGF-A-D are differentially expressed in single cells of both OS and GCTB. Interestingly, EGFL7 stood out for its significantly high expression in endothelial cells.

What is an application of your finding?

Early detection and diagnosis of OS and GCTB is likely to improve survival outcomes in these patients. The functional role of these specific genes in these tumours is yet to be determined. Future studies might examine if EGFL7 and VEGF-A-D could be used as prognostic or diagnostic biomarkers for OS and GCTB.

Did you face any challenges during the study?

The small sample size and lack of literature on the topic was a challenge during the investigation.



Osteosarcoma and Giant Cell Tumour of Bone consist of many cell types, in which EGFL7 is abundantly and specially expressed in endothelial cells, indicative of its role in the dysregulation of angiogenesis in bone microenvironment and bone tumour development.

Member publications

Kistler-Fischbacher M, Yong JS, Weeks BK, Beck BR. High-Intensity Exercise and Geometric Indices of Hip Bone Strength in Postmenopausal Women on or off Bone Medication: The MEDEX-OP Randomised Controlled Trial. *Calcif Tissue Int.* 2022. doi: 10.1007/s00223-022-00991-z.

What is the background of the study?

We know from the LIFTMOR studies that supervised high intensity resistance and impact training (HiRIT) improves bone and other risk factors for fracture such as kyphosis, balance, mobility and function. What we didn't know was whether adding medications to HiRIT would enhance the effect. Because it was an unfunded study we couldn't run a 2 x 2 factorial design so we recruited postmenopausal women on and off osteoporosis medications and allocated them to 8 months of either twice weekly HiRIT or Pilates (we used this as our control because Pilates is too low intensity to improve bone), stratifying randomisation based on presence or absence of medications (minimum 12 months exposure).

What did you find and what message do you want readers to take away?

We found HiRIT improved all the risk factors for minimal trauma fracture listed above, whereas the Pilates group lost bone and only had mild improvements in some of the other outcomes unless they were on bone medications in which case they improved BMD. The HiRIT group (no medications) improved BMD the same amount as the Pilates group on medications which suggests HiRIT alone was as effective as osteoporosis medications. The addition of OP medications did not improve the effect of HiRIT at the spine but did appear to improve hip outcomes a little more.

What is an application of your finding?

The same as for all our recent studies, supervised HiRIT is an effective and safe intervention for older men and women with low bone mass.

Did you face any challenges during the study?

We did. It was exceedingly difficult to find enough people taking bone medications. This means we had a relatively small number in the medications groups. Also COVID intervened so there was some disruption to the training schedule and a few participants dropped out because they were unwilling to risk infection. Luckily the HiRIT stimulus was strong enough that we were still able to detect a between group effect.

Melanie Kistler-Fischbacher (first author) conducting a supervised Pilates session for the MEDEX-OP project.

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Calendar of Events and Webinars

NATIONAL

ANZBMS/RACP Webinar
Title: Bone Health In Children
Prof Craig Munns
29 August at 6 pm to 7 pm AEST / 8pm to 9pm NZST
Register here

ANZBMS Advanced Clinical Postgraduate Meeting
29 - 30 October 2022; Virtual
More information and registration: here

ESA-SRB-APEG-NZSE ASM 2022
13 - 16 November 2022
Te Pae, Christchurch, NZ
More information here

INTERNATIONAL

14th International Conference on Osteogenesis Imperfecta
30 August - 2 September 2022
Sheffield, UK
More information here

ORS ISFR 17th International Biennial Meeting
5 - 7 September 2022
Edinburgh, Scotland
Abstracts due 20 May 2022
More information here

40th Annual Meeting of the European Bone and Joint Infection Society
8-10 September 2022
Graz, Austria
More information here

ASBMR 2022 Annual Meeting
9 - 12 September 2022
Austin, TX, USA
More information here

ORS PSRS 6th International Spine Research Symposium
6 – 10 November 2022
Skytop, PA, USA
More information here

BRS Basic Course In Bone and Cartilage Biology and Disease
17 - 18 November 2022
Sheffield, UK
More information here

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Sheffield, UK
More information here

ORS 2023 Annual Meeting
February 10 - 14 2023
Dallas, Texas, USA
Abstracts closing August 29th
More information here

ECTS 2023
10 - 14 April 2023
LIverpool, England
Registrations & abstracts open 5 Sept 2022
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Monthly webinars
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ECTS Webinar Series
More information here

IO - ASBMR Rare Bone Disease TeleECHO
Delivered virtually the first Thursday of each month 15:00 EST
More information here

OI Foundation OI TeleECHO Clinic Series
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