UNIVERSITY OF WOLLONGONG AUSTRALIA

School of Medicine Research Newsletter

October 2020

Introduction

This has been a difficult year in so many ways. While the teaching program necessarily took a lot of focus, the SoM Research Committee met on a monthly basis with the aim of developing the school research strategy. This strategy fits within its key purposes as an educational unit and a source of researchers working collaboratively with the major science and health research institutes and centres.

As communications have been particularly challenged in these circumstances we developed this newsletter after a call to staff for contributions. Along with a monthly seminar program that reflected the key strategic themes (see below), the newsletter provides a useful reference platform for our planned annual research forum on November 26.

The content reflects a particular snapshot of work undertaken in the School of Medicine largely during the period March- September 2020. It is an opportunistic sample of topics reflecting the breadth of work across the translational spectrum. This alignment aims to encourage further collaborations across disciplines and to help identify areas where potential grant applications can be nurtured.

The information is varied and mixed, covering a range of projects, centers, people and places that gives a taste of the overall research effort.

The publication list at the end provides an excellent overview of the productivity of researchers in the school – as well as another opportunity to look into potential collaborations.

So, enjoy the read and identify opportunities. Look to the annual school research forum to contribute to future directions for organizing and managing the school's research efforts. If you would like to discuss any of these beforehand please contact Professor Linda Tapsell, Chair, SoM Research Committee at ltapsell@uow.edu.au.

Feedback:

Every attempt has been made to equitably highlight research that is taking place within the School of Medicine. We would like this publication to be a useful tool that can be used to strengthen relationships and to provide an overview of research that is taking place.

If you have any feedback on this publication, please email amunkman@uow.edu.au

Additionally, please feel free to email any content that you wish to be included in the next newsletter.

ISLHD AND THE SOM – WE CAN WORK TOGETHER FOR MEANINGFUL RESEARCH

The Illawarra Shoalhaven Local Health District (ISLHD) is very keen to act as a conduit for meaningful clinical research for scientists, academics and clinicians. ISLHD has a major role to play in enabling and hosting research that leverages opportunities based on patient interaction. ISLHD is also active in the marketplace for enhancing and maximising collaborations with many local and regional partners.

Some of the projects currently being supported for SOM students include for Phase 3 Graduate Medicine (GM) students. An example is that involving Ish Seth who is investigating the post-surgical functional outcomes of head and neck reconstruction patients.

There has been a renewed commitment of the collaborative relationship between ISLHD and the SOM. As such, the SOM is ideally positioned to take advantage of this timing and opportunity. Please contact ISLHD-Research@health.nsw.gov.au to set up initial meetings for the development of collaborative projects. We look forward to hearing from you.

A/Prof Bruce Ashford
Executive Director of Research, ISLHD

Research strategy

- Mental health and cognition
- Physical function, performance and injury
- Metabolic health, food and health
- Health services, communities
- Indigenous health
- Health personnel education

The school research strategy aims to translate basic science into healthy lifestyles and evidence based clinical practice. This occurs across the spectrum of research ranging from basic science discovery, translating to humans (T1), patients (T2), practice (T3) and populations (T4). A wide range of research methodologies and resources are utilized to address complex problems related to the 5 main areas listed above. The research is integral to the development of the UoW Health and Wellbeing Strategy and associated facilities.

T4 Translation to Population Health

Health Services Research

EFFECTIVENESS OF QUALITY INCENTIVE PAYMENTS IN GENERAL PRACTICE TRIAL (EQUIP-GP)

A PROJECT OF THE ILLAWARRA AND SOUTHERN PRACTICE RESEARCH NETWORK (ISPRN)

The aim of this study was to evaluate the impact of a new funding model in primary care that provides incentives for longer consultations, same day access and follow-up after hospitalisation.

The project was a collaboration between the University of Wollongong, Monash University and the University of Tasmania and was funded by the Royal Australian College of General Practitioners (RACGP). The funding model trial tested incentives for specific quality improvement factors in high-risk chronic disease populations and provided payment incentives that are proportional to the expected health system cost savings resulting from those patients' care improvement.

CHIME-GP STUDY

The roll-out of MyHR provides a powerful opportunity to combine training in the use of this centralised health record with evidence-based prescribing and test ordering for practitioners. A three-arm pragmatic, educational trial was developed and implemented.

My Health Record

By the end of the education sessions, there was a change in knowledge, skills and behaviours regarding the use of MyHR and evidence-based deprescribing, imaging and pathology ordering.

The evaluation has demonstrated that the intervention can improve confidence in, and use of, MyHR. It also shows potential to achieve change in clinical reasoning and some reduction in unnecessary health care expenditure.

Stage two of this project is underway whereby over 100 GPs are undertaking the education Australia wide.

ADVANCE CARE PLANNING IN OUTPATIENT CLINICS

Advance Care Planning (ACP) is a process of reflection, discussion and communication that enables a person to plan for their future medical treatment and other care, for a time when they are not competent to make, or communicate, decisions for themselves. ACP could significantly improve quality of care whilst allowing patients to receive patient-centred care and to avoid unwanted and inappropriate hospital admissions and interventions.

Hospital wards are not an ideal setting for ACP because decisions made when acutely unwell may not truly reflect the patient's true wishes. Outpatient clinics are a better setting to conduct ACP. However, there is paucity of evidence on the benefits of ACP conducted in patients with advanced diseases attending hospital outpatient clinics. There is also a lack of studies examining the benefits of ACP over a longer time period (e.g. 18 months), and there is lack of Australian evidence base examining the health economics benefits of ACP.

This research aims to understand whether an Advance Care Planning intervention, provided to patients with advanced diseases attending hospital outpatient clinics identified as being at risk of dying in the next 12 months reduce unplanned hospital admissions at 6 and 18 months, improve patient care and encourage health professionals to incorporate ACP into routine care.

Positive results obtained from this study will provide the necessary evidence to policymakers and health service managers to enable them to make additional investments and therefore implement ACP in a larger scale.

A/Prof Joel Rhee is the research lead and Dr Diane Harland is the research fellow on this project, along with researchers; Caplan, G, Meller, A, Gonski, P, Hayen, A, Cullen,J, Naganathan, V, Zwar, N, O'Keefe, J, Krysinska, K, Kenny, P & Perry, L.

CENTRE FOR HEALTH RESEARCH ILLAWARRA SHOALHAVEN POPULATION (CHRISP)

In 2016 the Illawarra Shoalhaven Local Health District (ISLHD) and the Australian Health Services Research Institute (AHSRI) at UOW established the CHRISP Research Partnership.

In July 2020, the UOW School of Medicine joined the collaboration.

The main aims of CHRISP are to:

- provide access to high-quality health data
- build capacity for research and evaluation
- lead and support priority-driven and investigator-driven research
- support translation of research findings into policy and practice.

Clockwise from top left - Linda Foskett, Dr Bianca Suesse, Dr Luise Lago, Dr Victoria Westley-Wise, Brendan McAlister, Dave Webster, A/Prof Judy Mullan, Dr Esther Davis, Stephen Moules

CHRISP research projects can be broadly categorised into six research themes:

1. Service utilisation/demand - trends and drivers, need and gaps
2. Chronic conditions and risk factors for recurrent presentations or admissions
3. Frail elderly and end of life
4. Mental health, drug and alcohol
5. Adverse events
6. Service, policy and/or program evaluation.

CHRISP staff have supervised more than a dozen Higher Degree Research (HDR) students, many of whom are ISLHD clinicians. Two of these HDR students are due to complete their studies within the next 6 months:

To date, CHRISP has collaborated on 38 priority driven and investigator driven research projects (20 currently in progress and 18 completed).

At a local level, research findings have been translated into policy changes (e.g. policy which mandated a change in the health care interpreter service use audit process) and practice (e.g. a reduction in opiate prescribing on discharge from hospital). Longer timeframes are required to see impacts on health service delivery and clinical practice based on other insights gained from the research findings.

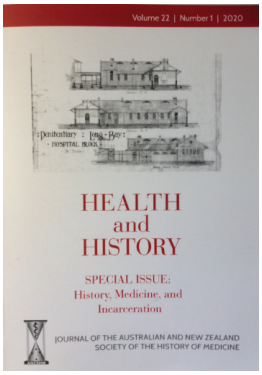
THE HEALTH IMPACT RESEARCH CENTRE (HIRC)

HIRC is a SMAH Research funded centre that brings together researchers from a wide range of health disciplines to address the complex problems that impinge on the health of communities. HIRC brings together established research capacities, for example from the Smart Food Centre (specialising in Food and Health research); the IHMRI HealthTrack Healthy Lifestyle study; the SIMLR Cohort Study and the Illawarra and Southern Practice Research Network (ISPRN).

The **mission** of HIRC is to undertake inter-disciplinary research to better understand the client/ patient and community experiences related to living with chronic conditions and to inform innovative approaches to the prevention and management of health conditions, particularly to local communities.

HIRC creates synergies between health researchers from the SMAH Faculty with values of innovation, collaboration, inclusiveness, integrity and accountability. Professor Karen Charlton from SoM is co-director with Professor Vicki Traynor from Nursing.

RESEARCH PROJECT: GOVERNING PRISONERS' HEALTH: THE DEVELOPMENT OF THE PRISON MEDICAL SERVICE IN NSW, 1840-1900



A/Profs Kath Weston and Louella McCarthy have just published a special issue of a journal, looking at the history of prison medicine in NSW, which has been used as the basis for an ARC grant.

The history of the prison medical service of NSW provides a vantage point from which to examine a range of important issues in the 19th century, especially the history of health care, prevailing beliefs about social ordering and the roles and functioning of the state.

Emerging from its foundations in a penal colony, the prison medical service of NSW responded to wider changes, including penal reform proposals, medical professionalization and colonial state formation.

By focusing on the work of medical men in gaols during the 19th century, this research highlights how the profession managed to assert and enforce their autonomy in colonial society, whist working in state institutions that were increasingly viewed as the central feature of effective criminal justice.

In return, the colonial authorities (and later) the state government of NSW encouraged a new 'specialty' of medical practice among prisoners, and thereby contributed to new understandings of incarceration and its place in modern societies.

A/Prof Weston is also writing a paper about the history of infectious diseases in prisons, and believes she may have evidence of an early outbreak of hepatitis A in Darlinghurst Gaol in 1861.

The research team is currently preparing several manuscripts including management of infectious diseases in prisons, responses to disease outbreaks, and the role of women prisoners in vaccination against smallpox.

https://www-jstor-org.ezproxy.uow.edu.au/stable/10.5401/healthhist.22.1.0008

Food and health

NUTRITION CARE AND ALCOHOL WITHDRAWAL

CAMERON MCLEAN
PHD CANDIDATE

A published review by Cameron McLean APD (dietitian and clinical supervisor of UoW students at St George Hospital and PhD student in SoM) was cited in the Dietitians Australia submission to public consultant questions requested by the NHMRC on the Australian Guidelines to Reduce Health Risks from Drinking Alcohol.

This paper was listed as evidence supporting the need to include obesity, malnutrition and micronutrient undernutrition under Guideline 1 : Reducing the risk of alcohol related harm over a lifetime https://dietitiansaustralia.org.au/voice-of-daa/submissions/2020-submissions/

McLean C, Tapsell L, Grafenauer S, McMahon A-T. Systematic review of nutritional interventions for people admitted to hospital for alcohol withdrawal. Nutrition & Dietetics. 2020;77(1):76-89.

A follow-up paper involving a 5-year audit of practice in the alcohol withdrawal area was recommended by editors of Alcohol and Alcoholism for Open access, exposing recommendations for improved clinical care practices to be widely disseminated across health services.

McLean C, Tapsell LC, Grafenauer SJ, McMahon AT. Nutritional care of patients admitted to hospital for alcohol withdrawal; a five year retrospective audit. Alcohol and Alcoholism. 2020, 1–9. Read Publication

Camerons' principle PhD supervisor is Dr Anne McMahon.

VITAMIN D AND HEALTH STATUS OF AUSTRALIAN WOMEN

REBECCA VEERING
PHD CANDIDATE

PhD student Ms Rebecca Vearing is undertaking multi-country research to understand why Australians and other Countries experience such a high Vitamin D deficiency.

At present, one in four Australians are deficient in vitamin D.

This study will investigate Vitamin D levels in women in Australia, the UK and Brazil. Factors such as skin type, latitude, diet, sun exposure and lifestyle factors will be explored.

These measures will be obtained through blood tests, bone density scans, muscle strength tests, food diaries and sun exposure measures.

Participant recruitment is currently open for this study. For more information contact: rv876@uowmail.edu.au

GLOBAL CHALLENGES GRANT: FROM POWER PLANT TO TABLE: LINKING GLOBAL MERCURY EMISSIONS TO AUSTRALIAN FISH CONSUMPTION

Jenny Fisher (SMAH), Anna Farmery (LHA/BAL), Michael Bertolacci (EIS), Karen Charlton (SMAH).

PRESENTATIONS

Lambert, K, *'Tips and tricks for designing patient education materials for people with kidney disease', Webinar, Renal Society of Australasia, 28 July 2020*

Lambert, K, 2020, 'Nutrition and Kidney Health Webinar for Health Professionals' Webinar, Kidney Health Australia, 29 July 2020.

Lambert, K 2020, 'Consumers in a pandemic: Living and learning' *Australasian Institute of Digital Health, 24 June 2020.*

Senior Professor Linda Tapsell was a panel member on a recent Covid referenced Webinar, Lessons learned and opportunities for better food regulation conducted by Food Standards Australia New Zealand (FSANZ). The panel included the CEOs of the Australian Food and Grocery Council, NSW Food Authority, and CHOICE, as well as a representative from Business Development and Innovation, GS1 Australia. Prof Tapsell addressed implications for research (see https://www.foodstandards.gov.au/media/Pages/FSANZ-webinar.aspx *).*

Community Health

RESEARCH IN RURAL AND REMOTE HUBS: THE CHARM STUDY

The CHARM project is a community-based survey that aims to obtain an understanding of the health needs and perspectives of community members who live in Graduate Medicines' 11 rural and regional educational sites. Community members will be asked about their resilience, life satisfaction and quality of life.

Obtaining this information will provide a unique understanding of the effect of COVID-19 on these communities. Participants will also be invited to include their information in a community research database which will be used for future UOW research projects.

GLOBAL CHALLENGES GRANT: STORIES AFFORDING PATHWAYS TO HEALING: PRACTICES SUPPORTING COMMUNITY RECOVERY AND RESILIENCE POST DISASTER

Lynne Keevers (SOC/ASSH), Anthony McKnight (SOC/ASSH), Deborah Gough (LHA/ASSH), Karen Fildes (SMAH), Sharon James (SMAH), Karen File (SOC/ASSH), Susan Duchesne (SOC/ASSH), Saskia Ebejer (SOC/ASSH), Joanne Spangaro (SOC/ASSH), Adam Gowen (LHA/ASSH).

GEOGRAPHIC VARIATION IN CARDIOMETABOLIC RISK

RENIN TOMS
PHD CANDIDATE

In partnership with Southern.IML Pathology, researchers at the Illawarra Health and Medical Research Institute (IHMRI), UOW's School of Medicine, UNSW School of Population Health and the Illawarra Shoalhaven Local Health District, have completed a four-year research project looking at the area-level geographic variation in cardiometabolic risk.

PhD Candidate Renin Toms has led the research, which was conducted throughout the Illawarra-Shoalhaven region.

The research descriptively and spatially analysed eight cardiometabolic risk factors including fasting blood sugar level(FBSL), glycated haemoglobin(HbA1c),total cholesterol(TC), high density lipoprotein(HDL), albumin creatinine ratio(ACR), estimated glomerular filtration rate(eGFR), body mass index(BMI), and diabetes mellitus status for individuals who had routine pathology tests between 2012 and 2017.

Outcomes of the research confirmed the relationship between socioeconomically disadvantaged areas and prevalence of cardiometabolic risk factors in the Illawarra-Shoalhaven region.

Indigenous Health

GRADUATION CONGRATULATION - SHARON GRAY

A big congratulations to Sharon Gray who has just Graduated from UOW with a Bachelor of Health Science (Indigenous Health) from UOW. She also earned a place on the SMAH Executive Dean's Merit List in 2019 for outstanding academic performance during her studies. Sharon has worked at Graduate Medicine since March 2014, and is currently the Indigenous Health Project Officer.

It was Sharon's earlier career working in the healthcare system that led her to discover her passion of working in Indigenous Health. As an Aboriginal health worker, Sharon became involved in the roll-out of the Closing the Gap Government initiative.

She transitioned into an Aboriginal health outreach worker role, working more closely with Aboriginal community members and made a significant difference to their health outcomes by reducing barriers and access to health systems.

Sharon has been accepted into a Masters of Indigenous Philosophy and her research is titled "The Art of Ventriloquism -The muted voices moving into Academia", which defines her life journey so far, incorporating the bushfires, floods and COVID. She has however, decided to take a study break to focus on her family, including quality time with her grandchildren. She likes to be a role model and to instill resilience in them to strive to do the best that they can on a personal level and academically. Her youngest grandchild, at two years old wants to be a dentist 'to fix people's teeth so they can eat better' but her five year old grandson, at this stage, only aspires to be Batman.

GLOBAL CHALLENGES GRANT: CULTURAL BURNING FOR RESILIENCE: YOUTH-LED PARTICIPATORY ACTION RESEARCH TO PROMOTE INDIGENOUS PRACTICES FOR COUNTRY

Katharine Haynes (SMAH), Vanessa Cavanagh (SOC/ASSH), Lisa Slater (LHA/ASSH), Rebecca Stanley (SOC/ASSH), Yasmine Probst (SMAH), Oliver Costello (Firesticks Alliance Indigenous Corporation), Noel Webster (CEO Mudjingaalbaraga Firesticks/NSW Local Land Services South-East), Don Hankins (California State University).

MRFF GRANT: PEER SUPPORT FOR BREASTFEEDING FOR ABORIGINAL WOMEN

CONGRATULATIONS TO A/PROFESSOR ROWENA IVERS

(GM, CIA) and Professor Karen Charlton (N&D) who have been granted $1.5 million in MRFF funding to undertake research into peer support for breastfeeding for Aboriginal women.

Breastfeeding is known to improve nutritional and long-term health outcomes, however, Aboriginal women are less likely than other Australian women to breastfeed their children.

This project will involve Aboriginal peer support workers supporting Aboriginal women to initiate breastfeeding and to breastfeed over the first six months of life, by using face-to-face visits, phone and video-chat and social media.

The study will involve six Aboriginal maternal and infant health services in NSW, and aims to recruit 720 mother and baby pairs over a five-year period.

Health Personnel Education

MEDICAL WOMEN REFLECT: EXPERIENCES OF RURAL MEDICAL PRACTICE IN AUSTRALIA

The 'maldistribution' of the medical workforce in Australia is often identified as one of the problems facing rural communities and the provision of equitable health care.

Compounding this shortage in rural areas, is the gender breakdown of practitioners. While women have been licensed to practice medicine in Australia for almost 150 years, it has only been since the 1990s that the proportion of medical students moved towards parity.

Women's representation in rural medicine and their experiences of rural practice have changed significantly over the past 150 years. One of those changes involves the location of women's practice: which is now, like their male counterparts, primarily urban. In 2015, while almost 2 out of 5 medical practitioners were women (just over 40%), the

proportion of medical women who now choose rural practice has declined to around 10%.

The other significant change, relevant to this study, is women's actual practice. In the period of women's greatest representation in rural areas, general practice was the norm. Where specialists existed in country areas, they were male. By contrast, of those medical women currently in the early career period, a significant minority of around 40%, were in rural-based specialty training programs.

The changing attraction of rural practice for women can tell us much about the barriers and enablers to rural medical practice more generally. Specifically this study aims to identify the reasoning women themselves have undergone in reaching the decision to take up rural medical practice.

Researchers on this project are conducting oral history interviews with medical women who have chosen rural practice in order to gain a better understanding of the factors that have attracted women to rural practice over time, their experiences in rural practice, and how women see the future for rural practice as a professional site of women's work.

By gaining an understanding of these factors, health planners and policy developers may be better able to create supportive and encouraging work arrangements, which will lead to greater female participation in rural and regional medical practice. The project will also establish an archive of women's choices and experiences in rural medical practice, which will provide a voice for women in the history of Australian medical practice.

The research team on this project are; A/Profs Louella McCarthy, Kathryn Weston & Rowena Ivers. Current Phase 3 medical students involved: Cassandra Byers, Leila Matindoost; Prahita Anandasivam and Ramana Waran.

COLLABORATIVE GRANTS: CASPER APPLICANT EMPATHY PROJECT

This study will explore the predictive validity of an online situational judgement test tool (CASPer) in predicting empathy in an international cohort of medical school, veterinary school, health professions and medical specialty applicants using the Jefferson Scale of Empathy

Researchers: Lyndal Parker-Newlyn (UOW), Kylie Mansfield (UOW)

Duration of project: July 2020 – July 2022

THINK ALOUD SJT STUDY

The aim of this study is to investigate the construct validity of Situational Judgement tests for the assessment of relevant non-academic attributes, using a think aloud protocol with first-year medical students at the University of Wollongong.

Researchers: Neville Chiavaroli (ACER), Lyndal Parker-Newlyn (UOW), Kylie Mansfield (UOW)

Duration of project: July 2020 – July 2021

PRESENTATIONS

The Admissions Summit – Toronto Canada June 2020 (transitioned to virtual conference)

Parker-Newlyn L. Mansfield KJ, Dore KL (2020) Screening for situational judgement: Analysis of implementing CASPer for selection of Australian medical students., Admissions Summit, Toronto CANADA June 2020

Dore KL, Parker-Newlyn L (2020) Twelve things we wish we'd known when we got into admissions, Admissions Summit, Toronto CANADA June 2020

AMEE International Medical Education Conference – Glasgow, Scotland September 2020 (transitioned to virtual conference)

Parker-Newlyn L, Mansfield KJ, Dore KL (2020) Predicting students who struggle: a "wicked problem" for medical student selection, AMEE 2020: the virtual conference, September 2020.

T3 Translation to Practice

Physical function; human performance and injury

BIOMECHANICS OF BREAST SUPPORT FOR ACTIVE WOMEN

Breasts, which have minimal anatomical support, can move excessively when women participate in physical activity and this can cause exercise-induced breast pain that can be a barrier to women being physically active.

There are several reasons why sports bras do not provide adequate support. Essentially, sports bras do not cater for the individual needs of women. Sizes are not standardised amongst bra companies and most bra sizes are developed by using one size and then scaling up. The breast and torso shapes of women, however, do not simply scale up. Women have a diverse range of breast and torso sizes and shapes.

Approximately 85 per cent of women regularly wear ill-fitting bras. A correctly fitted, supportive sports bra can eliminate or decrease breast discomfort and allow women to exercise in comfort.

Greater multidisciplinary research into the biomechanics of breast movement and support is needed to ensure that women of all shapes, sizes and athletic abilities are able to find a supportive, comfortable sports bra. Future research into breast health biomechanics needs to echo the diversity of women around the world.

EFFECTS OF BREAST PAIN AND BREAST INJURY IN WOMEN

BROOKE BRISBINE PHD COMPLETION

Brooke Brisbine's PhD looked at understanding the effects of breast pain and breast injury on the sporting performance of elite female athletes and the prevention and management strategies that would minimise discomfort and damage for women in sport.

Through the dissemination of several focused surveys to 800+ athletes and 250 coaches/athletic staff, breast injuries were identified as particularly problematic for female contact football players, with 58% reporting a previous injury and 48% of those athletes perceiving associated performance detriments.

Unfortunately, these studies also identified a paucity of available prevention strategies, particularly with regard to female protective equipment. Brooke collected three-dimensional scans and digital models of the breasts/torsos of 120 female contact football players for the purpose of informing future breast protective equipment design.

Alongside critical education and awareness for both athletes and coaches, developing an efficacious prevention strategy for breast injuries will empower more women and girls to participate in contact sports, remove barriers to maximal performance for female athletes and ultimately promote inclusivity within contact football codes. Brooke was supervised by Associate Professor Deidre McGhee, Snr Prof Julie Steele and Dr Elissa Phillips (AIS).

EVALUATING AERIAL LANDINGS IN SURFING: IMPLICATIONS FOR PERFORMANCE AND TRAINING

JAMES FORSYTH
PHD CANDIDATE

The aim of this research was to systematically evaluate the performance of aerial manoeuvres in surfing in order to develop evidence-based recommendations, which could be used to improve aerial performance and training in skilled surfers. Performing these high-risk manoeuvres has been linked to serious acute injuries, particularly to the knee and ankle, which can reduce a surfer's ability to participate in their sport and often involves lengthy rehabilitation to return to performance.

Competition footage was used to identify: (i) the highest scoring manoeuvre type (aerials) and (ii) which aerials were successfully performed the most. The two aerial variations performed successfully the most were then qualitatively assessed to determine key critical features associated with successful aerial performance; i.e. what do surfers need to do to land an aerial successfully in the ocean. James then evaluated whether these key critical features could be replicated by surfers when performing a laboratory-based simulated aerial landing

Once this was established, data were collected on the lower limb muscle activation patterns, joint motion and forces generated at landing when surfers performed two simulated aerial variations (a FA and FAR). These biomechanical data were then analysed to identify any differences in how surfers controlled these landings and the forces they generated. Lastly, a series of lower limb mobility and performance measures were used in an attempt to predict technical capability and injury risk potential when surfers landed the two aerial variations.

The results from this research suggest that if surfers can increase their static ankle range of motion, they are likely to land with lower loading rates and, in turn, will be less likely to sustain an injury to either the knee or ankle. These findings can be used to implement an injury prevention protocol to reduce the risk of injury associated with performing aerial manoeuvres, so that surfers can continue to stay active in their sport. James is supervised by Snr Prof Julie Steele.

MAKING FOOTBALL SAFER: OPTIMIZING THE EFFICACY AND IMPLEMENTATION OF THE 11+ PROGRAM

MATT WHALAN
PHD COMPLETION

The 11+ program has been extensively shown to reduce injury incidence in football by ~40%, however there has been poor adoption of the program globally.

Whalan's PhD focused on how to improve the implementation and adoption of the 11+ without affecting the overall efficacy of the original program. During his research, Dr Whalan ascertained what the normal injury profile of significant (time loss) and minor (non-time loss) injuries were in semi-professional football in Australia (Study 1 and 2).

He also investigated key stakeholder views on injury prevention and proposed alternative strategies to overcome established barriers to adoption of injury prevention programs (Study 3). He then assessed the impact of implementing an alternative delivery method of the football specific 11+ was on program efficacy and compliance (Study 4).

Results indicated that both the normal and modified delivery of the 11+ program resulted in a reduction of ~40% injury incidence compared to the baseline season.). Importantly, modifying the 11+ so that it was performed in 2 shorter components (at the start and end of training) did not result in a reduction in 11+ program efficacy.

Furthermore, severe injuries and total days lost to injury were significantly lower in the group that performed the modified 11+ and this group performed the 11+ more frequently (35% higher) compared with those that performed the standard 11+. These findings are important for both primary and secondary injury prevention strategies in football.

Simply performing the strength and balance components at the end of training improved player compliance whilst maintaining the efficacy of the 11+ program. Additionally, the presence of a non-time loss injury may be a useful "flagging" tool to identify players at increased risk of a time loss injury.

Overall, the findings from this research provide simple solutions and strategies to make football safer. Dr Whalan has had four publications arise from his research and his research has formed the foundation for the new national injury prevention program for Football Federation Australia. His PhD was supervised by Dr John Sampson and Senior Professor Julie Steele.

THE CENTRE FOR MEDICAL AND EXERCISE PHYSIOLOGY (CMEP)

The Australian Army prospective physical performance and resilience study has collected data on basic military training. Centre Post Docs, Dr. Penny Larsen and Dr. Scott Michael have discovered several key outcomes including sleep disturbance in recruits. As part of this study, Neil Gibson (PhD candidate) scanned a mountain of injury surveillance paperwork detailing soldier injuries, which will lead to improved early injury detection.

The Centre welcomed Dr. Michael Macartney as a Post Doc, who is primarily involved in the training fatigue study of the Army's Special Operations Soldiers, a study sponsored by the Defence Innovation Network.

Recent publications also included; Dr. Simon Burley's study

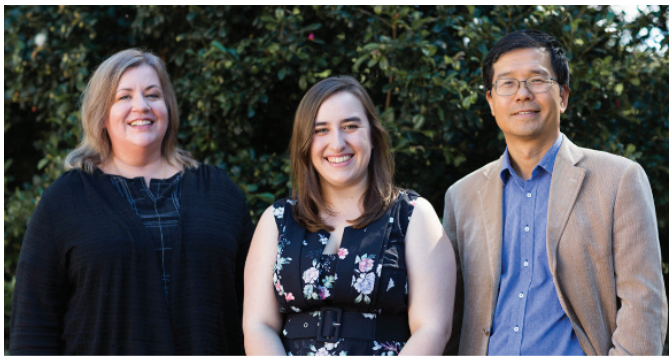
demonstrating the effectiveness of low volume, high intensity training for military recruits (Burley et al., 2020) and Dr. Anne van den Heuvel (van den Heuvel, et al., 2020) where she has described the separated effects of dehydration and hyperthermia. Dr Matthew Whalan was awarded his PhD and a third paper from this work was published (Whalan et al, 2020).

Collaborative work with UTS and Sydney FC continued though an examination of academy footballer players' sleep, relative to the demands of training and school timetables (Brown et al, 2020) and international collaborations expanded (with Leeds Beckett University, UK) in an examination of the effects of feedback and performance during small-sided games in academy rugby players (Weakley et al 2020).

Dr Sampson, also published work on the cardiovascular health benefits in Indigenous men following small-sided games of touch football (Sampson et al, 2020) (NHF Vanguard Grant).

Food and health

MOOD, FOOD & BIOMARKERS



This is a longitudinal research program examining why people with mental health problems are more prone to chronic health conditions and weight gain.

In the most recent study, 120 people (half with depression and half without) are followed up over time to assess what factors predict later health issues. Measures include psychological symptoms, quality of life, hormones, immune and inflammation markers, diet, eating habits and several health indicators (e.g. abdominal fat, BMI, heart rate and blood pressure).

This is a multi-disciplinary project involving several academics and clinicians at the School of Medicine (Dr Sue Thomas, Dr Theresa Larkin, Dr Karen Charlton, Dr Karen Walton, Dr Chao Deng and Professor Nagesh Pai), ISLHD (Dr Jacqui Kaelle), Professor Peter McLennan, and several students from Graduate Medicine, Psychology, Dietetics and Health Sciences.

Jess Mills recently submitted her PhD thesis, supervised by Dr Sue Thomas and Dr Theresa Larkin and Professor Chao Deng examining relationships between blood hormone levels (leptin, ghrelin, serotonin and dopamine), mental and physical health in depression. Key findings of the research were that individuals with depression, particularly females, experience significantly more overeating, which is related to specific blood hormones and poorer health indices. In particular, insensitivity to leptin, the hormone that usually signals when to stop eating, appears to be a key factor associated with overeating in depressed females. This research suggests that tailored treatments for females may be needed.

Asmahan Elgellaie's PhD research is examining biological mechanisms linking cardiometabolic disease (CMD) and depression, supervised by Dr Theresa Larkin and Dr Sue Thomas. The research is examining whether specific CMD risk factors (plasma levels of cytokines: IL1-a, IL6, TNF-a, prolactin and oxytocin) differ in depressed compared to non-depressed people and whether they correlate with measures of physical and mental health. One focus of the research is to determine whether abdominal fat levels are greater in depression, and how they relate to inflammatory and immune markers in the blood.

A team of dietetics, honours and MD students from the School of Medicine and School of Psychology is currently working to collect and analyse diet, health, blood biomarker and psychological data. Preliminary findings are that depressed participants have poorer overall diet quality, lower intake of plant protein and vitamin B, and greater discretionary (junk) food intake. Blood levels of Omega-3 polyunsaturated fatty acids (ω-3PUFA) are worryingly low in both depressed and non-depressed participants.

The project is developing a more comprehensive understanding of relationships between psychological health, diet and physical health, which may lead to better, integrated treatments.

GLUTEN DOES, OR DOESN'T DO.

Dr. Kelly Lambert is an IHMRI researcher and Advanced Accredited Practicing Dietitian. She was interviewed for Coeliac Disease Awareness Week (March 13-20)

One in 70 Australians live with Coeliac Disease. People with Coeliac Disease are more likely to suffer from Type 1 Diabetes, Downs Syndrome, recurrent miscarriages or other fertility problems. Coeliac disease can also raise the risk of Lymphoma and bowel cancer.

Despite increased gluten free food availability.

Dr. Lambert says that unless you have been diagnosed with Coeliac Disease, you should NOT avoid gluten because foods that contain gluten have a large range of health benefits especially if they are wholegrain or wholemeal versions of breads and cereals.

Dr. Lambert has a lot of advice to offer in regards to coeliac awareness.

- If you think you may have Coeliac Disease, do not cut out gluten until you have spoken to your GP and had all the relevant testing
- People with Coeliac Disease should be extra careful when travelling overseas, as Australia and New Zealand have the strictest labelling when it comes to gluten free foods. Other countries labelling rules might not be as strict and you may inadvertently be eating gluten.
- Finally, although a diagnosis of Coeliac Disease can be overwhelming, there is help available for those who need it.

"Life with coeliac disease goes on and usually people feel a whole lot better". It can be overwhelming at first to have to learn all the ingredients to avoid. Link up with the local Coeliac Australia support group for assistance.

You can learn a lot from talking to others and it is helpful to know they are not alone. You can ask tips about where to shop, and how others adapted. Consult with an Accredited Practicing Dietitian who can guide you about how to manage the way forward.

Mental Health and Cognition

DEVELOPING AN ONTOLOGY FOR REPRESENTING THE DOMAIN

KNOWLEDGE SPECIFIC TO NON-PHARMACOLOGICAL TREATMENT FOR AGITATION IN DEMENTIA

To date, a large volume of clinical care data have been generated for the management of agitation in people with dementia, however the valuable information has not been effectively used.

Researchers from the School of Computing and Information Technology (A/Prof Ping Yu and Dr Sim Lau) and School of Nursing (Dr Rita Chang) and School of Medicine (Prof Chao Deng) explored the application of artificial intelligence (AI) technologies to reuse these data.

To achieve this, they coded clinical knowledge in a machine-readable format using a specific computer dictionary – ontology. Under their supervision, PhD candidate Zhenyu Zhang developed a machine-readable "Dementia-Related Agitation Non-Pharmacological Treatment Ontology (DRANPTO)".

DRANPTO is the first comprehensive semantic representation of knowledge in the domain of non-pharmacological management for agitation in dementia. DRANPTO is publicly available at the NCBO BioPortal - the world's most comprehensive repository of biomedical ontologies (https://bioportal.bioontology.org/ontologies/DRANPTO).

The development of DRANPTO is published in Alzheimer's & Dementia: Translational Research & Clinical Interventions under the title "Developing an ontology for representing the domain knowledge specific to non-pharmacological treatment for agitation in dementia" (http://dx.doi.org/10.1002/trc2.12061).

PhD candidate Zhenyu Zhang is sponsored by a joint scholarship 'Eric Abrahams PhD Scholarship' from Australian Rotary Health, the Rotary Club of Woy Woy, and University of Wollongong. The research team includes also international collaborators from US and China.

T2 Translation to Patients

Clinical Research

SURGICAL TREATMENT FOR OBSTRUCTIVE SLEEP APNOEA: THE SAMS CLINICAL TRIAL

This trial investigated whether combined palatal and tongue surgery to enlarge or stabilize the upper airway is an effective treatment for patients with Obstructive sleep apnoea (OSA) when conventional device treatments fail.

Many adults with obstructive sleep apnea (OSA) use device treatments inadequately and remain untreated.

This study was a multicenter, parallel-group, open-label randomized clinical trial of upper airway surgery vs ongoing medical management. Adults with symptomatic moderate or severe OSA in whom conventional treatments had failed were enrolled from August 2014 to November 2017, with follow-up until August 2018. Patients were randomised to either modified uvulopalatopharyngoplasty and minimally invasive tongue volume reduction; or ongoing medical management (eg, advice on sleep positioning, weight loss).

Results indicated that combined palatal and tongue surgery, compared with medical management, reduced the number of apnea and hypopnea events and patient-reported sleepiness at 6 months.

Further research is needed to confirm these findings in additional populations and to understand clinical utility, long-term efficacy, and safety of multilevel upper airway surgery for treatment of patients with OSA.

Graduate Medicine's Professor Stuart Mackay, alongside a large research team, have just had this research published in a prestigious medical journal accessible here:

https://jamanetwork.com/journals/jama/fullarticle/10.1001/jama.2020.14265

Food and Health

WHY PURPLE FOOD IS BETTER FOR YOUR BRAIN

Prof Charlton has been undertaking research into whether purple coloured foods can slow or stop the progression of cognitive decline and memory loss. Her research indicates that cognitive decline can be prevented in its early stages through the consumption of purple, deep red and blue plant based foods.

It is the bioactive compound known as phytonutrients that contributes to the antioxidant activity of plant-based foods. Flavonoids are a group of phytonutrients that have shown potential benefits on neurocognition. Flavonoids are grouped into six subclasses, one of which is called anthocyanins which is what gives plants their purple, red and blue pigmentation that show the most promise of all flavonoids in terms of brain health.

Professor Charlton is currently looking at the benefits of the Queen Garnet plum on the brain and memory. When healthy older participants are provided with 300ml of Queen Garnet Plum juice, a dramatic reduction in blood pressure has been seen over six hours which may be a clue to brain benefits over time.

Anthocyanin-rich fruits may also reduce inflammation in the brain and they also have the potential to inhibit the death of nerve cells and improve connections between the neurons, especially in the areas of the brain associated with learning and memory.

NUTRITIONAL GUIDELINES FOR PEOPLE LIVING WITH MULTIPLE SCLEROSIS (MS)

A/Prof Yasmine Probst has contributed to new evidence-based lifestyle guidelines for people with MS. A/Prof Probst worked alongside researchers from IHMRI and MS Research Australia to develop the guidelines, which contain nine modifiable daily habits, including avoiding fad diets.

The new evidence-based guidelines provide a crucial tool for those living with MS, their families, carers, as well as healthcare professionals. 'Adapting your lifestyle – a guide for people with MS' can be found online here.

CEREAL FIBRE AND HEART HEALTH

EDEN BARRETT
PHD COMPLETION

Eden Barrett's PhD looked at whether cereal fibre was as protective as whole grain against heart disease. Her research demonstrated that while both high whole grain and cereal fibre intakes were associated with favourable heart health, high whole grain intake did appear to offer a slight advantage over cereal fibre intake alone.

Despite low national intakes, consumers are actually very open and interested in choosing more whole grain foods, particularly within the breads and cereals categories. Rather than issues with taste (as was expected), the main factors limiting incentive to change their choices were limited knowledge on the benefits of whole grains, including which foods to choose to get the most benefit.

The results of this thesis contribute to the growing evidence in nutrition science which suggests that whole foods (or perhaps even whole diets) cannot be simply reduced to the sum of their nutrients. The multitude of nutrients contained within whole foods, as well as their interactions, each play important roles in health pathways, beyond what can be achieved through separating isolated components such as fibre.

The study demonstrated a clear knowledge gap among consumers pertaining to whole grain health benefits. Adequate focus must be placed on improving public knowledge of whole grain health benefits, high whole grain food choices, and how to meet quantifiable, food-based whole grain targets. Eden's research was undertaken in Australia and at Cambridge University, UK, thanks to research links established by her primary supervisor, Professor Eleanor Beck. Eden was awarded an Australian Endeavour postgraduate scholarship which allowed her to undertake research at Cambridge University for a year.

GUT BACTERIA IN PEOPLE WITH KIDNEY DISEASE

JORDAN STANFORD
PHD CANDIDATE

As a start to her studies, Jordan Stanford undertook a systematic review of how the composition of gut bacteria in people with kidney disease differs from those without the disease. The review revealed that there has been little research into how bacteria affects kidney health and what the bugs are actually doing. It was alarming that out of 25 studies only three considered the impact of diet.

The review was supervised by Professor Karen Charlton, Dr. Anita Stefoska Needham and Dr. Kelly Lambert and is the first of its kind.

The Illawarra-Shoalhaven has the highest level of kidney disease in Australia, with case numbers in the region double the national average.

With no cure for kidney disease, many patients have to go on dialysis three days a week for their lifetime or undertake a kidney transplant.

More research into the gut microbiota will allow for more preventative measures through more targeted dietary strategies. Dietary guidelines for kidney disease ignore the impact of the gut microbiome.

We want to know: are there specific types of fruits and vegetables that have more of a beneficial effect on your gut health if you have chronic kidney disease, and if so, what are they?

While kidney disease is generally a side effect of underlying health issues like diabetes, obesity and hypertension, about one quarter of cases are genetic.

The more we look into the human microbiome and the more and more we learn, we are starting to realise this is kind of a separate organ. Simple changes in diet can have a potentially massive role to play in improving health outcomes including via the gut microbiome.

Recruitment is currently open for an IHMRI clinical trial, for people who are currently living with kidney disease. Jordan's PhD is supervised by Prof Karen Charlton (Primary), Dr Kelly Lamber and Dr Anita Stefoska Needham.

NUTRITIONAL CARE AFTER BARIATRIC SURGERY

NAZY ZARSHENAS
PHD CANDIDATE

Clinical Lecturer and PhD candidate Dr Nazy Zareshenas will be speaking about nursing, nutritional and allied health engagement in surgical societies at the Anzmoss-Anzgosa 2020 Virtual Conference which will take place 14-16 October 2020.

Nazy is an Accredited Practicing Dietitian with 15 years' experience in upper GI oncology and bariatric Surgery. She has extensive clinical expertise in both acute and chronic care of surgical patients.

Nazy is a now a PhD candidate, and an honorary clinical lecturer at the University of Wollongong, with an active role in research in this field. She has had a very active role in several societies such as DAA, AuSPEN and ANZMOSS and has a strong interest in multidisciplinary care of surgical patients.

Nazy has been accredited as a Bariatric Care Specialist and has received a National Award for her contributions in this field from the Dietitians Association of Australia. Nazy's PhD is supervised by Sen Prof Linda Tapsell, Prof Marijka Batterham and Dr Liz Neale.

T1 Translation to Humans

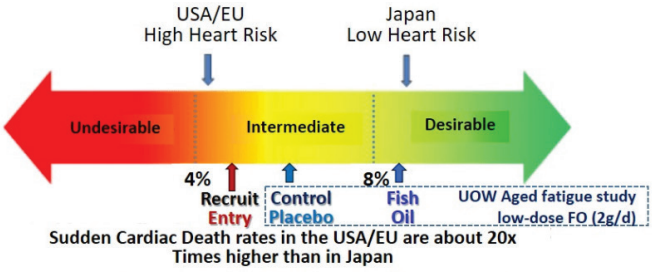
Mental health and cognition

INVESTIGATING REGION SPECIFIC ALTERATIONS TO NEURAL LIPID METABOLISM IN ADVANCED HUNTINGTON'S DISEASE

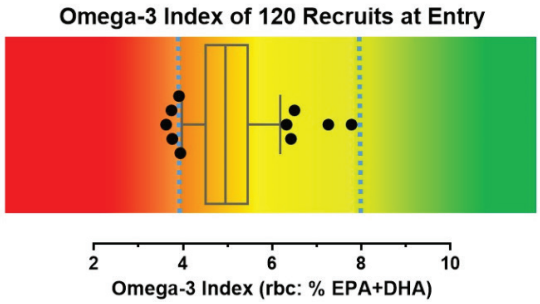
GABRIELLE PHILLIPS
PHD CANDIDATE

Gabrielle Phillips has been researching how lipids are different in the brains of people with Huntingtons' disease.

Hungtingons' disease is caused by a mutation in the Huntingtin gene (and the subsequent protein made from the gene), however it is unknown how the mutant protein causes the brain to degenerate or why the protein only attacks specific brain regions.



Adapted from: Harris, W. S., & von Schacky, C. (2004). The Omega-3 Index: a new risk factor for death from coronary heart disease? *Preventive Medicine, 39*(1), 212-220.



Our brain communicates using cells called neurons which transmit electrical impulses to each other and to the organs in our body. Neurons have a thick lipid coating around them that insulates them and allows them to move more effectively from neuron to neuron. In Huntingtons' patients this coating is damaged.

This research has discovered that some types of lipids that form this coating are less abundant in the parts of the brain that are affected by Huntingtons' disease and that other lipids are produced as a substitute. This is likely to have an impact on the transmission of electrical signals along neurons. Gabrielle is supervised by A/Prof Todd Mitchell, A/Prof Kelly Newell and Drs Andrew Jenner and Sarah Hancock from UNSW.

Physical Function

OPTIMISING OMEGA 3 FATTY ACIDS IN MODULATING HEART RATE AND ARRHYTHMIA VULNERABILLITY

DR MICHAEL MCCARTNEY

Translating research into the population starts at the laboratory bench. A landmark paper Macartney et al., 2020), has been produced from Dr Michael Macartney's PhD studies on the physiological importance of optimising long chain omega-3 fatty acids in modulating heart rate and arrhythmia vulnerability.

- This research demonstrates the Centre for Medical and Exercise Physiology's (CMEP) iterative research process linking laboratory animal, human laboratory, and human applied studies, building on recent published studies demonstrating the essential role of omega-3 fatty acids in muscle and heart composition, muscle fatigue and cardiac function.
- The Centre's basic research is linking omega-3 index to muscle fatigue in addition to cardiovascular risk and translating to human applied and population research.
- Current studies include measurement of the omega-3 index of cardiovascular risk across disparate population groups (young and older adults) in conjunction with cardiovascular and muscle fatigue evaluations and omega-3 intervention trials.
- The Centre has evaluated: NCAA American College footballers (high risk); vegan endurance athletes (high risk), army recruits during basic military training (intermediate/high risk, with risk increased during basic training, when restricted to canteen dining on-base); free living healthy older adults (intermediate risk shifting to low risk after 2g/d fish oil supplement) with physiological improvements; elite cyclists of Astana pro-cycling team (risk range high to very low) to document and optimise their omega profile, and track progress during the physically arduous grand tours including the 2020 Tour de France.

Basic Science Discovery

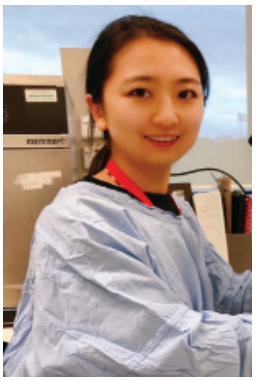
Mental health and cognition

SMAH ADVANCEMENT GRANT: THE IMPACT OF ANTIDEPRESSANT DRUGS ON THE DEVELOPING BRAIN.

A/Prof Newell and A/Prof Dottori lead this collaborative project which combines A/Prof Newell's expertise in depression neurobiology and antidepressant drug pharmacology using rodent models with A/Prof Dottori's expertise in using human stem cells as in vitro models to recapitulate key events of human brain development. Human stem cells and rodent models will be used to assess the effects of antidepressant drugs and various supplements on neuron and brain development.

CANNABIDIOL IMPROVES AB-INDUCED NEURITE LESION AND AGEING SHORTENING IN BOTH IN VITRO AND IN VIVO MODELS RELEVANT TO ALZHEIMER'S DISEASE

ZHIZHEN WANG
PHD CANDIDATE



Zhizhen Wang is a PhD Candidate at the Australian Centre for Cannabinoid Clinical and Research Excellence (ACRE). Her research is being supervised by Drs Xu-Feng Huang, Nadia Solowij, Katrina Green, and Yee Lian Chew at Illawarra Health and Medical Research Institute (IHMRI) and the School of Medicine in the University of Wollongong.

Neuron loss and synaptic damage are known as pathogenesis of Alzheimer's disease, which could play a crucial role in cognitive decline and life-shortening in elderly individuals.

Zhizhen's work showed that CBD could prevent neurite degeneration in brain cells and c-elegans with high Aβ expression, including promote neurite outgrowth and upregulate the synaptic proteins.

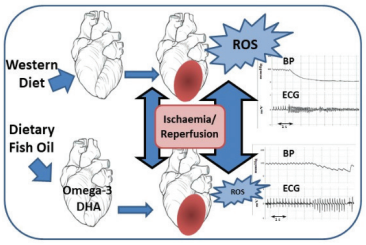
It also demonstrated that CBD could rescue dendritic spine loss due to an increased Aβ in primary hippocampal neurons of mice. This may provide a potential value of CBD for the treatment of memory disorder in AD and other age-related diseases. A better understanding of how CBD works will lead to better treatment outcomes in AD.

Physical function

CARDIAC ARRHYTHMIA PREVENTION IN ISCHEMIA AND REPERFUSION BY LOW-DOSE DIETARY FISH OIL SUPPLEMENTATION IN RATS

Supplementing animal diets with fish oil increases myocardial omega-3 polyunsaturated fatty acids [ω-3 (n–3) PUFA]; lowers heart rate, and prevents malignant cardiac arrhythmias. In rats, feeding these low and moderate doses of fish oil increased the omega-3 PUFA content of the heart, and slowed resting heart rate. This alone represents lower cardiovascular risk but both doses then further protected rats during simulated heart-attack.

Fish oil feeding reduced the incidence and mortality of the malignant cardiac arrhythmia ventricular fibrillation - the type most often responsible for cardiac arrest and sudden heart attack death. These low-dose effects were interpreted as comparable to the lower heart risk observed in people who regularly eat fish, especially fatty fish, compared to those who do not.



Results from this study indicate that ventricular arrhythmias were prevented and heart rate was slowed by lower ω-3PUFA intake in rats than previously reported, equivalent to human fish consumption and associated with incorporation of DHA in the heart.

The efficacy of low-dose fish oil demonstrates biological plausibility for nutritional ω-3 fatty acid–mediated cardioprotection and suggests that effectiveness in human clinical trials may be obscured by failure to exclude fish eaters or include only low ω-3 index.

This study, soon to be published in the American Society for Nutrition's highly ranked Journal of Nutrition (Macartney et al. 2020), will be accompanied at publication by an editorial commentary, in recognition of its high interest and potential for translational impact.

THE CENTRE FOR MEDICAL AND EXERCISE PHYSIOLOGY (CMEP)

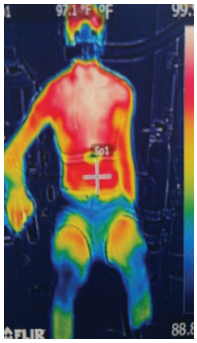
The research is conducted through the Centre for Medical and Exercise Physiology (CMEP) integrates cellular, system and human physiology, based upon the principles of experimental medicine of Claude Bernard (1865). CMEP approaches fundamental physiological mechanisms and pathways, relevant to 'normal human function' and how disruption of these mechanisms lead to disease, injury and disability or how they can be modulated to optimise human function.

The opportunities brought on by the last 6 months have resulted in a range of productive outcomes for the students and post-docs of CMEP. Within clinical physiology Dr Mat Doyle has completed his eccentric cycling at the bedside study, following cardiac surgery, and his methods paper was accepted in BMJ Innovations (Doyle, et al, 2020)

Ms. Amelia Harrison was welcomed as a PhD candidate, investigating eccentric cycling with HIIT (Harrison, et al, 2020) with a novel training study.

Dr. Tor Eiken, our visiting student from Sweden, also published his study demonstrating an increased thermal strain during eccentric cycling used in rehabilitation (Eiken, et al., 2020).

Finally, this period provided an opportunity to prepare a new eccentric cycle, for a collaboration with A/Prof Simon Green (WSU), which will be used at the Bankstown Aged Community Centre, once restrictions are eased.



SOM Achievements

phD Completions

CONGRATULATIONS TO THE FOLLOWING STUDENTS WHO HAVE COMPLETED THEIR PHD'S:

Dr Matthew Whalan

Dr Eden Barrett

Dr Brooke Brisbane

Dr Lauren Roach

Dr Susan Vella

Dr Samuel Millard

Awards

University of Wollongong Deputy Vice Chancellor Research Impact Award- Dr Kelly Lambert

Vice Chancellor's Award for Excellence in Community Engagement to the SENSE Spaces Team, including CI, Dr Pippa Burns

Young Australian Women Students of Achievement (National Council of Women's NSW Australia Day) Eden Barrett, PhD student

Recent Publications

BASIC SCIENCE DISCOVERY

Mental health and cognition

Chen, X., Yu, Y., Zheng, P., Jin, T., He, M., Zheng, M., Song, X., Jones, A., and Huang, X. F. (2020). Olanzapine increases AMPK-NPY orexigenic signaling by disrupting H1R-GHSR1a interaction in the hypothalamic neurons of mice. Psychoneuroendocrinology *114*, 104594. https://www.sciencedirect.com/science/article/pii/S0306453020300135

Wan, X. Q., Zeng, F., Huang, X. F., Yang, H. Q., Wang, L., Shi, Y. C., Zhang, Z. H., and Lin, S. (2020). Risperidone stimulates food intake and induces body weight gain via the hypothalamic arcuate nucleus 5-HT2c receptor-NPY pathway. CNS Neurosci Ther *26*, 558-566. https://onlinelibrary.wiley.com/doi/full/10.1111/cns.13281

Yang, X., Zheng, M., Hao, S., Shi, H., Lin, D., Chen, X., Becvarovski, A., Pan, W., Zhang, P., Hu, M., *et al.* (2020). Curdlan Prevents the Cognitive Deficits Induced by a High-Fat Diet in Mice via the Gut-Brain Axis. Front Neurosci *14*, 384. https://www.frontiersin.org/articles/10.3389/fnins.2020.00384/full

Zheng, P., Su, Q. P., Jin, D., Yu, Y., and Huang, X. F. (2020). Prevention of Neurite Spine Loss Inducedby Dopamine D2 Receptor Overactivation in Striatal Neurons. Front Neurosci *14*, 642. https://www.frontiersin.org/articles/10.3389/fnins.2020.00642/full

Deng, C., and Yao, J. K. (2020). Editorial: Metabolic Disturbances in Mental Illness: Neuropathogenetic Mechanisms and Therapeutic Implications. Front Neurosci *14*, 21. https://www.frontiersin.org/articles/10.3389/fnins.2020.00021/full

Han, M., and Deng, C. (2020). BDNF as a pharmacogenetic target for antipsychotic treatment of schizophrenia. Neurosci Lett *726*, 133870. https://pubmed.ncbi.nlm.nih.gov/30312750/

Lian, J., and Deng, C. (2020). The dosage-dependent effects of cevimeline in preventing olanzapine-induced metabolic side-effects in female rats. Pharmacol Biochem Behav *191*, 172878. https://pubmed.ncbi.nlm.nih.gov/32112786/

Samuel J. Millard, Katrina Weston-Green, Kelly A. Newell. The Wistar-Kyoto rat model of endogenous depression: A tool for exploring treatment resistance with an urgent need to focus on sex differences. Progress in Neuro-Psychopharmacology and Biological Psychiatry 101, 109908, 2020. https://www.sciencedirect.com/science/article/pii/S0278584619307225

Liu, X., Feng, X., Deng, C., Liu, L., Zeng, Y., and Hu, C. H. (2020). Brown adipose tissue activity is modulated in olanzapine-treated young rats by simvastatin. BMC Pharmacol Toxicol *21*, 48. https://www.researchsquare.com/article/rs-10909/v1

Su, Y., Liu, X., Lian, J., and Deng, C. (2020). Epigenetic histone modulations of PPARgamma and related pathways contribute to olanzapine-induced metabolic disorders. Pharmacol Res *155*, 104703. https://www.sciencedirect.com/science/article/pii/S1043661819328579

Metabolic health

MaCartney, M.J., Peoples, G.E., McLennan, P.L. (2020) Cardiac arrhythmia prevention in ischaemia and reperfusion by low dose dietary fish oil supplementation in rats. *Journal of Nutrition*.doi: 10.1093/jn/nxaa256. Accepted, 31st July, 2020. https://academic.oup.com/jn/advance-article/doi/10.1093/jn/nxaa256/5901454

Cheng, L., Hu, T., Shi, H., Chen, X., Wang, H., Zheng, K., Huang, X. F., and Yu, Y. (2020). DHA reduces hypothalamic inflammation and improves central leptin signaling in mice. Life Sci, 118036. https://www.sciencedirect.com/science/article/pii/S0024320520307864

Shi, H., Wang, Q., Zheng, M., Hao, S., Lum, J. S., Chen, X., Huang, X. F., Yu, Y., and Zheng, K. (2020). Supplement of microbiota-accessible carbohydrates prevents neuroinflammation and cognitive decline by improving the gut microbiota-brain axis in diet-induced obese mice. J Neuroinflammation *17*, 77. https://jneuroinflammation.biomedcentral.com/articles/10.1186/s12974-020-01760-1

Kenthirapalan S, Tran PN, Kooij TWA, Ridgeway MC, Rauch M, Brown SHJ, Mitchell TW, Matuschewski K and Maier AG. "Distinct adaptations of gametocyte ABC transporter to murine and human *Plasmodium* parasites and incompatibility in cross-species complementation." 2020, *International Journal of Parasitology*, 50 (6):511-22. https://www.sciencedirect.com/science/article/pii/S0020751920300990

Narreddula VR, Boase NR, Mrshall DL, Poad BLJ, Trevitt AJ, Mitchell TW and Blanksby SJ. "Structural elucidation of hydroxy fatty acids by photodissociation mass spectrometry with photolabile derivatives." 2020, *Rapid Communications in mass Spectrometry*, 34(9):e874. https://onlinelibrary.wiley.com/doi/full/10.1002/rcm.8741

T1 TRANSLATION TO HUMANS

Physical function

Suckley JJ, Waters TJ, Tran M, Stapley PJ, Shemmell J, Walsh JA, McAndrew DJ Randomizing stimulus intensity improves the variability and reliability of the assessment of corticospinal excitability. https://www.sciencedirect.com/science/article/pii/S0165027020302363

McGhee, D.E. & Steele, J.R. Breast biomechanics: What do we really know? *Physiology,* 2020, 35(2): 144-156 (invited paper). https://pubmed.ncbi.nlm.nih.gov/32027563/

Metabolic health

Charlton KE, Schutte AE, Wepener L, Corso B, Kowal P, Ware LJ. Correcting for intra-individual variability in sodium excretion in spot urine samples does not improve ability to predict 24hr urinary sodium excretion. *Nutrients* 2020; 12, 2026 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7400094/

Tang AM, Chung M, Dong K, Bahwere P, Bose K, Chakraborty R, Charlton K, Das P, Ghosh M, Hossain MI, Nguyen P, Patsche CB, Sultana T, Deitchler M, Maalouf-Manasseh Z. Determining a Global Mid-Upper Arm Circumference Cutoff to Assess Underweight in Adults (Men and Nonpregnant Women). *Pub Hlth Nutr* (In press).

https://pubmed.ncbi.nlm.nih.gov/32799964/

Kent, K., Charlton, K., O'Sullivan, T. *et al.* Estimated intake and major food sources of flavonoids among Australian adolescents. *Eur J Nutr* 2020.(Early view) https://link.springer.com/article/10.1007/s00394-020-02218-z

T2 TRANSLATION TO PATIENTS

Mental health and cognition

Mills, J. G., Thomas, S. J., Larkin, T. A., and Deng, C. (2020). Overeating and food addiction in Major Depressive Disorder: Links to peripheral dopamine. Appetite *148*, 104586. https://pubmed.ncbi.nlm.nih.gov/31926176/

Alqarni A, Mitchell TW, McGorry PD, Nelson B, Markulev C, Pan Yuen H, Schäfer MR, Berger M, Mossaheb N, Schlögelhofer M, Smesny S, Hickie IB, Berger GE, Chen EYH, de Haan L, Nieman DH, Nordentoft M, Riecher-Rössler A, Verma S, Thompson A, Yung AR, Meyer BJ and Amminger GP. "Supplementation with the omega-3 long chain polyunsaturated fatty acids: changes in the concentrations of omega-3 index, fatty acids and molecular phospholipids of people at ultra-high risk of developing psychosis." 2020, *Schizophrenia Research*, In press. https://www.sciencedirect.com/science/article/pii/S0920996419303895

Alqarni A, Mitchell TW, McGorry PD, Nelson B, Markulev C, Pan Yuen H, Schäfer MR, Berger M, Mossaheb N, Schlögelhofer M, Smesny S, Hickie IB, Berger GE, Chen EYH, de Haan L, Nieman DH, Nordentoft M, Riecher-Rössler A, Verma S, Thompson A, Yung AR, Amminger GP and Meyer BJ. "Comparison of erythrocyte omega-3 index, fatty acids and molecular phospholipid species in people at ultra-high risk of developing psychosis and healthy people." 2020, *Schizophrenia Research*, In press. https://www.sciencedirect.com/science/article/pii/S0920996419302415

Maidment I; Lawson S; Wong G; Booth A; Watson A; Zaman H; **Mullan J;** McKeown J; Bailey S (accepted April 2020) Towards an understanding of the burdens of medication management affecting older people: the MEMORABLE realist synthesis *BMC Geriatrics* doi.org/10.1186/s12877-020-01568 https://bmcgeriatr.biomedcentral.com/articles/10.1186/s12877-020-01568-x

Hoffman R, **Mullan J**, Bonney A (2020) Motherhood and Medicine; A systematic review of the experiences of mothers who are doctors, Medical Journal of Australia (accepted March 2020) https://onlinelibrary.wiley.com/doi/full/10.5694/mja2.50747

Physical function

Doyle, M.P., Brown, M.A., Kemp, L.M. McLennan, P.L., Peoples G.E. (2020) An eccentric cycling ergometer to address skeletal muscle dysfunction in hospitalised patients: Ergometer design, construction and demonstration. *BMJ Innovations*. Accepted, 19th August, 2020.

Richards, C.J., Steele, J.R. & Spinks, G.M. Experimental evaluation and analytical model of the pressure generated by elastic compression garments on a deformable human limb analogue. *Medical Engineering & Physics*, 2020 (Online ahead of print). https://www.sciencedirect.com/science/article/abs/pii/S1350453320300795?dgcid=rss_sd_all

Hingley, L., Jeiranikhameneh, A., Beirne, S., Peoples, G.E., Jones, A., Sayyar, S., Eastwood, P., Lewis, R., Wallace, G., MacKay, S.G. (2020) Modelling the Upper Airway; A Precursor to Personalised Surgical Interventions for the Treatment of Sleep Apnoea. *Journal of Biomedical Materials Research Part A*. 108A:1419–1425. https://onlinelibrary.wiley.com/doi/full/10.1002/jbm.a.36913

McGhee, D.E. & Steele, J.R. Physical side-effects following breast reconstructive surgery impact physical activity and function. *Supportive Care in Cancer*, 2020 https://link.springer.com/article/10.1007/s00520-020-05534-6

McGhee, D.E., Mikilewicz, K.L. & Steele, J.R. Effect of external breast prosthesis mass on bra strap loading and discomfort in women with a unilateral mastectomy. *Clinical Biomechanics*, 2020, 73, 86-91. https://www.sciencedirect.com/science/article/pii/S0268003319303298

Metabolic health

Craddock, J.C., Neale, E.P., Peoples, G.E. and Probst, Y.C. (2020), Plant-based eating patterns and endurance performance: A focus on inflammation, oxidative stress and immune responses. Nutr Bull, 45: 123-132. https://onlinelibrary.wiley.com/doi/full/10.1111/nbu.12427

Lambert K, Bird L, Borst A, Fuller A, Wang Y, Rogers G, Stanford J, Sanderson Smith M, Williams J, McWhinney B, Neale E, Probst Y, Lonergan M (2020) Safety and efficacy of using nuts to improve bowel health in hemodialysis patients *Journal of Renal Nutrition,* https://www.jrnjournal.org/article/S1051-2276(19)30356-5/pdf

Do Rosario V, Spencer J, Weston-Green K, Charlton KE. The postprandial effect of anthocyanins on cardiovascular disease risk factors: A systematic literature review of high-fat meal challenge studies. *Current Nutrition Reports*. July 2020. https://link.springer.com/article/10.1007/s13668-020-00328-y

Fitzgerald E, Lambert K, Stanford J, Neale E, The effect of nut consumption (tree nuts and peanuts) on the gut microbiome of humans: a systematic review, *British Journal of Nutrition* https://pubmed.ncbi.nlm.nih.gov/32713355/

Stanford J, Charlton K, Stefoska-Needham A, Lambert K. The gut microbiota profile of adults with kidney disease: A systematic review of the literature, *BMC Nephrology.* 2020 21, 215. https://bmcnephrol.biomedcentral.com/articles/10.1186/s12882-020-01805-w

Neale, E., Guan, V., Tapsell, L., & Probst, Y. (2020). Effect of walnut consumption on markers of blood glucose control: A systematic review and meta-analysis. British Journal of Nutrition, 1-13. https://pubmed.ncbi.nlm.nih.gov/32312354/

T3 TRANSLATION TO PRACTICE

Health and community services research

Hodgkins, A.J., Mullan, J., Mayne, D.J., Boyages, C.S. and Bonney, A., 2020. Australian general practitioners' attitudes to the extraction of research data from electronic health records. *Australian Journal of General Practice*, *49*(3), p.145. https://www1.racgp.org.au/ajgp/2020/march/australian-general-practitioners-attitudes-to-the

Morris D, Lambert K, Vellar L, Mastroianni F, Krizanac J, Lago L, Mullan J (accepted June 2020) 'Factors associated with utilisation of healthcare interpreting services and the impact on length of stay and cost: A retrospective cohort analysis of audit data'. Health Promotion Journal of Australia. https://onlinelibrary.wiley.com/doi/full/10.1002/hpja.373

Chen Chun-Min, Yeh Yi-Chun, **Mullan J,** Chen Yen-Yu (2020) Healthcare resource utilization and costs in patients with headache, with and without concomitant depression, *The Changhua Journal of Medicine,* 18:31-39. https://www.airitilibrary.com/Publication/ alDetailedMesh?docid=16801504-202006-202006150006-202006150006-31-39

Schaffer, A.L., Pearson, S.A., Perez-Concha, O., Dobbins, T., Ward, R.L., van Leeuwen, M.T., Rhee, J.J., Laaksonen, M.A., Craigen, G. and Vajdic, C.M., 2020. Diagnostic and health service pathways to diagnosis of cancer-registry notified cancer of unknown primary site (CUP). *Plos one*, *15*(3), https://www.cancer.nsw.gov.au/how-we-help/reports-and-publications/diagnostic-and-health-service-pathways-to-diagnosi

Cerni, J., Rhee, J. and Hosseinzadeh, H., 2020. End-of-Life Cancer Care Resource Utilisation in Rural Versus Urban Settings: A Systematic Review. *International journal of environmental research and public health*, *17*(14), p.4955. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7400508/

Rhee, J.J., Grant, M., Senior, H., Monterosso, L., McVey, P., Johnson, C., Aubin, M., Nwachukwu, H., Bailey, C., Fallon-Ferguson, J. and Yates, P., 2020. Facilitators and barriers to general practitioner and general practice nurse participation in end-of-life care: systematic review. *BMJ supportive & palliative care*. https://spcare.bmj.com/content/early/2020/06/18/bmjspcare-2019-002109

Franklin, A.E., Rhee, J., Raymond, B. and Clayton, J.M., 2020. Incorporating an advance care planning screening tool into routine health assessments with older people. *Australian Journal of Primary Health*. https://pubmed.ncbi.nlm.nih.gov/32327028/

Neale EP, Middleton J, Lambert K (2020) Barriers and enablers to detection and management of chronic kidney disease in primary healthcare: a systematic review. BMC Nephrology, https://bmcnephrol.biomedcentral.com/articles/10.1186/s12882-020-01731-x

Lambert K, Ferguson A, Meletis M, Charlton K (2020) How frequently are patients weighed in hospital ? Results from a five-year cross-sectional audit of clinical practice in nine hospitals . Clinical Nutrition ESPEN. https://www.sciencedirect.com/science/article/pii/S240545772030019X?dgcid=rss_sd_all

Muscat D, Lambert K, Shepherd H, McCaffrey K, Zwi S, Liu N, Sud K, Saunders J, O'Lone E, Kim J, Robbins A, Webster A (2020) 'Supporting patients to be involved in decisions about their health and care: Development of a best practice health literacy App for Australian adults living with Chronic Kidney Disease', Health Promotion Journal of Australia https://pubmed.ncbi.nlm.nih.gov/32888215/

Walton KE, Clancy A, Charlton KE. Audit of the National Meal Guideline for Home Delivered and Centre Based Meal Programs. *Australasian Journal on Ageing. Early view* 17 June 2020 https://onlinelibrary.wiley.com/doi/full/10.1111/ajag.12806

Pippa Burns, Grant Ellmers, Holly Tootell, Susan Slowikowski, Carly Pascoe, Andrea Garner, Sim Lau, Rose Dixon & Michael Szafraniec (2020) The design and development of a community based multisensory room, Design for Health https://www.tandfonline.com/doi/full/10.1080/24735132.2020.1800986

Burns P, van der Meer R Happy Hookers: Findings From an International Study Exploring the Effects of Crochet on Wellbeing. Perspect Public Health 2020 Apr 3; https://journals-sagepub-com.ezproxy.uow.edu.au/doi/10.1177/1757913920911961

McLean C, Tapsell LC, Grafenauer SJ, McMahon AT. Nutritional care of patients admitted to hospital for alcohol withdrawal; a five year retrospective audit. *Alcohol and Alcoholism*. 2020, 1–9 https://academic.oup.com/alcalc/article/55/5/489/5867684

Zarshenas N, Tapsell LC, Neale EP, Batterham M, Talbot ML. The relationship between bariatric surgery and diet quality: a systematic review. *Obesity Surgery* 2020. https://pubmed.ncbi.nlm.nih.gov/31940138/

McLean C, Tapsell L, Grafenauer S, McMahon SA-T. Systematic review of nutritional interventions for people admitted to hospital for alcohol withdrawal. *Nutr & Diet* 2020. 77; 76-89. https://onlinelibrary.wiley.com/doi/full/10.1111/1747-0080.12593

Bell AF, Tapsell LC, Walton KA, Batterham M. Unwrapping nutrition: Exploring the impact of hospital food and beverage packaging on plate waste/intake in older people. *Appetite* 2020; 144, 104463, https://www.sciencedirect.com/science/article/pii/S0195666319300261

Iyer, P., Beck, E.J. & Walton, K.L (2020) Exploring nutrition knowledge and dietary intake of adults with spinal cord injury in specialist rehabilitation, *Spinal Cord Injury* https://www.nature.com/articles/s41393-020-0430-x

Delaney, C., Vo, R. & Beck, E.J. (2020). Practice and perspectives of Australian dietitians in management of patients on pancreatic enzyme replacement therapy *Nutrition and Dietetics*, https://onlinelibrary.wiley.com/doi/full/10.1111/1747-0080.12613

Metabolic health

Tredinnick, A. R. and Y. C. Probst (2020). "Evaluating the Effects of Dietary Interventions on Disease Progression and Symptoms of Adults with Multiple Sclerosis: An Umbrella Review." Advances in Nutrition. https://academic.oup.com/advances/advance-article/doi/10.1093/advances/nmaa063/5854276

FAO and SPC [Grande F., Russell J., Sharp M.K., Troubat N., Probst Y., Charlton K.E. and Andrew N.L.]. 2020. Pacific Nutrient Database User Guide. Noumea, New Caledonia.

Probst Y. Dietary assessment. In: Nutrition for Sport, Exercise and Performance: A practical guide for sport, exercise and performance (2020). Belski R, Forsyth A, Mantzioris (ed), Allen and Unwin, NY.

Probst Y, Guan V, Houston L. (2020) Dietary Methodology and Applied Food Composition Data: Producing High-Quality Data in Food-Based Randomized Controlled Trials, In: Research Methods Cases: Medicine and Health, SAGE Publications Ltd

Zoszak, K., Neale, E., Tapsell, L. & Probst, Y. (2020) Exploring dietary changes in an interdisciplinary intervention trial: Application of a dietary guidelines food composition database. J Hum Nutr Diet. https://onlinelibrary.wiley.com/doi/full/10.1111/jhn.12790?af=R

Guan, V., Neale, E., Tapsell, L., & Probst, Y. (2020) Identifying usual food choice combinations with walnuts: Analysis of a 2005-2015 clinical trial cohort of overweight and obese adults. Front. Nutr. | https://www.frontiersin.org/articles/10.3389/fnut.2020.00149/abstract

Stefoska-Needham A, Tapsell L. Considerations for progressing a mainstream position for sorghum, a potentially sustainable cereal crop, for food production innovation pipelines. *Trends in Food Science and Technology* 2020; 97:249-253.

Physical function

Coltman, C.E., Steele, J.R., Spratford, W.A. & Molloy, R.H. Are female soldiers satisfied with the fit and function of body armour? *Applied Ergonomics*, 2020, 89: Article 103197. https://doi.org/10.1016/j.apergo.2020.103197

Dobson, J.A., Riddiford-Harland, D.L., Bell, A.F., Wegener, C. & Steele, J.R. Effect of shaft stiffness and sole flexibility on perceived comfort and the plantar pressures generated when walking on a simulated underground coal mining surface. *Applied Ergonomics*, 2020, 84, Article number 103024. https://doi.org/10.1016/j.apergo.2019.103024

Steele, J.R., Coltman, C.E. & McGhee, D.E. Effects of obesity on breast size, thoracic spine structure and function, upper torso musculoskeletal pain and physical activity in women. *Journal of Sport and Health Science*, 2020, 9(2): 140-148. Open Access (invited paper). https://doi.org/10.1016/j.jshs.2019.05.003

McGhee, D.E. & Steele, J.R. Perspectives for Progress: Biomechanics of breast support for active women. *Exercise and Sports Sciences Reviews*, 2020, 48(3): 99-109 (invited paper). http://doi.org/10.1249/JES.0000000000000221

Brisbine, B.R., Steele, J.R., Phillips, E. & McGhee, D.E. Breast and torso characteristics of female contact football players: Implications for the design of sports bra and breast protection. *Ergonomics,* 2020, 63(7): 850-863. https://doi.org/10.1080/00140139.2020.1757161

Brisbine, B.R., Steele, J.R., Phillips, E.J. & McGhee, D.E. Breast pain affects the performance of elite female athletes. *Journal of Sports Sciences,* 2020, 38(5): 528-533. https://doi.org/10.1080/02640414.2020.1712016

Brisbine, B.R., Steele, J.R., Phillips, E. & McGhee, D.E. Use and perception of breast protective equipment by female contact football players. *Journal of Science and Medicine in Sport,* 2020 (Online ahead of print). http://doi.org/10.1016/j.jsams.2020.02.004

Brisbine, B.R., Steele, J.R., Phillips, E. & McGhee, D.E. Can physical characteristics and sports bra use predict exercise-induced breast pain in elite female athletes? *Clinical Journal of Sports Medicine*, 2020 (Online ahead of print). http://doi.org/10.1097/JSM.0000000000000831

Forsyth, J.R., Riddiford-Harland, D.L., Whitting, J.W., Sheppard, J.M. & Steele, J.R. Training for success: Do simulated aerial landings replicate successful aerial landing performed in the ocean? *Scandinavian Journal of Medicine and Science in Sports*, 2020, 30(5): 878-884. https://doi.org/10.1111/sms.13639

Forsyth, J.R., Riddiford-Harland, D.L., Whitting, J.W., Sheppard, J.M. & Steele, J.R. Essential skills for superior wave-riding performance: A systematic review. *Journal of Strength & Conditioning*, 2020 (Online ahead of print). https://doi.org/10.1519/JSC.0000000000003402

Brisbine, B.R., Steele, J.R., Phillips, E. & McGhee, D.E. Breast injuries reported by female contact football players based on football code, player position and competition level. *Science and Medicine in Football,* 2020, 4(2): 148-155. https://doi.org/10.1080/24733938.2019.1682184

Brown, G., Veith, S., Sampson, J.A., Whalan, M.W., Fransen, J and Fullagar H.H.K. (2020) Influence of training schedules on objective measures of sleep in adolescent academy football players. *Journal of Strength and Conditioning Research*. https://journals.lww.com/nsca-jscr/Abstract/2020/09000/Influence_of_Training_Schedules_on_Objective.15.aspx

Burley, S. D., et al. (2020). Effect of a novel low volume, high intensity concurrent training regimen on recruit fitness and resilience. *Journal of Science and Medicine in Sport (in press)*. doi: 10.1016/j.jsams.2020.03.005

Eiken, T., Harrison, A., Burdon, C.A., Groeller, H., Peoples, G. E. (2020) Elevated body temperature contributes to the increased heart rate response during eccentric compared to concentric cycling when matched for oxygen consumption. *Temperature*. https://www.tandfonline.com/doi/full/10.1080/23328940.2020.1810199

Harrison, A., Groeller, H., Burdon, C., A., Peoples, G. E. (2020) The acute physiological responses of eccentric cycling during the recovery periods of a high intensity concentric cycling interval session. *Frontiers Physiology,11.* *https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7182048/*

Nolan, J., McLennan, P. L., Peoples, G. E. (2020) Forearm isometric fatigue-resistance in rock climbers is enhanced compared to power lifters and aerobically trained athletes. *Journal of Sports Medicine and Physical Fitness*. *https://pubmed.ncbi.nlm.nih.gov/32955831/*

van den Heuvel, A., Haberley, B., Hoyle, D., Peoples, G.E., Croft, R., Taylor, N.A.S.. (2020) Hyperthermia and dehydration: Their independent combined influences on physiological function during rest exercise. *European Journal of Applied Physiology*. *https://link.springer.com/article/10.1007/s00421-020-04493-4*

Whalan, M., Lovell, R and Sampson, J.A. (2020) Do niggles matter? – Increased injury risk following physical complaints in football (soccer). *Journal of Science and Medicine in Football*. 4(3) pp216-224. https://www.tandfonline.com/doi/full/10.1080/24733938.2019.1705996

T4 - TRANSLATION TO POPULATION HEALTH

Indigenous Health

Sampson, J.A. Venables, S., Debeneditics, T & Peoples, G.E. (2020) A pilot study using a small-sided games program to modify cardiovascular health in sedentary Indigenous men. *Health Promotion Journal of Australia*. https://onlinelibrary.wiley.com/doi/full/10.1002/hpja.409

Hopkins M, Meedya S, Ivers R, Charlton K Review of online breastfeeding information for Aboriginal and Torres Strait Islander women. Women and Birth https://doi.org/10.1016/j.wombi.2020.06.012

Health Professional Education

Raymond, J., Sealy, R., Naumann, F., Rooney, K., English, T., Barry, B., Groeller, H. (2020). Development of core clinical learning competencies for Australian exercise physiology students. *Journal of Clinical Exercise Physiology*. 9(1): 1-9. https://meridian.allenpress.com/jcep/article-abstract/9/1/1/434793

Porter J, Tapsell L, Charlton KE, Truby H. Using the Delphi process to identify priorities for dietetic research in Australia 2020-2030. *Nutr & Diet* https://onlinelibrary.wiley.com/doi/full/10.1111/1747-0080.12634

Lepre, B.M., Crowley, J., Mpe, D., Bhoopatkar, H., Mansfield, K.J., Wall, C. & Beck, E.J. (2020) Australian and New Zealand Medical Students' Attitudes and Confidence Towards Providing Nutrition Care in Practice *Nutrients* 12 **(**598-1-13) https://www.mdpi.com/2072-6643/12/3/598

Palermo, C., Allen, L., Dart, J., Beck, E.J., Daniels, L. & Ash, S. (2020) The hidden Jedi: A critical qualitative exploration of the Fellow credential and advanced expertise, *Nutrition & Dietetics*. 2019: 1-10 https://doi.org/10.1111/1747-0080.12597.

Parker-Newlyn L, Mansfield KJ, Dore KL (2020) CASPer Down Under: Understanding the role of SJT in selecting rural background applicants for medical school in Australia, Canadian Medical Education Journal 11(2) e76-e77

Mansfield KJ, Parker-Newlyn L, Rienits H, Dore KL (2020) Forecasting future clinical performance: The value of MMI selection interviews in predicting clinical competence in senior medical student OSCEs, Canadian Medical Education Journal 11(2) e67

Health Behaviour

Swann, C., Schweickle, M. J., Peoples, G. E., Goddard, S., Vella, S. A. (2020) The Potential Benefits of Non-Specific Goals in Physical Activity Promotion: Comparing Open, Do-Your-Best, and As-Well-As-Possible Goals in a Walking Task. *Journal of Applied Psychology*. https://www.tandfonline.com/doi/full/10.1080/10413200.2020.1815100

Weakly, J.J.S., Read, D.B., Fullagar, H.H.K., Ramierz-lopez, C., Jones, B., Cummins, C. and Sampson, J.A (2020). "How am I going, coach?" – The effect of augmented feedback during small-sided games on locomotor, physiological, and perceptual responses. *International Journal of Sports Physiology and Performance*. 15(5) pp677-684 https://journals.humankinetics.com/view/journals/ijspp/15/5/article-p677.xml

Lambert K, Lau TK, Davison S, Mitchell H, Harman A, Carrie M (2020) Use of a renal diet question prompt sheet increases the patient centeredness of renal dietitian outpatient consultations. *Patient Education and Counseling, Published online early view* March 4, 2020.; https://doi.org/10.1016/j.pec.2020.03.003

Muscat D, Lambert K, Shepherd H, McCaffrey K, Zwi S, Liu N, Sud K, Saunders J, O'Lone E, Kim J, Robbins A, Webster A (2020) 'Supporting patients to be involved in decisions about their health and care: Development of a best practice health literacy App for Australian adults living with Chronic Kidney Disease', Health Promotion Journal of Australia https://onlinelibrary.wiley.com/doi/abs/10.1002/hpja.416

Lobo S, Lucas CJ, Herbert JS, Townsend ML, Smith M, Kunkler E, Charlton KE. Nutrition information in pregnancy: Where do women seek advice and has this changed over time? *Nutr & Dietetics* 2020; 77(3):382-391. https://onlinelibrary.wiley.com/doi/full/10.1111/1747-0080.12589

Foster, S.I., Beck, E.J., Hughes, J. and Grafenauer, S. (2020) Whole Grains and Consumer Understanding: Investigating Consumers' Identification, Knowledge and Attitudes to Whole Grains *Nutrients* 2020, *12*(8), 2170; https://doi.org/10.3390/nu12082170

Barrett, E.M., Foster, S.I. & Beck, E.J. (2020) Whole grain and high-fibre grain foods: How do knowledge, perceptions and attitudes affect food choice? *Appetite*, 149 https://www.sciencedirect.com/science/article/pii/S0195666319313194

Teckle DY, Santos JA, Trieu K, Thout SR, Ndanuko R, Charlton K, Hoek A, Huffman MD, Jan S, Webster J. Monitoring and implementation of salt reduction initiatives in Africa: A systematic review. *J Clin Hypertens* 2020;22:1355–1370. https://onlinelibrary.wiley.com/doi/full/10.1111/jch.13937

Clinical Epidemiology : metabolic health

Hassan HC, Hepburn K, Lambert K, McAlister B, Mullan J, Lonergan M (2020) Peritoneal dialysis related peritonitis as a risk factor for cardiovascular events, *Internal Medicine Journal, https://onlinelibrary.wiley.com/doi/abs/10.1111/imj.14769*

Lambert K, Taylor E, Bowden S, Charlton KE (2019) Nutritional status according to the Mini Nutritional Assessment predicts speed and degree of functional improvement and discharge outcomes in rehabilitation patients *J Nutrition Gerontology and Geriatrics.* https://www.tandfonline.com/doi/full/10.1080/21551197.2019.1689882

Stanford J, Borst A, Fuller A, Stefoska Needham A, Charlton C, Zheng H, Bird L, Lambert K Associations between Plant-Based Diet Quality, Uraemic Toxins and Gut Microbiota Profile in Adults undergoing Haemodialysis Therapy, *Journal of Renal Nutrition,* https://www.sciencedirect.com/science/article/abs/pii/S1051227620302053

Hepburn KS, Lambert K, **Mullan J,** McAlister B, Lonergan M, Hassan H (2020) Peritoneal dialysis related peritonitis as a risk factor for cardiovascular events, *Internal Medicine Journal* https://onlinelibrary.wiley.com/doi/abs/10.1111/imj.14769

Igwe EO, Roodenrys S, Probst YC, do Rosario V, Netzel ME, Trieu HH, Netzel G, Thi Phan AD, Charlton KE. The effect of a low anthocyanin Plum nectar on cognition, blood pressure and gut microbiota in healthy older adults: A randomized crossover trial. *Nutr Res*. Available early view 16 August 2020. https://www.sciencedirect.com/science/article/pii/S0271531720305145

Maria Tieri, Francesca Ghelfi, Marilena Vitale, Claudia Vetrani, Stefano Marventano, Alessandra Lafranconi, Justyna Godos, Lucilla Titta, Angelo Gambera, Elena Alonzo, Salvatore Sciacca, Gabriele Riccardi, Silvio Buscemi, Daniele Del Rio, Sumantra Ray, Fabio Galvano, Eleanor Beck & Giuseppe Grosso Whole grain consumption and human health: an umbrella review of observational studies, *International Journal of Food Sciences and Nutrition*, https://www.tandfonline.com/doi/full/10.1080/09637486.2020.1715354

Toms, R., Mayne, D.J., Feng, X. and Bonney, A., 2020. Geographic variation in cardiometabolic risk factor prevalence explained by area-level disadvantage in the Illawarra-Shoalhaven region of the NSW, Australia. *Scientific Reports*, *10*(1), pp.1-18. https://www.nature.com/articles/s41598-020-69552-4

Neale E, Nikodijevic C, Probst Y, Batterham M, Tapsell LC Nut consumption in a representative survey of Australians: a secondary analysis of the 2011-2012 National Nutrition and Physical Activity Survey. *Public Health Nutrition* 2020 https://www.cambridge.org/core/journals/public-health-nutrition/article/nut-consumption-in-a-representative-survey-of-australians-a-secondary-analysis-of-the-20112012-national-nutrition-and-physical-activity-survey/9F0970FCE7DAA924319763F95E84ED6E

Barrett, E.M., Batterham, M.J. & Beck, E.J. (2020) Whole grain and cereal fibre intake in the Australian Health Survey (AHS) - associations to cardiovascular disease risk factors, Public Health Nutrition, https://www.cambridge.org/core/journals/public-health-nutrition/article/whole-grain-and-cereal-fibre-intake-in-the-australian-health-survey-associations-to-cvd-risk-factors/287A005AC242E94E440F87CF3B839A29

Barrett, E.M., Amoutzopoulos, B., Batterham, M.J., Ray, S. & **Beck, E.J.** (2020) Whole grain intake compared with cereal fibre intake in association to cardiovascular disease risk factors – a cross sectional analysis of the National Diet and Nutrition Survey (UK), **Public Health Nutrition** https://www.cambridge.org/core/journals/public-health-nutrition/article/whole-grain-intake-compared-with-cereal-fibre-intake-in-association-to-cvd-risk-factors-a-crosssectional-analysis-of-the-national-diet-and-nutrition-survey-uk/D70CE3C1BB60BC5EFAD7C9625CF2B8F6

Kissock, K., Neale, E.P. & **Beck, E.J.** (2020) The relevance of whole grain food definitions in estimation of whole grain intake: a secondary analysis of the National Nutrition and Physical Activity Survey 2011-12, **Public Health Nutrition** https://www.cambridge.org/core/journals/public-health-nutrition/article/relevance-of-whole-grain-food-definitions-in-estimation-of-whole-grain-intake-a-secondary-analysis-of-the-national-nutrition-and-physical-activity-survey-20112012/3A0B513B0531D408373F38D2CD88A428

Ribeiro, H., Santana, K., Oliver, S. L., Rondó, P., Mendes, M. M., Charlton, K., & Lanham-New, S. Does Vitamin D play a role in the management of Covid-19 in Brazil?. *Revista de saude publica*, 2020; 54: 53. https://doi.org/10.11606/s1518-8787.2020054002545

Mendes, M., Charlton, K., Thakur, S., Ribeiro, H., & Lanham-New, S. Future perspectives in addressing the global issue of vitamin D deficiency. *Proceedings of the Nutrition Society* 2020; 79(2): 246-251. https://www.cambridge.org/core/journals/proceedings-of-the-nutrition-society/article/future-perspectives-in-addressing-the-global-issue-of-vitamin-d-deficiency/4A96DED94FFB85720F7A1BFC5B1B2491

Houston, L., Martin A, Yu P, Probst Y. (2020). "Heterogeneity in clinical research data quality monitoring: A national survey." Journal of Biomedical Informatics 108: 103491. https://www.sciencedirect.com/science/article/pii/S1532046420301192

Clinical epidemiology: mental health and cognition

Li, X., Yuan, X., Kang, Y., Pang, L., Liu, Y., Zhu, Q., Lv, L., Huang, X. F., and Song, X. (2020). A synergistic effect between family intervention and rTMS improves cognitive and negative symptoms in schizophrenia: A randomized controlled trial. J Psychiatr Res *126*, 81-91. https://www.sciencedirect.com/science/article/pii/S0022395619309070

Chen, S., Xia, X., Deng, C., Wu, X., Han, Z., Tao, J., and Wu, X. (2020). The correlation between metabolic syndrome and neurocognitive and social cognitive performance of patients with schizophrenia. Psychiatry Res *288*, 112941. https://www.sciencedirect.com/science/article/pii/S0165178119304445

McGrail, Matthew R, and Deborah J Russell. "Australia's Rural Medical Workforce: Supply from Its Medical Schools against Career Stage, Gender and Rural-Origin." *Aust. J. Rural Health* 25 (2017): 298–305. https://onlinelibrary.wiley.com/doi/full/10.1111/ajr.12323

Walsan, R., Mayne, D.J., Feng, X., Pai, N. and Bonney, A., 2019. Examining the association between neighbourhood socioeconomic disadvantage and type 2 diabetes comorbidity in serious mental illness.

International Journal of Environmental Research and Public Health, *16*(20), p.3905 https://www.mdpi.com/1660-4601/16/20/3905