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FOREWORDS

Deakin University's global reputation has continued its impressive climb. Deakin jumped 184 places in just two years to be ranked 213 in the world in 2017, and Deakin University's School of Medicine has taken just eight years of teaching and research to enter the top 150 in the world, according to the prestigious Academic Ranking of World Universities (ARWU). These excellent results place Deakin solidly among the top 2% of universities worldwide. Because the ARWU is largely a research ranking, this leap is testament to the work of Deakin's researchers, and the IMPACT SRC is one group that has made a major contribution to this rise in Deakin's ranking based on their productivity, grant success and international rankings including the Director being included in the 2016 Thomson Reuters annual listing of researchers most cited in academic journals, ranking in the top one per cent of researchers in their field. IMPACT SRC has also made a significant contribution to Deakin being rated "well above world standard" in several research codes in the Excellence in Research for Australia (ERA) assessment.

Professor Joe Graffam

Interim Deputy Vice Chancellor, Research. Deakin University



IMPACT SRC continues to be a leading research centre in Geelong's health precinct, attracting recognition both nationally and internationally. The team's research contributes significantly to improvements in the global health sector's understanding of chronic disease patterns, risk factors and novel therapies. These improvements are forging connections and grow the breadth and reach of research being undertaken, ultimately building healthier lives.

Michael Berk was ranked in the top 1% most highly cited in the 2017 global Clarivate Analytics report and is now the top cited researcher in the categories of both neuroscience and psychology and cognitive sciences in 2012-2017 by Scival.

Under the guidance and leadership of Professor Berk and Professor Pasco, the IMPACT SRC team has taken Barwon's research to the world stage; recognised in international publications and at prestigious conferences. Their research has put a spotlight on Geelong and is contributing to its transformation to become a smart city.

I congratulate the IMPACT SRC team for an excellent year and I look forward to further development and success.

Professor Ruth Salom

Chief Executive Officer, Barwon Health



We have had another great year at IMPACT with substantial achievement in research, particularly in the development of our understanding of lifestyle and mental health, as well possible treatments. Our annual review with the Advisory Board was very positive and demonstrated the advances and opportunity for more projects. We continue to advance our plans for funding of research.

We are indeed very fortunate to have as our Director, Professor Michael Berk, and has with his outstanding team international standing, in a regional setting.

Trevor M Clark OAM

Director Autism Co-operative Research Centre
Chair, IMPACT SRC Advisory Board



INTRODUCTION

Professor Michael Berk



The IMPACT SRC continues to deliver results that make a direct contribution to the health of the community. As examples, Dr Olivia Dean in her Minocycline Unipolar Depression trial provided the first clinical trial evidence that this old antibiotic may be of value in depression and anxiety. Prof Felice Jacka's seminal SMILES trial showing that diet could treat depression, has now been independently replicated, and the MoodSwings team found that using web based therapy was helpful in treating depression in people with bipolar disorder. Prof Julie Pasco has seminal evidence for a new tool to assess bone health, the OsteoProbe® . IMPACT has grown considerably in the last 12 months, both in personnel and outputs, with 169 papers in 2017, many in the very top journals.

IMPACT had grant success in 2017. Olivia Dean was awarded a NHMRC Career Development Fellowship; Deakin Faculty Postdoctoral Fellowships were awarded to Sarah Hosking and Natalie Hyde; an Australian Rotary Health Postdoctoral Fellowship was awarded to Erin Hoare; and Erin Hoare and Wolf Marx were the recipients of an Alfred Deakin Fellowship. Lesley Berk was awarded a Victorian Medical Research Accelerator grant and an Avant grant. Bianca Kavanagh has received an Ian Scott Australian Rotary Health PhD Scholarship. Team members won several national and international prizes and awards, including Dr Natalie Hyde, Sophia Sui, Kara Anderson, Prof Julie Pasco, Melanie Ashton and Sarah Hosking. We partnered on two successful Medical Research Future Fund grants and the ARC Research Hub for Digitally Assisted Living.

A major strategic restructure is planned in the School of Medicine, with the potential merger of the IMPACT SRC and the Centre for Molecular and Medical Research (CMMR), led by Prof Ken Walder. The Institute will develop and expand upon the existing pillars of research excellence which reflect the research vision within the School of Medicine: Neurosciences; Infection, immunity and cancer; and Musculoskeletal health. The new structure will capitalise on existing strengths within the Faculty of Health, and its existing research partners, to make a meaningful difference to the health and wellbeing of the community. This bench to bedside capacity will enhance the translation of basic discoveries in biomedicine into clinical medical practice and strengthen our capacity and reach. We would like to thank both Barwon Health and Deakin for their continued and generous support.



FOOD AND MOOD CENTRE

Professor Felice Jacka

Professor Felice Jacka leads the Food & Mood Centre within the IMPACT SRC. This new centre is committed to conducting high quality research that helps us to learn about how we might reduce risk, prevent and treat mental disorders through diet and nutrition. This centre is unique as it is the only centre specifically focusing on Nutritional Psychiatry research. Centre members carry out cutting edge research that aims to identify new and effective approaches to the prevention and treatment of mental and brain disorders using nutritional approaches. It is also set up to provide a resource for the public, researchers and clinicians, where they can access clear and easy to understand information on nutrition and mental health. The website can be found at: www.foodandmoodcentre.com.au.

Professor Jacka is also the president of the International Society for Nutritional Psychiatry Research (ISNPR). In July 2017, Professor Jacka led the first large, international conference of the ISNPR in Washington DC. This conference was very successful, attracting nearly 200 of the world's leading researchers in the field. This conference will be held biennially, with the next planned for Europe in 2019.

In 2017, the Healthy Parents, Healthy Kids study, which is being conducted at the Royal Children's Hospital in collaboration with the Murdoch Children's Research Centre, finished data collection. This study aimed to help pregnant women improve the quality of their diets and will yield data on numerous health outcomes including gut microbiota in these women and their infants. The results of this study will be available in the coming 12 months. Two other observational studies are also underway with a focus on gut microbiota: MICRO-'SCOPE, which comprises collaboration with the Department of Surgery at Geelong Hospital and the new Epworth Hospital; and GOS Microbiome, involving the large, ongoing Geelong Osteoporosis Study. Moreover, the Food & Mood Centre is growing rapidly and was successful in attracting funding from Fernwood Gyms and the A2 Dairy company. These important sponsorship agreements will provide support for postdoctoral research positions and the conduct of a randomised controlled trial to commence in 2018. Several other studies commenced in 2017, including a study seeking to understand the factors that support or prevent healthy eating within families, and a study aimed at developing and optimising an online/app-based dietary program linking food intake to mood.

Finally, the results of the world's first trial that aims to answer the important question "If I improve my diet, will my mental health improve?" were published in January 2017. This study showed, for the first time, that dietary improvement could improve symptoms in people with major depressive disorder. This study had a huge impact across the globe, with extensive media coverage including the Wall St Journal, NBC, BBC and other major news outlets. This result has now been independently replicated. It offers an important new approach to the treatment of depression, which comprises the leading contributor to global disability.

THE EPI-CENTRE FOR HEALTHY

AGEING

Professor Julie Pasco



Professor Julie Pasco heads the Epi-Centre for Healthy Ageing and is the Deputy Director of the IMPACT SRC. Her research interests focus on identifying modifiable factors that influence the trajectory of healthy ageing and in discovering ways to slow the onset of frailty and maintain autonomy in the elderly.

The Epi-Centre for Healthy Ageing conducts long-term population-based research that is centred on the internationally recognised Geelong Osteoporosis Study (GOS), the Geelong Fracture Grid, the Vitamin D in Pregnancy (VIP) study and the Ageing, Chronic Disease and Injury (ACDI) study. This distinctive program of research seeks to understand the progression of chronic metabolic and musculoskeletal disorders including obesity, cardiovascular disease, osteoporosis and sarcopenia, cognitive decline, and the nexus between physical and mental health. An important component of this program of epidemiological research is to facilitate knowledge-transfer from research into clinical practice and into the community.

The range of projects underway in the Epi-Centre for Healthy Ageing include a world-first large-scale testing of a new device for assessing bone material properties using bone impact microindentation, understanding the role of health literacy in the prevention of osteoporosis, assessing the contribution of musculoskeletal health to frailty, development of a frailty risk score, identification of indices for healthy ageing, dysglycemia in men and women in association with musculoskeletal health, the progression of pre-diabetes to diabetes mellitus, acute health service utilisation in diabetes mellitus, the interplay between muscle power and brain power, maternal vitamin D levels during pregnancy and offspring growth and development, serotonin and bone and bipolar disorder and bone.

We also work collaboratively with the Aspirin in Reducing Events in the Elderly (ASPREE) fracture study to identify a role for low dose aspirin in preventing falls and fractures. In addition to this, GOS data are pooled with other leading prospective cohort studies such as the Australian and New Zealand Diabetes and Cancer Collaboration (ANZDCC) and the International Consortium of Obesity and Diabetes – a study on obesity and risk of diabetes. We are working collaboratively with geriatricians from Barwon Health's McKellar Centre, and with researchers from both the University of Melbourne and the Capital Medical University in Beijing, on ways to assess frailty and sarcopenia in elderly patients and in the ambulant Australian population. Our novel data about bone impact microindentation are being pooled with data from around the world to develop an internationally-recognised reference range for healthy adults.

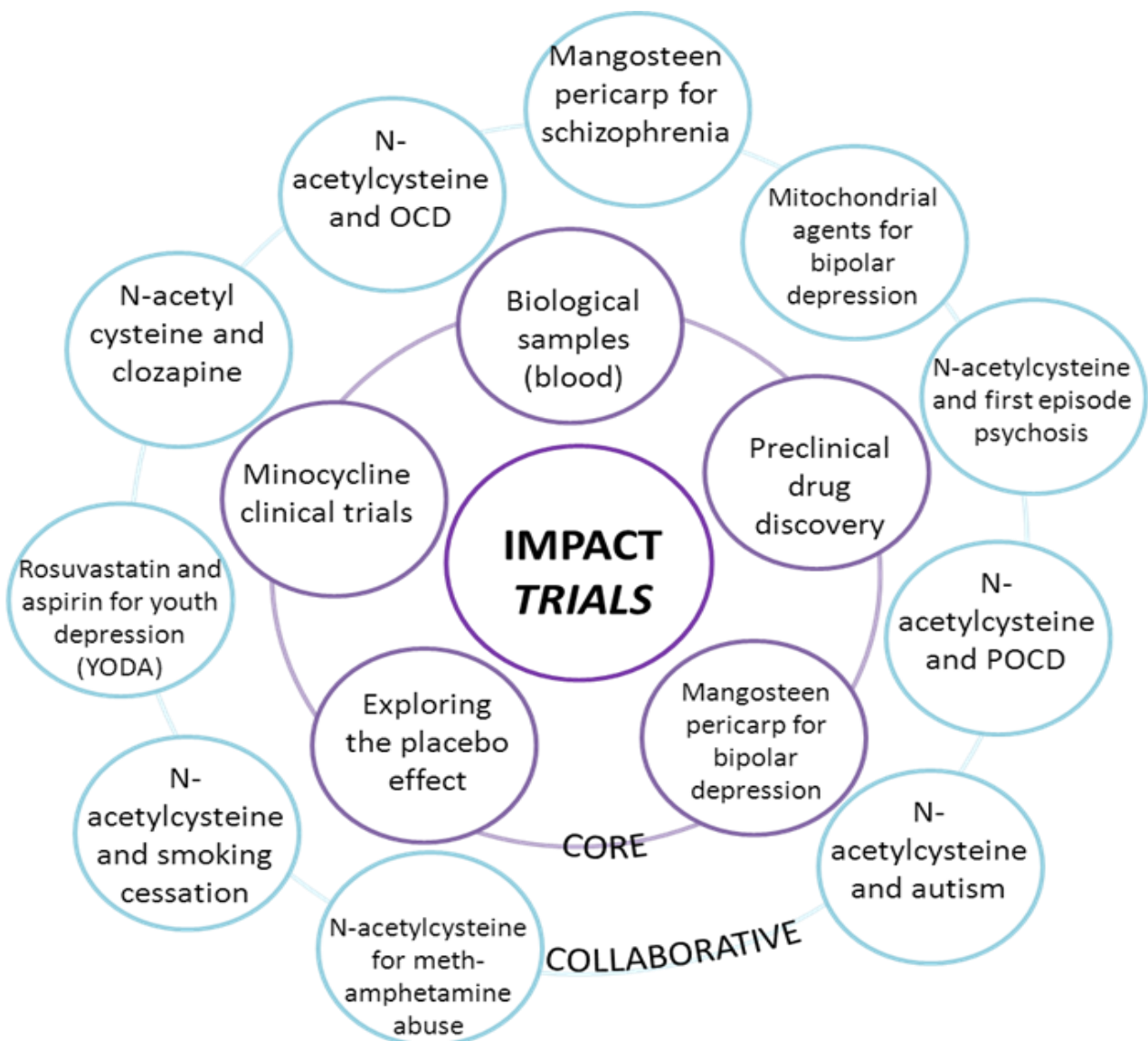


IMPACT TRIALS

Dr Olivia Dean

IMPACT TRIALS explores the repurposing of existing agents to reduce the symptoms experienced by those with psychiatric disorders. Implementing an iterative approach, IMPACT TRIALS incorporates biological sampling (blood samples) and preclinical investigations to both identify relevant mechanisms of action for therapeutic targets and better understand the underlying pathophysiology of the illnesses. The figure below illustrates the breadth and scope of the IMPACT TRIALS research program.

IMPACT TRIALS is a dynamic group and includes the following staff and students; Prof Michael Berk, Assoc/Prof Seetal Dodd, Dr Alyna Turner, Dr Lesley Berk, Dr Ellie Brown, Dr Adam Walker, Lauren Arancini, Bianca Kavanagh, David Skvarc, Melanie Ashton, Kyoko (Kay) Hasebe, Dr David Camfield, Declan Bourke, Jenny Rapa and Georgina Caruana



BIPOLAR DISORDER RESEARCH

Professor Michael Berk



Mood disorders, depression and bipolar disorder are a primary focus of the IMPACT Strategic Research Centre.

We were successful in 2017 in gaining grant support from the Victorian Medical Accelerator fund to develop an updated version of our group based psychosocial intervention for bipolar disorder, MAPS. This has been in widespread national use, but new research suggests ways to improve it.

A further focus is on carer-burden in bipolar disorder and depression. A treatment intervention for carers of people with bipolar disorder has been developed – bipolarcaregivers.org, plans are underway to upgrade it to a new website, icare4bipolar.com, and a parallel resource for carers of people with depression is being completed – icare4depression.com.

Having shown that N-acetylcysteine (NAC) effectively treats negative symptoms of schizophrenia, the symptoms of depression in bipolar disorder and reduces depression in unipolar disorder, we have just completed a study showing that it assists with smoking cessation. We are partnering on replication studies in early psychosis and chronic schizophrenia. We have just completed a large NHMRC and CRC funded project to definitively study the efficacy of NAC in bipolar depression, as well as a cocktail of mitochondrially active agents.

The NHMRC funded Bipolar Health and Lifestyle Study, exploring the links between lifestyle, medical factors and bipolar disorder is nearing completion.

Together with Dr Sue Tye from the Mayo Clinic, we are developing a novel animal model of bipolar disorder using deep brain stimulation, to examine changes in energy generation in models of both depression and mania. We are grateful for the partnership with Professor Abbas Kouzani from Science, Engineering and Built Environment who leads the development of novel DBS and optogenetic devices for preclinical study, a critical element in this program of research. ARC grant applications are submitted to progress this work.

Professor Ken Walder from the CMMR SRC has developed a drug discovery program for diabetes by looking at the gene expression signature of existing agents, finding new potential treatments that target this gene expression signature. We have developed an NHMRC supported analogous drug discovery program for bipolar disorder in partnership with Professor Walder, and are extending this method to drug discovery in schizophrenia. Lastly, we had surprising success in a pilot clinical trial of *Garcinia Mangostana* Linn. (mangosteen pericarp) in the treatment of schizophrenia, and are replicating this finding in a more definitive Stanley funded grant with John McGrath from Queensland. Olivia Dean was successful in obtaining a NHMRC grant to explore its efficacy in bipolar disorder.



DRUG SAFETY

Associate Professor Seetal Dodd

The large range of medications available for the treatment of mental illness have helped improve the lives of thousands, perhaps even millions of people. These agents have helped people manage their illnesses, prevented or reduced the recurrence of illness and controlled symptoms of illness. Although people with mental health difficulties have benefited greatly from modern drug treatments, these treatments are also known to have risks. Researchers at IMPACT SRC work

to understand and reduce the risks and to improve the risk-to-benefit ratios for drug treatment of mental illness.

Central to our work in drug safety, we investigated treatment emergent adverse events in clinical trial data and in other databases. Using adverse event data from clinical trials, we previously investigated the complexity of the placebo and nocebo effects as important confounders of adverse events. Further work is currently underway using clinical trial data from studies of olanzapine and lurasidone for bipolar disorder.

We are also conducting studies evaluating the neuroprotective properties of conventional and novel treatments. These studies may provide a new treatment objective for people with mental illness, preventing the worsening course of the illness rather than simply reacting to the symptoms of the illness. This new approach to treatment in mental health may ultimately lead to both better mental health and better drug safety outcomes. Chronic, treatment-resistant stages of illness are typically associated with higher doses of treatment and drug combinations. If this can be averted through our neuroprotective strategies then clinical outcomes and disease burden could be improved. A 5-year clinical trial to investigate neuroprotection, in partnership with Orygen Youth Health, will commence recruitment in early 2018.

We have been involved in the publication of guidelines, which assist clinicians to make well-informed and balanced treatment decisions. These include publications regarding the safe use of drugs for the evidence-based treatment of various mental illnesses as well as publications about safe treatments in special populations, such as pregnant and breast-feeding women. A major international collaboration to produce antidepressant safety guidelines has recently been accepted for publication in *The World Journal of Biological Psychiatry* and includes three IMPACT SRC co-authors. A second manuscript focusing on Treatment Resistant Depression authored by the same authorship team is currently in planning.

CLINICAL TRIALS

Dr Alyna Turner



Dr Alyna Turner, postdoctoral fellow at *IMPACT TRIALS*, is currently coordinating two ongoing clinical trials, NAC for bipolar depression and Mangosteen for Schizophrenia. She is also CI on Mangosteen for Bipolar Disorder and the N-ICE trial, as well as "Prevent Second Stroke", an a NHMRC funded RCT led by the University of Newcastle, evaluating the impact of an online secondary prevention health behaviour change program targeting stroke survivors. Dr Turner is also working with the Stroke Association of Victoria and Barwon Health neurology clinicians on an AMP Employment Boost funded pilot project designed to keep people in employment following a stroke. Dr Turner has implemented screening and assessment protocols to ensure mental health support is provided when needed, and is delivering brief interventions targeting adjustment and mood. Outcomes will be analysed in 2018.

IMPACT TRIALS currently has a register open to anyone who has a psychiatric disorder and would be interested in taking part in our studies. If you would like more information regarding the register, please contact Dr Olivia Dean on (03) 4215-3300.



PSYCHOSOCIAL INTERVENTION FOR PEOPLE WITH BIPOLAR DISORDER

Dr Lesley Berk

Dr Lesley Berk is a postdoctoral research fellow and psychologist. Her research focuses on examining psychosocial risk factors and developing interventions to assist people and families dealing with depression or bipolar disorder, and she has contributed extensively to the literature in this area. She is currently developing a psychosocial intervention for people with bipolar disorder that is provided as an adjunct to pharmacotherapy. The intervention integrates face-to-face and online methods of treatment delivery. To this end she works closely with the School of Information Technology at Deakin University, and collaborates with researchers at the University of California, Berkeley, Harvard, Stanford and Swinburne universities.

Dr Berk previously developed and evaluated an information website for family/friends of people with bipolar disorder www.bipolarcaregivers.org that receives over 17000 visits a month and was positively evaluated in a follow-up study. She was recently awarded the Australian Society for Bipolar Disorder and Depression/Servier Depression grant to develop a website to assist family and friends who often have a vital role in supporting a person with depression as well as an Avant and Victorian Medical Research Accelerator Fund grant. She also contributes to training of staff in the use of psychological assessments for clinical research trials and conducts assessments on the Geelong Osteoporosis Study.



MENTAL-PHYSICAL HEALTH RESEARCH

Associate Professor Lana Williams

Associate Professor Lana Williams leads the Division of Mental-Physical Health Research within IMPACT SRC and is the Director of GOS Mental Health, one of the largest and comprehensive psychiatric epidemiological studies in Australia. Her and her team are leading investigations aimed at understanding the interplay between mental disorders, associated treatment regimens and physical disease. Research conducted within her division to date has revealed associations between mood, anxiety and personality disorder and a range of medical conditions including osteoporosis, irritable bowel syndrome, atopic disorders, pain, cancer and cardiovascular diseases.

Associations between mood and anxiety disorders and lifestyle factors such as smoking and physical activity and social factors such as area based socioeconomic status and quality of life have also been explored. A wide range of social, psychological and biological factors such as the presence of inflammation and/or oxidative stress are being investigated, which may explain these associations. Complementing this work is a case-control study of bipolar disorder, designed to identify associated lifestyle and physical co morbidities.

The cornerstone to this program is our work investigating the interplay between psychiatric disorders, the medications used to treat these disorders and bone health, which has attracted extensive project funding and personal awards. This project engages experts from the fields of psychiatry, bone biology, epidemiology and translation worldwide to provide a comprehensive understanding of this clinically important but neglected issue. To date, we have found depression to be associated with reduced bone mineral density, affect bone quality and increase the risk of fracture by over 60%. We were also one of the first to show that the SSRI group of antidepressants may increase the risk for osteoporosis and that these agents, in vitro, have marked intra class differences in their effects on bone. The effects of psychoactive drugs on physical health is under further review in a study known as PROFAC and these relationships are being investigated at the cellular level with collaborators in the laboratories at Barwon Biomedical Research and Deakin University.

The epidemiological resources and collaborations that form the foundation of this program of work are an invaluable resource for collaborative studies, generating knowledge able to be transferred into clinical practice, service planning, and policy development, as well as both predictors and outcomes associated with disease state and the identification of novel therapeutic targets are able to be determined. This program is supported by strong collaborative ties with the Geelong University Hospital, University of Eastern Finland, and the Norwegian University of Science and Technology, as well as extensive collaboration within Deakin University and other groups located throughout Europe and the UK.

BIOMARKERS IN BIPOLAR DISORDER AND SCHIZOPHRENIA

Dr Brisa Fernandes, MD



Bipolar disorder, major depressive disorder and schizophrenia are severe and prevalent disorders, and the burden that they impose on individuals and the society is enormous, together being responsible for 50% of the global burden due to mental illnesses. One of the major reasons is that their pathophysiology remains relatively unknown. Lately, the search for blood markers — or biomarkers — in psychiatry has been recognised as a major endeavour in the development of a personalised approach in mental illness. Some of the primary goals of personalised medicine include establishing accurate diagnosis and predicting response to treatment.

Dr Brisa Fernandes' main research field concerns the discovery and application of such biomarkers. She recently demonstrated that C-reactive protein is a biomarker in bipolar disorder capable of indexing the severity of manic symptoms. This is being done with the ultimate goal of developing a personalised medicine strategy for these common mental disorders.

It is anticipated that the implementation of validated biomarker tests will not only improve the diagnosis and more effective treatment of persons with mental illnesses but ultimately improve prognosis and disease outcome. For continuing the pursuit of her goals, Dr Fernandes was awarded the 2015 Alfred Deakin Research Fellowship from Deakin University for two years.



ONLINE SELF-HELP IN BIPOLAR DISORDER

(www.moodswings.net.au)

Dr Emma Gliddon

The application of psychosocial interventions as adjunctive treatments in bipolar disorder is often limited due to financial and geographic barriers. The MoodSwings 2.0 online self-help program for bipolar disorder has been evaluated by an international randomised controlled trial. The primary aim of this study was to assess if the three components of the MoodSwings 2.0 program have an additive benefit on improvement in depression and mania scores across 12 months.

This study involved a 3-arm randomised parallel group stepped design, with 304 international participants. Participants were randomised to receive a discussion board only (control – Group 1), discussion board plus psychoeducational modules (Group 2), or discussion board, modules, and interactive tools (Group 3). Significant improvements in depression were found across all follow up time points in favour of Group 2 compared to the control group. The findings of this study suggest that online self-help interventions for bipolar disorder can have a positive impact on mood severity over time. Our team is now preparing to further evaluate the MoodSwings program through a hybrid effectiveness/implementation study and further analysis of secondary outcomes is continuing.



GENETICALLY GUIDED

ANTIDEPRESSANTS

Associate Professor Ajeet B Singh, MD

Genetically guided prescribing (precision medicine) may help sooner match patients to effective tolerable medication. Precision medicine has been identified as a priority area of medical research globally given its potential for improved patient outcomes and reduced costs of care. Exponential cost reductions in genotyping via automation have seen genotyping prices drop from tens of thousands of dollars to (for some gene panels) under AUD\$100 in just the last few years. Should clinical utility be demonstrated for superiority of genetically guided prescribing over traditional trial and error prescribing, it's likely the technology will see rapid clinical uptake.

Stemming from an international multi-centre candidate gene association study (CGAS) examining the role of polymorphisms of the blood brain barrier (BBB) efflux pump P-glycoprotein (ABCB1) for remission predictive utility (n=113); a post-doctoral study has been conducted, led by Dr Singh. It supports the earlier finding that the dose of antidepressant needed to remit from major depression correlates with ABCB1 genotype. Additionally, it seems another BBB transporter ABCC1 may also be relevant to antidepressant dosing.

Dr Singh hopes to elucidate the pharmacogenetic keys to the BBB. His inspiration comes from seeing the reality of trial and error prescribing in clinical practice, with hopes to reduce this process and speed patient recovery through precision medicine. Dr Singh is an advisor to both government and industry groups on precision medicine, and hopes to help spearhead translation of the technology into the real world.

GESTATIONAL VITAMIN D AND DEVELOPMENT IN OFFSPRING

Dr Natalie Hyde



Dr Natalie Hyde fulfilled the requirements of her Doctorate of Philosophy early in 2017, and since then has been working on disseminating the findings from her thesis. Her published research to date has described associations with maternal vitamin D in early pregnancy, but not late, and offspring trabecular bone score. The findings with body composition and bone mineral density will be published in the latter part of 2017. Moreover, she is now looking towards examining exposures during pregnancy and mental health outcomes, utilising the unique data set from the Vitamin D in Pregnancy Study.

RISK FACTORS FOR MUSCULOSKELETAL DISORDERS

Dr Kara Holloway



Dr Kara Holloway's current research program focuses on musculoskeletal decline across a variety of population sub-groups. She has recently been involved in evaluating the impact of diabetes on bone quality and quantity, as well as how these changes impact fracture risk. This is an important area of inquiry, as individuals with diabetes take longer to recover from fractures and have a higher risk of infection and delayed or insufficient healing.

She is also involved in the "Ageing, Chronic Disease and Injury Study", which aims to map out the burden of chronic disease across the western region of the state of Victoria. This region encompasses a wide range of different areas with a variety of urban/rural status, accessibility/remoteness and agricultural/urbanised living. This project will aid in providing information for preventative and treatment healthcare across the region.

To date, Kara has published fourteen first-author manuscripts and a further seventeen manuscripts as co-author, in high quality, peer-reviewed journals such as Calcified Tissue International, Osteoporosis International, Bone, Archives of Osteoporosis and the Journal of Affective Disorders. This year, Kara's work has been presented at many conferences, both national and international including Brisbane, Italy, and the United States. Kara also supervises two Honours and five PhD students at the IMPACT SRC.



NUTRITIONAL PSYCHIATRY FOR PSYCHOTIC DISORDERS

Dr Anu Ruusunen

Dr Anu Ruusunen started her two-year Health Post-doctoral Research Fellowship within the Food and Mood Centre, IMPACT SRC, in July 2017. It's known that glucose metabolism is altered in patients with psychotic disorders, such as schizophrenia, and it has been demonstrated in animal and case studies that restriction of dietary carbohydrates may reduce schizophrenia-like behaviours. Anu's post-doctoral project includes a ketogenic diet intervention conducted in psychotic patients to examine the potential effects on psychotic symptoms and gut microbiota. In addition, another arm of her project includes a study aiming to characterise the gut microbiome in anorexia nervosa patients, and to clarify the potential changes in gut microbiome during the nutritional rehabilitation.

Anu Ruusunen (PhD in Epidemiology) has a background in nutrition and she has worked as a clinical dietitian with psychiatric patients and eating disorder patients. Anu has authored 23 international, peer-reviewed publications.



THE ROLE OF HEALTH LITERACY IN OSTEOPOROSIS IN WOMEN

Dr Sarah Hosking

The Australian Bureau of Statistics estimate that 59% of Australians do not possess the health literacy skills required for basic management of health. Low levels of health literacy have been associated with poorer prevention and self-management of a range of health conditions, however there is a paucity of research regarding health literacy and osteoporosis specifically.

Dr Hosking's project aimed to address the current knowledge gap using data from the Geelong Osteoporosis Study (GOS) and the Vitamin D in Pregnancy (VIP) Study. This project has provided evidence to suggest health literacy in women is associated with uptake of a number of lifestyle-specific osteoporosis prevention recommendations, and in communicating a diagnosis of osteoporosis to older women. In particular, health literacy skills associated with finding, understanding and using health information in managing health appear to be of greatest importance.

THE DEVELOPMENT OF A CLINICAL RISK INDEX FOR DEPRESSION

Dr Joanna Dipnall



Dr Joanna Dipnall's research developed a structural equation model for a Risk Index for Depression (RID). A novel new methodology was developed to formulate the RID which blended machine learning algorithms with traditional statistical techniques to identify clusters of respondents associated with depression in a large epidemiological study. This sophisticated methodology has been published in an international journal. The next stage of this research is to validate the RID on longitudinal data with the intention for future clinical use.

BIOLOGICAL PATHWAYS THAT MEDIATE THE LINK BETWEEN DIET AND DEPRESSION

Dr Sarah Dash



The relationship between diet and mental health has now been consistently demonstrated across age groups and various geographic locations; however, there is still a lack of understanding as to which biological pathways are directly and indirectly involved.

This project investigated various measures of biological action in the diet/depression association, including the Dietary Inflammatory Index among participants in the Geelong Osteoporosis Study, as well as inflammatory gut health and neurotrophic biomarkers from participants involved in the SMILES dietary RCT.

This project has highlighted the importance of 'big data' analyses, improved understanding of gut microbiome composition and function, and the need to implement dietary strategies for depression. We aimed to better understand and identify some of the possible mechanisms to guide the development of targeted dietary prevention or intervention strategies. This thesis has recently passed examination, and manuscripts from this project are now being prepared for submission.

OUR PhD CANDIDATES



Dysglycaemia in women

Lelia de Abreu

Lelia was enrolled as a PhD candidate with the IMPACT SRC team in August 2014. She joins our team from Brazil after completing a Bachelor of Nursing and a Masters in Nursing, with a focus on diabetes. She has also worked in the Public Health sector as a registered nurse for a number of years.

Her research interests include diabetes, obesity and metabolic syndrome. Her PhD project, supervised by Professor Julie Pasco, Dr Mark Kotowicz, Dr Kara Holloway and Dr Mohammadreza Mohebbi, is focusing on diabetes and pre-diabetes in female participants of the Geelong Osteoporosis Study. She will be describing the epidemiology of diabetes and pre-diabetes in the Barwon Statistical Division. In addition, she will also be determining risk factors for developing diabetes as well as investigating associations between dysglycaemia, fractures and mortality.



Bone material strength index: a new method for determining the material properties of bone

Pamela Rufus

As people get older, their bones become weaker and more susceptible to fracture. Current techniques used for estimating the strength of the bone usually involve assessing bone mineral density (BMD). However, BMD measurements alone do not elucidate risk of fracture because the largest absolute number of osteoporotic fractures occurs in people with a moderate reduction in bone mass (osteopenia). Several other clinical factors such as genetics, history of fracture, cardiovascular diseases, smoking, obesity, alcohol consumption, muscle mass, physical activity and medications (such as glucocorticoids) can also contribute independently to the risk of fracture. Consequently, there is a need to directly assess the ability of the bone to resist fracture.

Pamela's project involves the use of a device known as OsteoProbe®. It is a novel, hand-held device designed for clinical measurements of bone material properties in situ. The OsteoProbe® quantifies the ability of the bone to resist the growth of cracks giving a score called the Bone Material Strength Index (BMSi). This material property of the bone, which is a component of bone quality, should be useful for determining bone strength and ability to resist fracture.

Pamela will be measuring BMSi in a cohort of men as part of their 15-year follow-up assessment. Age-specific reference ranges for BMSi for men will be generated and correlations between the BMSi and other indices of bone quality and strength will be quantified. The relationships between the BMSi, health behaviours, socio-demographics and fracture risk will also be explored.



Maternal and infant gut health

Samantha Dawson



Samantha is a third year PhD student exploring the relationship between prenatal diet quality and maternal and infant gut health. A healthy diet during pregnancy is recommended for maternal health and infant development. However, many women find it difficult to meet the dietary guidelines during pregnancy. Gut microbiota offer a new dimension to health, and are shaped by diet. Recent studies indicate that early life gut health is important for brain and immune system development, therefore a perfect time to act is during the early life period, including pregnancy.

One of Samantha's PhD hypotheses is that an educational dietary intervention delivered during pregnancy will alter the gut microbiota of mothers and their infants. She is concluding a randomised controlled trial to test this hypothesis. The results from her trial, named the 'Healthy Parents, Healthy Kids study', may be relevant for future interventions aiming to target and modify microbiota as a potential risk factor for non-communicable diseases.

Samantha is based at the Murdoch Children's Research Institute in Melbourne and hosted within the Early Life Epigenetics group.



Acute health service utilization in diabetes mellitus: a project in Western Victoria

M. Amber Sajjad

Diabetes mellitus represents a significant population health challenge. Despite being a Primary Care Sensitive Condition, many people with diabetes present to Emergency Departments and hospitals. The determinants of acute care use in diabetes are poorly understood and this doctoral project aims to address this knowledge gap.

Initially, we aim to determine diabetes-related hospitalisation rates in western Victoria and investigate their association with socio-demographic indicators. A manuscript describing population profile and methodology has been published. Furthermore, data from the Geelong Osteoporosis Study will be used to identify predictors of hospitalisation in dysglycaemia and diabetes. Finally, we will highlight patients' perspective on enablers/barriers to optimal diabetes management. For this purpose, semi-structured interviews of patients admitted to University Hospital Geelong with a known diabetes complication are underway. This project is significant in that it will identify target areas for interventions to reduce diabetes-related acute health service utilisation in Australia.



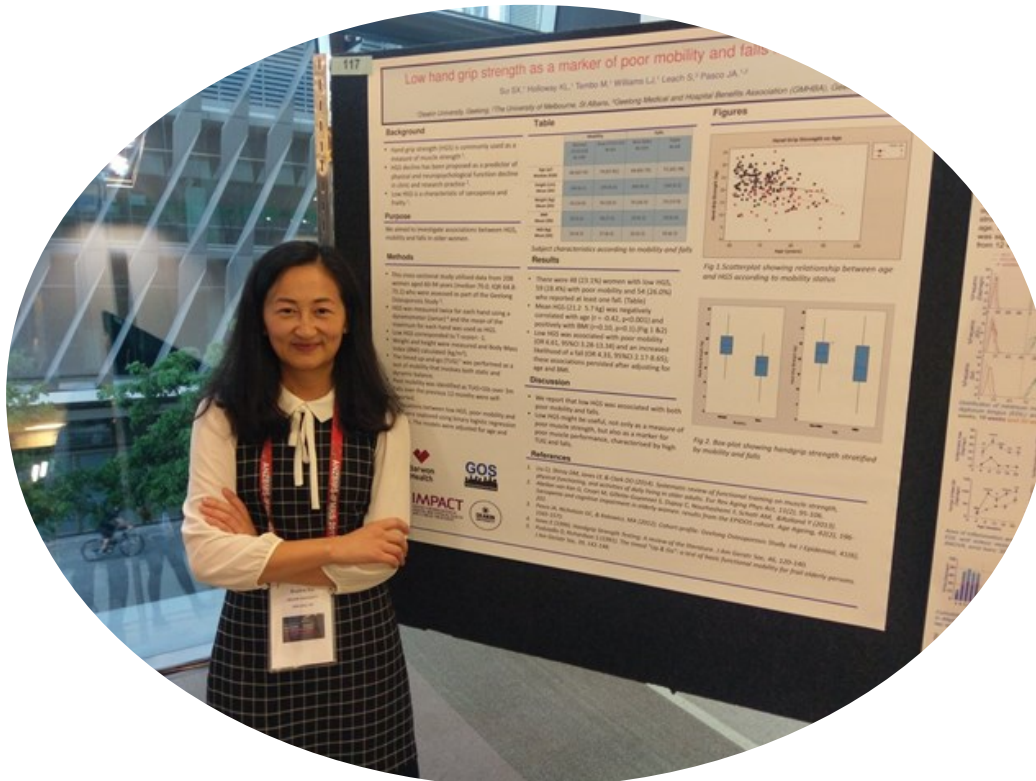
Muscle power and brain power: opportunities for delaying dementia

Sophia Xin Sui

The overall aim of Sophia's project is to examine the association between sarcopenia and cognitive impairment using data generated from a prospective cohort study of men and women, known as the Geelong Osteoporosis Study (GOS).

She will utilise existing data and generate new data from the current follow-up phase. Cognition is tested using MMSE and CogState. A diagnosis of dementia/Alzheimer's Disease for study participants will be identified from medical histories and by linkage with the Geriatric Medical Centre in Geelong. Body composition is measured using dual energy x-ray absorptiometry, physical function using tests of balance, performance and gait, and muscle strength, power and endurance, using a dynamometer.

In 2017 she completed her confirmation and attended the Australian and New Zealand Bone and Mineral Society (ANZBMS) conference in Brisbane with a poster entitled "Low hand grip strength as a marker of poor mobility and falls in older women".



Mangosteen pericarp as an adjunctive treatment for bipolar depression

Melanie Ashton



Melanie has a particular interest in bipolar disorder and the need for better treatment for the depressive phase of the illness. Therefore, for her PhD, she is trialing a new natural fruit supplement to be taken in addition to current treatments. The supplement is made from the husk, or pericarp of the *Garcinia mangostana* Linn. (commonly known as mangosteen) fruit. The pericarp contains bioactive molecules which have antioxidant, anti-inflammatory and neuroprotective properties which will hopefully target some of the changes occurring in bipolar depression. Melanie aims to recruit 150 participants for the 24-week randomised placebo-controlled trial. The study will primarily focus on changes in symptoms of depression. The study will also review changes in other secondary outcomes including global psychopathology, substance use, functioning, quality of life, safety and biological data. The study has the potential to improve treatment outcomes for those with bipolar disorder and will hopefully contribute to the understanding of bipolar depression. Recruitment for the study is on-going in Geelong, Queensland and at The Melbourne Clinic in Richmond.

Melanie received the Australasian Society for Bipolar and Depressive Disorders (ASDBDD)/Lundbeck Neuroscience Scholarship to fund the first year of her PhD. She has also received the Australian Rotary Health - Ian Parker Bipolar Research Fund PhD Scholarship for Bipolar Depressive Disorder Research. Finally, Melanie has also received travel funding for an international conference from the CRC for mental health.



Cost-effectiveness evaluations of bipolar disorder and schizophrenia treatments supporting redesign of the Australian Mental Health System

Mary Lou Chatterton

This project will apply a high-quality consistent approach to the economic assessment of evidence-based interventions for the treatment of bipolar disorder and schizophrenia that will inform a model mental health service system in Australia to optimally reduce the burden of these serious mental disorders. This research will, for the first time, provide information to Australian decision makers on the cost-effectiveness of the full spectrum of treatment interventions for bipolar disorder including psychosocial therapies and electroconvulsive therapy in addition to medications using common economic and priority setting methodologies. It will also provide new and important information on the cost-effectiveness of evidence-based early intervention and treatment interventions for schizophrenia. Mary Lou also contributes health economic expertise to the suite of studies within IMPACT.



Mental health and its association with cancer risk and mortality

Stephanie Cowdery

The overall objective of Stephanie's study is to determine the correlation between disturbances in mental health and cancer risk, mortality and associated mechanisms, utilising data from three population based studies: The Ageing, Chronic Disease and Injury (ACDI) study, the Geelong Osteoporosis Study (GOS), and the Nord-Trøndelag Health (HUNT) Study in Norway.

This study will examine psychological symptomology, quality of life measures, blood samples, and demographic, and medical and lifestyle factors collected from participants. Data will then be linked to several local, regional and national registers in order to further examine the incidence and mortality of cancer diagnoses and the presence of psychopathology for men and women in these regions.

Outcomes from this study could potentially assist the integration of treatment approaches, and monitoring the comorbidity of mental and physical illnesses is likely to improve disease course and outcome as well as enhance patients' functional and health status, potentially reducing healthcare utilisation.

Online dietary intervention targeting gut health for the treatment of depression – a feasibility study

Claire Young



Claire commenced her PhD in Nutritional Psychiatry in 2017 which will explore the feasibility of an online dietary intervention targeting gut health for the treatment of depression. The field of nutritional psychiatry is an emerging field in mental health research examining the role of diet in mental health and disease. There is a rapidly growing body of evidence from this field documenting associations between diet and mental health, and supporting dietary improvement as a means of preventing and treating depression. This evidence includes the world's first randomised control trial, led by Professor Felice Jacka of the Food & Mood Centre within the IMPACT SRC, that showed diet improvement can achieve remission of symptoms of depression.

Claire's PhD will build on this study by developing a dietary intervention that is delivered online and test the feasibility of this mode of delivery for people with depression. She will investigate how to best engage participants in this kind of intervention and motivate them to adhere to dietary change. The results from this trial should help us to develop online interventions that reach a large number of participants in order to further understand the effects of dietary change on depression.

Developing an understanding of musculo-skeletal conditions in relation to frailty

Monica Tembo



Frailty is a multifaceted syndrome characterised by age related decline in functional reserves across a range of physiological systems. It is not only a burden to the individuals but also to the health system in Australia as its effects can lead to fractures, disability, hospitalisation, falls and institutionalisation. With the increase in the aged population in Australia, it is vital to identify elderly people that are at risk of developing this condition. Currently there are numerous assessment tools that have been developed and used, yet there is no consensus on its definition and no gold standard diagnostic assessment tool.

Monica's project aims to use existing frailty assessment tools to identify men and women who meet criteria for frailty as well as examine the association of frailty-related conditions and acute care. She will also develop a novel risk factor profile which will be used to determine the contribution of musculoskeletal factors to frailty. This study will utilise data from a longitudinal cohort study known as Geelong Osteoporosis Study including men and women. The data gathered from this project will assist in advancing a universally accepted definition of frailty and develop a better understanding of the contribution of musculoskeletal conditions to frailty.





A randomised control study of A2 milk vs standard commercial dairy products in middle aged women

Hajara Aslam

Hajara is a first year PhD candidate, studying the impact of milk metabolites on gut and bone health. Milk consumption is under scrutiny due to its reported links to negative health outcomes. The bio active peptide beta-casomorphin-7 (BCM-7), is derived from A1 beta-casein available in milk. It is characterized as a μ -opioid peptide receptor ligand, formed under normal gut conditions. The presence of μ -opioid receptors in gut and bone, allow the opioid peptides to bind to them and impose regulatory effects to their routine function, which may be deleterious.

Most commercial dairy products, consist a mixture of A1 and A2-beta casein and upon consumption produces BCM-7 which elicits a physiological response in individuals. Gastrointestinal dysfunction and bone fragility is suspected to be a consequence of consuming A1-beta casein. The study aims to understand whether 24-week milk consumption of A2 milk products have differential impacts on gut endpoints and bone quality in women who are regular dairy consumers, compared to standard dairy product consumption.

Exploring the perceived enablers and barriers for healthy food choices in parents

Sara Campolngi



The burden of obesity and NCD related to unhealthy eating are alarming and increasing worldwide, both in adults and children. The first years of life are a critical period in which eating habits are first established, and contribute to the present and future child's health. Undoubtedly, parents play a fundamental role in creating a unique food environment in the household through their choices, knowledge and behaviours regarding nutrition. Parent's beliefs and attitudes towards food and eating orient their actual preferences and food choices, and influence the way eating and feeding behaviours are expressed and managed in the family. Nonetheless, there is not enough research about parents' personal perspective as individuals on this matter.

With a mixed method approach, Sara's PhD project will aim to explore the perceived enablers and barriers for healthy eating from the mother's and father's perspective (as individuals and as a couple) to better understand their food management and choices as a family, and inform future effective and focused interventions and public health policies.

Serotonin and bone metabolism

Jasmine Cleminson



Serotonin is a neurotransmitter synthesised by brainstem neurons, but predominantly by enterochromaffin cells of the duodenum. Gut-derived serotonin is released into the general circulation where most is taken up by platelets and the remainder acts as a circulating hormone throughout peripheral tissues. Detection of serotonin receptors and a functional transporter (5-HTT) in bone cells may be indicative of a direct action in bone homeostasis.

In human studies, the nature and extent of relationships between serotonin, gut processes and bone metabolism is unknown. However, selective serotonin re-uptake inhibitors (SSRIs), a class of antidepressants with strong binding affinities for serotonin, have been shown to have a clinically significant impact on bone metabolism and, in turn, increase fracture risk.

With the overarching aim of developing a better understanding of the effects of serotonin on bone, we aim to illuminate associations between peripheral-serotonin, diet, gut-health, depression, antidepressant use and bone metabolism. Investigations will utilise data from a comprehensive fracture study (PROFRAC) and the Geelong Osteoporosis Study (GOS), a large population based study of over 3000 men and women. In parallel, human bone cells, osteoblasts and osteoclasts, will be differentiated from adipose-tissue derived mesenchymal stem cells and umbilical-cord blood mononuclear cells, respectively, to investigate the mechanism and role of serotonin in bone cell formation and function.



Personality disorder as a moderator of psychiatric clinical outcomes

Bianca Kavanagh

Personality disorders are a global health problem and present significant disease burden on the individual and wider community. Individuals with personality disorders often have comorbid mental state disorders, and this comorbidity is associated with a greater level of disability and poorer outcomes. Despite the high level of comorbidity reported among personality and mental state disorders, personality disorders are often neglected in clinical and research settings. Moreover, literature

examining the potential covert role of personality disorder in relation to prognosis and treatment outcomes of mental state disorders is still in its infancy.

The aim of this project is to investigate whether personality disorder moderates clinical and epidemiological outcomes in mental state disorders. First, personality disorder will be examined in relation to clinical outcomes (i.e. treatment response, withdrawal rates, adverse events, functioning, and quality of life) in the context of double-blind, randomised, placebo-controlled trials assessing the efficacy of novel therapies for depression, schizophrenia and bipolar disorders. In parallel to this, personality disorder will be investigated within the community, utilising personality and mental health data from the ongoing Geelong Osteoporosis Study. Taken together these results will be translatable to clinical and epidemiological research and to broader clinical treatment.

Bipolar disorder and bone health

Vinoomika Chandrasekaran



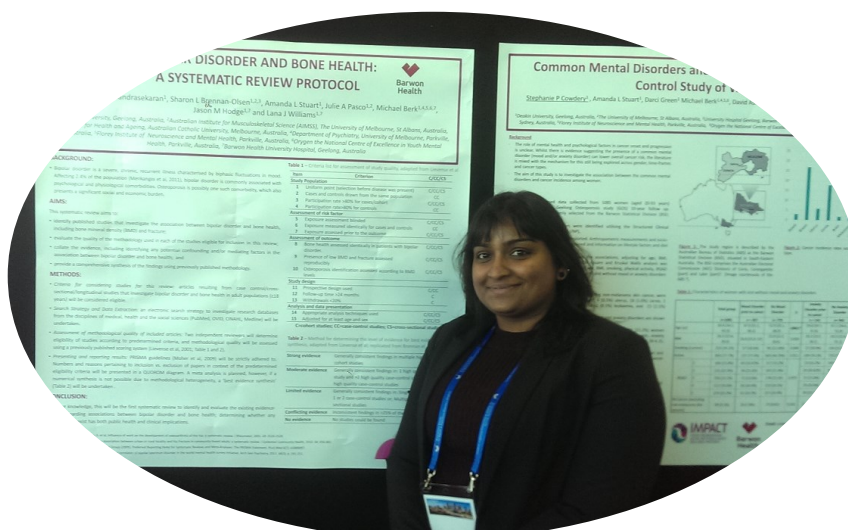
Bipolar Disorder (BD) is a severe, lifelong mental illness, characterised by biphasic fluctuations in mood. Affecting 2.4% of the global population, it has been ranked the sixth leading cause of disability in the world, amongst individuals aged 15-44 years. Psychological and/or physiological comorbidities are a common consequence of BD, and Osteoporosis is one such possible comorbidity. Osteoporosis is an osteodegenerative disease which is asymptomatic until a fracture occurs. Osteoporosis is also a growing public health concern, mainly affecting older adults; 45% of women and 26% of men aged 60 and over, according to one Australian study.

Several studies have now shown osteoporosis is a common consequence of unipolar depression, often exacerbated by the intake of selective serotonin reuptake inhibitors (SSRIs). Data from a pilot study conducted within IMPACT SRC has shown that BD possibly has an even more pronounced effect on bone loss. Considering the chronic nature of both osteoporosis and bipolar disorder, it is crucial that this association is studied, and a clearer understanding provided, for which Vinoomika's study would essentially be a starting point.

Vinoomika has published a paper titled "Association between bipolar spectrum disorder and bone health: a meta-analysis and systematic review protocol", and is currently conducting a systematic review to evaluate the methodological quality of existing studies, and to consolidate the existing literature in this field of study into a best evidence synthesis.

Due to their efficiency in treating mania, mood stabilisers have been a popular choice in BD treatment. To understand the effects of BD and mood stabilisers on bone independently; while also trying to explain how they interact to contribute to the poor bone health seen in individuals with BD, epidemiological and laboratory studies will also be conducted.

Taken together, the findings of Vinoomika's work will contribute to existing literature investigating other psychiatric disorders and bone health, and will also provide an evidence-base on which resource allocation and clinical and public health strategies aimed at reducing burden associated with both osteoporosis and bipolar disorder can be founded.





MICRO-SCOPE

Amelia McGuinness

Amelia McGuinness is a PhD student within the School of Medicine at Deakin University, Australia. She has a Graduate Diploma of Human Nutrition, a Bachelor of Health and Medical Science (Honours) and a Bachelor of Biomedical Science.

Amelia's PhD research is focusing on how the commensal bacteria that live symbiotically within our gastrointestinal system, collectively known as the 'gut microbiota', are able to potentially influence our mental health and behaviour via the 'gut-brain axis'. In particular, she will be observing the associations between environmental and behavioural exposures, such as poor diet, smoking, sedentary behaviour and sleep disturbances, and their possible role in causing deleterious microbiota alterations. Amelia is predominantly interested in the influence of the diet on the gut microbiome and the subsequent association with mental health outcomes, such as anxiety and depression.

The aim of Amelia's PhD study – MICRO-SCOPE – is to determine the association between health behaviours and exposures in adults, in particular their diet, and mental health symptoms via the identification of compositional differences in the gut microbiota, such as abundance and diversity.

She hopes that these data will inform and support future studies to develop novel prevention strategies and treatments for mental disorders, particularly anxiety and depression, via manipulation of the gut microbiota through diet, pre- and probiotics, and targeted antibiotic therapies using specific cocktails of select bacteria.

COMMUNITY ENGAGEMENT

COMMUNITY AND RESEARCH NETWORK (CARN)



During 2017, IMPACT has continued to engage the community to ensure that the research conducted at the SRC is relevant to those people it aims to help. Much of this engagement was facilitated by the Community And Research Network (CARN); established by IMPACT SRC in previous years and currently chaired by Dr Adam Walker. The CARN is a network of health professionals, health consumers, researchers and interested community members, seeking to share their expertise and experience to promote good health and wellbeing for the community of Geelong.

CARN's membership is broad and spans across research groups, health providers, community organisations and consumers. Current member organisations include Deakin University, Barwon Health, Karingal, The City of Greater Geelong, Beyondblue, Wathaurong Aboriginal Co-operative, The Anxious Bird, This is my Reality, Gordon TAFE, and more recently the Geelong Music Community Collective, NDIS and GMHBA.

The CARN network provides a vehicle for members to interact with each other, and further both community and research activities, both face-to-face and in the online space. Over the course of the year, IMPACT SRC has continued to employ social media platforms such as Twitter (@IMPACTSRC; #HaveAnIMPACT), and the CARN Facebook page to share news, events, and research that may be of interest to the community.

Fostering Citizen Science

Toward the end of 2016, IMPACT SRC began efforts to foster citizen science. Citizen science is the collection and analysis of scientific research data by community members, who work alongside a team of professional scientists. Over the course of 2017, IMPACT SRC in affiliation with CARN, has advanced this directive in a number of ways. For example, network member access was organised for a research training program run by Barwon Health's REGI unit, with exceptional feedback from those that attended. Additionally, new 'Ask a Researcher' section has been introduced to the quarterly CARN newsletter, focused on informing network members about developing their own research questions and conducting effective scientific research.

New Network Members Supporting Researchers

The Geelong Music Community Collective (GMCC), are new additions to the CARN network this year. Led by local Geelong musicians including Stuart Caldwell, these talented local artists held several gigs in 2017, many inspired by the loss of musical greats (Chris Cornell, Chester Bennington, Malcolm Young and David Bowie). The proceeds of these events have funded the GMCC-IMPACT Student Research Awards. The first two recipients, IMPACT SRC PhD candidates Bianca Kavanagh and Jasmine Cleminson both recently used their awarded funds to present their research data at the Society for Mental Health Research (SMHR) conference at the beginning of December. This GMCC-IMPACT partnership is expected to continue on in 2018, with several themed events already planned. Moreover, the next award is expected to facilitate travel to an international conference for mental health research.



World Bipolar Day – Questions Unanswered?

Annually, March 30 is World Bipolar Day, an event aiming to raise awareness of bipolar disorders and eliminate the social stigma that so often surrounds mental illness. This year Deakin University's IMPACT SRC, partnered with CARN, Barwon Health, and Geelong Regional Libraries, to hold a free community forum to help build knowledge about the disorder. With over 100 attendees, the event was sold out. There were many great questions from the audience, and some fantastic discussion from panelists Daniel Taylor, Prof Michael Berk and Darren Riggon.





IMPACT Trivia Night – Stigma versus Superstition

In 2017, Mental Health Week spanned October 8th – 14th. On Friday the 13th, IMPACT SRC in affiliation with CARN held their annual Mental Health Week Trivia Night, aimed at bringing together members of the community to promote a discussion about mental health and wellbeing, and raise awareness. With 135 attendees the night was overall a resounding success, raising over \$2,000 for the Ian Parker Bipolar Research Fund.

The event, held at local community venue the Thomson Cricket Club, featured forewords from Carol Smit, who discussed her brother and his mental health, and why she set up the Ian Parker Bipolar Research Fund. Trivia host Darcie Cooper delivered great questions on the topic of mental health and the theme of the evening (Stigma versus Superstition). GMCC's Tayla Meddings provided live music for the evening.

The event was generously supported by over twenty local organisations and businesses, including: Barwon Health, The Geelong Clinic, Deakin University, Thomson Cricket Club, The Workers Club, The GMCC, Derrimut's Gym, Kylie J Pole Studio, Rixons, Ella Bache, Ebb & Flow Wellness Studio, Little Creatures, Son of an Elk, Pizza Religion, Nutrimerics, Party Werks, Pier Vier Lolly Shop, Edge, Enough Co., The Pivotonian Cinema, GAWS, Centra and By Emma Louise; who donated time, prizes and funds on the evening.

COMMUNITY ENGAGEMENT

EVENTS

World Bipolar Day. March 30, 2017.	30 th March 2017 – “Questions unanswered”.
Chris Cornell Tribute and Awareness Night. June 18, 2017.	Raising funds for the inaugural Geelong Music Community Collective (GMCC) Student Travel Award.
NuMetal Tribute and Awareness Night. August 06, 2017.	Raising funds for the second GMCC Student Travel Award.
Geelong Community Mental Health Speakers Program August 12, 2017.	“Novel therapies at IMPACT trials” – SalvoConnect Geelong and Live Streamed on Facebook (Geelong Community Mental Health Speakers page).
Keep Calm and Rock On: The Best of Britain Tribute and Awareness Night September 24, 2017.	Raising funds for the GMCC Student Travel Scholarship.
Trivia Night October 13, 2017.	Raising funds for the Ian Parker Bipolar Research Fund.
The Forgotten 90's Tribute and Awareness Night November 19, 2017.	Raising funds for the GMCC Student Travel Scholarship.
Bowie In Space Tribute and Awareness Night December 17, 2017.	Raising funds for the GMCC Student Travel Scholarship.

SELECTED MEDIA

Prevention Magazine.	Article re: food and mood.
Geelong Advertiser. January 13, 2017.	Health literacy is the key.
Geelong Advertiser. January 24, 2017.	Bones hold secret to longer life.
Herald Sun. January 31, 2017.	Eat blues away.
Adelaide Advertiser. January 31, 2017.	Feed Black Dog mood food.
Townsville Bulletin. January 31, 2017.	Healthy diet can keep Black Dog at bay.
Courier Mail Brisbane. January 31, 2017.	Good diet cures blues.
Geelong Advertiser. January 31, 2017.	Healthier diet eases blues.
National radio & TV throughout 2017.	Interviews and grabs re: food and mood. Mediterranean diet can help people suffering from depression.
Deakin Invenio. October 11, 2017.	Funding boost for malaria and mental health research.
Geelong Advertiser. October 12, 2017.	Deakin University researchers receive National Health and Medical Research Council fellowship.

COMMUNITY ENGAGEMENT

SELECTED MEDIA

ABC Midday Program (TV). July 07, 2017.	Minocycline and depression preliminary RCT and mangosteen BD.
Geelong Advertiser. July 08, 2017.	Acne drug for depression.
Medscape. July 12, 2017.	Antibiotic shows promise for major depression.
MDLinx (Rheumatology). September 06, 2017.	Maternal vitamin D and offspring trabecular bone score.
Geelong Advertiser. September 28, 2017.	Study unlocking secrets of osteoporosis.
Deakin Invenio and Deakin Showcase. October 05, 2017.	Sixties lifestyle sets stage for healthy ageing.
Geelong Advertiser. October 06, 2017.	Healthy approach to ageing.
LinkedIn - Connections In The News. October 11, 2017.	Sixties lifestyle sets stage for healthy ageing.
Geelong Advertiser. October 12, 2017.	Deakin University researchers receive National Health and Medical Research Council fellowship.
Deakin Showcase. November 2017.	Fracture risk in diabetes not all about bone density.
Geelong Advertiser. November 10, 2017.	New test uncovers diabetes bone risk.
The Limbic. November 14, 2017.	Fracture risk in diabetes not all about bone density.
3AW Neil Mitchell radio interview. November 16, 2017.	Food and Mood.
Geelong Advertiser. November 21, 2017.	Mangosteen's ripe with possibilities.
Barwon Health e-Newsletter. November 30, 2017.	Photos of IMPACT researchers during Barwon Health-Deakin Research Week.
Pulse Radio 94.7fm. December 08, 2017.	Pretirees and The Geelong Osteoporosis Study.
Deakin media release. December 18, 2017.	Study of Western Vic shows rural residents most at risk of hip fracture.
Border Watch, Mt Gambier, South Australia. December 19, 2017.	Deakin University study reveals nation's greatest hip fracture risk.
Wimmera Mail Times, Horsham, Vic. December 20, 2017.	Increased risk of fractures.

CURRENT FUNDING 2017

NHMRC Established Career Fellowship (APP1059660). Novel therapies, risk pathways and prevention of mood disorders. Berk M. (GNT1064272). \$822,925. 2014-2018.

NHMRC Career Development Fellowship (APP1064272). Psychiatric disorders, psychotropic agents and bone health: From bench top to bedside. Williams L. \$404,884. 2014-2018.

NHMRC Project Grant (APP1078928). Gene expression signature technology to repurpose drugs for bipolar disorder. Walder K, Berk M, Leboyer M. \$467,203. 2015-2017.

NHMRC Project Grant (APP1081901). ASPREE-D; Aspirin in the prevention of depression in the elderly. CIA: Berk M, McNeil J, Neilson M, Shah R, Woods R, Mohebibi M. \$767,593. 2015-2018.

NHMRC Project Grant (APP1121510). The efficacy of adjunctive *Garcinia mangostana* Linn. pericarp for bipolar depression: A 24-week double-blind, randomized, placebo-controlled trial. Dean OM, Berk M, Ng C, Dodd S, Hopwood M, Turner A, Jacka FN. \$1,227,271.60 over 4 years 2017-2020.

NHMRC Project Grant (APP1027315). Proof of principle of the inflammatory and oxidative theory of depression: A treatment study. Berk M, Channen A, Harrigan S, Davey C, Hetrick S, Dean OM, Dodd S. \$1,475,510.00 over 5 years. 2012-2017.

NHMRC Project Grant (APP1104438). Bone health in bipolar disorder. Williams LJ, Pasco JA, Maes M, Hodge J, Brennan-Olsen SL. \$329,033.60. 2016-2018.

NHMRC project grant (APP1125778). The efficacy of N-acetylcysteine as an adjunctive treatment for first episode psychosis. Cotton S, Dodd S, Wood S, Allott K, Bartholomeusz C, Bortolasci C, O'Donoghue B, Ratheesh A. Partner led grant. \$2,143,069.40. 1/1/2017 to 31/12/2021.

NHMRC project grant (APP1103242). Obesity, pre-diabetes and future risk of diabetes. Maximising the evidence, minimizing the cost. Huxley RR, Pandeya N, Mishra G, Magliano D, Cologriuri S, Veerman L, Pasco JA, Lee CMY. \$470,135.50. 2016-2018.

NHMRC Project Grant (APP1128147). The N-ICE trial: A randomised controlled trial of the safety and efficacy of N-Acetyl Cysteine (NAC) as a pharmacotherapy for methamphetamine ("ice") dependence. McKetin R, Dean OM, Lubman D, Dietze P, Higgs P, Kelly P, Turner A, Quinn B, Carter G. \$1,610,722.40 over 3 years 2017-2019.

NHMRC Project Grant (APP1125429). Healthy living after stroke: An online intervention for improving stroke survivor health behaviours and quality of life. Bonevski B, Spratt N, Pollack M, Baker A, Magin P, Turner A, Oldmeadow C, Collins C, Callister R. \$590,95824. 2017-2019.

NHMRC Career Development Fellowship R.D. Wright Biomedical (CDF Level 2). Integrated exploration of novel therapies for depression. Dean OM. \$476,728.

NHMRC Career Development Fellowship (2) (#1108125) Diet and mental health: translating new knowledge into innovative prevention and treatment strategies. Jacka FN.

CURRENT FUNDING 2017

Alfred Deakin Post-doctoral Research Fellowships. Holloway K, Fernandes B, post-doctoral research fellows. (\$78,146 in 2016, \$80,967 in 2017, \$10,000 project funding).

Australian Respiratory Council Harry Windsor grant scheme. Can we reduce tobacco smoking using N-acetylcysteine as a cessation treatment? Berk M, Dodd S, Dean O. \$50,000. Awarded December 23, 2016.

Stanley Medical Research Institute (#14T-007). The efficacy of adjunctive *Garcinia mangostana* Linn (mangosteen) pericarp for the treatment of Schizophrenia: A double-blind, randomized, placebo-controlled trial. Berk M, McGrath J, Dean O, Dodd S, Cotton S. US\$899,398. 3 years. 2015-2017.

Grant Development of icare4depression, a psychoeducation website for close family/friends of adults with major depressive disorder. Berk L. \$30,000. 2017-2018.

Central Research Grants Scheme – Deakin University. Project grant. Exploring the bioactive compounds and mechanisms of action in mangosteen pericarp. Investigators – Dean O, Barrow C, Pfeffer F, Walder K, Berk M, Conlan X, Dodd S. \$29,000. 2016.

Avant Quality Improvement Grant Program – Practitioner. Berk M. \$10,000. Awarded December 21, 2016.

A2 Dairy Company. A randomised controlled trial of A2 vs conventional dairy in Australian women. CI Jacka FN. AU \$700,000 (approx). 2017-2020.

ARC Research Hub for Digital Enhanced Living IH170100013 Prof John Grundy 2017-2021 . The Hub involves 11 Deakin University staff including Professor Grundy. These include: Professors Venkatesh S, Moutzakis k, Hutchinson A, Berk m, Maddison R, Kouzani A, Vasa R, Yearwood J, Wickramasinghe N and Associate Professor Phung D. \$2,962,655 over 5 years.

Deakin University. Small research infrastructure allocation. Dean OM. \$88.00.

Alfred Deakin Post-doctoral Research Fellowships. Anu Ruusunen, post-doctoral research fellow. (Level A, Step 6 of 8 - \$80,490 per annum, commenced July 2017).

Stroke Association of Victoria, The stay at work initiative. Turner A, Smith H, Glascodin M, Stephens C. \$100,000 AMP Employment Boost 2017-2019.

Defence Health Foundation Grants for Medical Research. A trial of N-acetylcysteine for Post-Traumatic Stress Disorder that hasn't improved with normal treatment. Booster grant for 3 years. Kanaan R, Berk M, Back S, Redston S. \$192,816. 2017-2020.

Fernwood Gyms Sponsorship. Postdoctoral Research Fellow and associated support. Jacka FN. AUD\$509,770. 2017-2020.

INTERNAL IMPACT SRC GRANTS 2017

Seed Funding Grant – IMPACT SRC. GOS Microbiome. Funding for staff salary. Jacka FN. \$10,000.

Seed Funding Grant – IMPACT SRC. Investigating consumer needs and preferences for technology-supported self-management approaches to bipolar disorder. Investigator: Gliddon E. \$5,000.

Seed Funding Grant – IMPACT SRC. Bone material strength index (BMSi) assessed using OsteoProbe®. Funding to cover the biochemistry costs. Holloway K. \$18,855.69.

Seed Funding Grant – IMPACT SRC. The association between bone material strength index (BMSi) assessed using OsteoProbe and blood levels of Calcium, Phosphate and Magnesium. Funding for calcium, Phosphate and Magnesium blood biochemistry - GOS. Holloway K. \$8,000.

Seed Funding Grant – IMPACT SRC. An Online Dietary Intervention targeting Gut Health for Improvement of Depressive Symptoms: A Feasibility Study. Funding for Website Development, artwork, Domain Registration, Recruitment - Online Advertising. Jacka FN. \$8,000.

Seed Funding Grant – IMPACT SRC. The development of MyOwnApp for adults with bipolar disorder. Funding for Casual Research Fellow Grade 25 hours a week for 16 weeks. Berk L. \$11,399.

Seed Funding Grant – IMPACT SRC. Improving data acquisition and bio-specimen storage. Funding for Data linkage, Food frequency questionnaire computer-read analyses, Bio-specimen storage. Pasco JA. \$19,388.

Seed Funding Grant – IMPACT SRC. Investigating consumer needs and preferences for technology-supported self-management approaches to bipolar disorder. Funding for Participant re-imburement, advertising. Gliddon E. \$6,874.

Seed Funding Grant – IMPACT SRC. Identification of incident fractures – a vital parameter in musculo-skeletal research. Funding for staff salary. Pasco JA. \$8,867.

AWARDS 2017

Dr Lesley Berk, post-doctoral research fellow—awarded the ASBDD award. \$30,000.

Dr Olivia Dean — nominated for 2017 Women in Community Life, City of Greater Geelong.

Dr Sarah Hosking — international award: 2017 ESCCEO-IOF UCB Fellowship.

Pamela Rufus — co-winner of 3-minute thesis (3MT) competition for School of Medicine (and 3rd place at Faculty level).

Melanie Ashton — Best Student Presentation – The School of Medicine Postgraduate Research Symposium, Deakin University, Waurn Ponds.

Melanie Ashton — World Federation of Societies of Biological Psychiatry (WFSBP) Young Investigator Award 2017, EUR 400 travel grant.

Melanie Ashton — PDG Geoff Betts and Betty Betts Early Mental Health Research Award.

Student Associate of Cooperative Research Centre for Mental Health. \$5,000 conference travel.

INTERNATIONAL COLLABORATIONS WITH IMPACT SRC

Stanford University, Stanford, CA, USA.	Harvard Medical School, Cambridge, MA, USA.
Loyola University Chicago, Maywood, IL, USA.	Northwest University, Kirkland, Washington, USA.
Edward Hines Jr VA Hospital, Hines, IL, USA.	University of Cambridge, Cambridge, UK.
University of Oxford, Oxford, UK.	University of Glasgow, Scotland, UK.
University College Cork, Cork, Ireland.	University of Southern Denmark, Odense M, Denmark.
Norwegian Institute of Public Health, Nydalen, Oslo.	University of Copenhagen, København, Denmark and Beijing Genomics Institute, Shenzhen, China [collaboration].
University of Eastern Finland, Joensuu, Finland.	Norwegian University of Science and Technology, Trondheim, Norway.
University of Bergen, Bergen, Norway.	Lausanne University Hospital, Lausanne, Switzerland.
Université Paris-EST, Paris, France.	Autonomous University of Barcelona, Barcelona, Spain.
University of Barcelona, Barcelona, Spain.	Universidad Complutense, Madrid, Spain.
University of Cantabria, Santander, Spain.	Hospital Santa Maria, Lisbon, Portugal.
University of Lisbon, Lisbon, Portugal.	University of Toronto, Ontario, Canada.
University of Manitoba, Winnipeg, Canada.	Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil.
McGill University, Montreal, Quebec, Canada.	Universidad de Antioquia, Medellín, Colombia.
Universidade Estadual de Londrina, Paraná, Brazil.	Shiraz University of Medical Sciences, Shiraz, Iran.
University of Minnesota Medical School, Minneapolis, United States.	Chulalongkorn University, Bangkok, Thailand.
Mayo Clinic Depression Center, Mayo Clinic, Rochester, United States.	Karolinska Institutet, Stockholm, Sweden.
University of British Columbia, BC, Canada.	King's College, London.
Auckland University of Technology, Auckland, New Zealand.	University of Otago – Christchurch, New Zealand.
North West University, Potchefstroom, 2520, South Africa.	Technische Universität Dresden, Germany.
Aarhus University Hospital, Risskov, Denmark.	Chonnam National University Medical School, Gwangju, Republic of Korea.
University of British Columbia, BC, Canada.	NYU Medical Center, New York, NY.

NATIONAL COLLABORATIONS WITH IMPACT SRC

The University of Melbourne, Parkville, Victoria.	Australian Catholic University, Melbourne, Victoria.
The University of Sydney, Camperdown, New South Wales.	The University of Western Australia, Nedlands, Western Australia.
Monash University, Clayton, Victoria.	The University of Queensland, St Lucia, Queensland.
University of New South Wales, Sydney, New South Wales.	James Cook University, Townsville, Queensland.
Queensland University of Technology, Brisbane, Queensland.	University of Queensland Diamantina Institute, Woolloongabba, Queensland.
Australian National University, Canberra, Australian Capital Territory.	Curtin University, Canberra, Australian Capital Territory.
Orygen, The National Centre of Excellence in Youth Mental Health, Parkville, Victoria.	Florey Institute of Neuroscience and Mental Health, Melbourne, Victoria.
Murdoch Children's Research Institute, Parkville, Victoria.	The Brain and Mind Research Institute, Sydney, New South Wales.
Menzies Research Institute, Hobart, Tasmania.	The Black Dog Institute, Sydney, New South Wales.
QIMR Berghofer Medical Research Institute, Brisbane, Queensland.	The Australian Institute for Musculoskeletal Sciences, Melbourne, Victoria.
University Hospital Geelong, Barwon Health, Geelong, Victoria.	Sir Charles Gairdner Hospital, Nedlands, Western Australia.
Royal North Shore Hospital, New South Wales.	Albert Road Clinic, Melbourne, Victoria.
The CADE clinic, Sydney, New South Wales.	The Melbourne Clinic, Richmond, Victoria.
City of Greater Geelong, Geelong, Victoria.	Kardinia Health, Geelong, Victoria.
G21 Alliance, Geelong, Victoria.	Community and Research Network (CARN), Geelong, Victoria.

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PUBLICATIONS 2017

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159. McGrath JJ, Berk M. Could lithium in drinking water reduce the incidence of dementia? *JAMA Psychiatry.* 2017;74(10):983-984. doi: 10.1001/jamapsychiatry.2017.2336.
160. Singh AB, Bousman CA. Antidepressant pharmacogenetics. *Am J Psychiatry.* 2017 May 1;174(5):417-418. doi: 10.1176/appi.ajp.2017.17020173. No abstract available.
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162. Lyndon B, Parker G, Morris G, Das P, Outhred T, Hamilton A, Bassett D, Baune BT, Berk M, Boyce P, Mulder R, Singh AB, Malhi GS 2017. 'Is atypical depression simply a typical depression with unusual symptoms?', *Australian and New Zealand Journal of Psychiatry*, vol. 5, no. 9, pp. 868-871.
163. Boyce, P, Lyndon B, Outhred T, Hamilton A, Morris G, Das P, Bassett D, Baune BT, Berk M, Mulder R, Parker G, Singh AB, Malhi GS 2017. 'Priorities in the assessment and management of perinatal mood disorders', *Bipolar Disorders*, 2017;51(11):1082-1084. doi: 10.1177/0004867417727354.
164. Mulder R, Singh AB, Hamilton A, Das P, Outhred T, Morris G, Bassett D, Baune BT, Berk M, Boyce P, Lyndon B, Parker G, Malhi GS. The limitations of using randomised controlled trials as a basis for developing treatment guidelines, evidence-based mental health, Published Online First: 14 July 2017, doi: 10.1136/eb-2017-102701.
165. Singh AB, Baune BT, Hamilton A, Das P, Outhred T, Morris G, Bassett D, Berk M, Boyce P, Lyndon B, Mulder R, Parker G, Malhi GS. Psychotropic pharmacogenetics – Distraction or destiny? *Australian and New Zealand Journal of Psychiatry.* 2017;5(7):665-667.
166. Morris G, Walker AJ, Berk M, Maes M, Puri BK. Cell death pathways: a novel therapeutic approach for neuroscientists. *Mol Neurobiol.* 2017; DOI 10.1007/s12035-017-0793-y.
167. Oberholzer I, Möller M, Holland B, Dean OM, Berk M, Harvey BH. *Garcinia mangostana* Linn displays antidepressant-like and pro-cognitive effects in a genetic animal model of depression: a bio-behavioral study in the Flinders Sensitive Line rat. *Metab Brain Dis.* 2017; doi.org/10.1007/s11011-017-0144-8.
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169. Kavanagh BE, Harvey J T, Mesagno C. Social anxiety mediates the relationship between social connectedness and test anxiety: An exploratory investigation. *Journal of Theoretical Social Psychology.* 2017:60-69. doi: 10.1002/jts5.14.

CONFERENCE PRESENTATIONS 2017

World Congress on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (WCO-IOF-ESCEO-2017). Florence, Italy. March 23-26, 2017.

- Brennan-Olsen SL. Symposia. Practical initiatives to support gender equality in science.
- Brennan-Olsen SL, Hosking SM, Hyde NK. ORALS
- Brennan-Olsen SL, Vogrin S, Kinsella R, Leslie WD, Toombs M, Duque G, Hosking SM, Holloway KL, Doolan BJ, Williams LJ, Page RS, Pasco JA, Quirk SE. Fractures in indigenous compared to non-indigenous populations: A systematic review of rates and aetiology. POSTER
- De Abreu LLF, Holloway KL, Kotowicz MA, Sajjad MA, Pasco JA. FRAX (Aus) scores in women with dysglycaemia. POSTER
- Hyde NK, Hosking SM, Wark JD, Brennan-Olsen SL, Pasco JA. Is there an independent effect of muscle mass and strength on bone measures in school-aged children? The Vitamin D in Pregnancy study. POSTER
- Holloway KL, De Abreu LLF, Kotowicz MA, Sajjad MA, Pasco JA. Trabecular bone score in men with dysglycaemia. POSTER
- Hosking SM, Buchbinder R, Pasco JA, Williams LJ, Brennan-Olsen SL. Associations between health literacy and uptake of osteoporosis prevention lifestyle recommendations in Australian women. POSTER
- Rufus PG, Holloway KL, Diez-Perez A, Kotowicz MA, Brennan-Olsen SL, Pasco JA. Impact microindentation testing of cortical bone using the osteoprobe®: a feasibility study in population-based men. POSTER
- Pasco JA, Holloway KL, Rufus PG, Hyde NK, Williams LJ, Sui SX, Tembo M, Kotowicz MA. Health behaviours associated with sarcopenic obesity. POSTER
- Williams LJ, Stuart AL, Quirk SE, Berk M, Brennan-Olsen SL, Hodge JM, Chandrasekaran V, Cleminson J, Pasco JA. Personality disorders and bone: Data from the Geelong Osteoporosis Study (GOS). POSTER

International Society for Bipolar Disorders conference. Washington DC USA. May 04-07, 2017.

- Gliddon E, Berk L, Lauder S, Cosgrove V, Grimm D, Dodd S, Suppes T, Berk M. The role of discussion forum engagement within an online self-help program for bipolar disorder: Impacts on social support, stigma, quality of life and mood severity.
- Dodd S. Oxidative and inflammatory biomarkers as targets for novel therapies.

Victorian Integrated Cancer Services. Melbourne, Australia. May 11-12, 2017.

- Cowdery SP, Holloway KL, Sajjad MA, Mohebbi M, Kotowicz MA, Livingston PM, Khasraw M, Hakkennes S, Dunning TL, Brumby S, Page RS, Pedler D, Sutherland A, Venkatesh S, Brennan-Olsen SL, Williams LJ, Pasco JA. The impact of age, accessibility, and socioeconomic status on cancer incidence across western Victoria.

ASMR Student Research Symposium. Victoria, Australia. June 01, 2017.

- Chandrasekaran V, Brennan-Olsen SL, Stuart AL, et al. Association between bipolar spectrum disorder and bone health: a meta-analysis and systematic review protocol.

Deakin University School of Medicine Student Symposium. Geelong, Victoria, Australia. June 08, 2017.

- Ashton M. Mangosteen Periacarp for Bipolar Depression.

CONFERENCE PRESENTATIONS 2017

Australian and New Zealand Bone and Mineral Society (ANZBMS). Brisbane, Australia. June 17-21, 2017.

- Anderson K, Holloway KL, Kotowicz MA, Pasco JA. Relationship between lumbar spine BMD and trabecular bone score in men with and without soft tissue artefacts. ORAL
- Brennan-Olsen SL, Vogrin S, Holloway KL, Page RS, Sajjad MA, Duque G, Pasco JA. Region of residence, area-level socioeconomic position, and the utilisation of total primary joint replacement for hip or knee osteoarthritis in western Victoria: A cross-sectional multilevel study of the Australian Orthopaedic Association National Joint Replacement Registry. POSTER
- Chandrasekaran V, Brennan-Olsen SL, Stuart AL, Pasco JA, Berk M, Hodge JM, Williams LJ. Bipolar disorder and bone health: a systematic review protocol. POSTER
- Cleminson JR, Stuart AL, Pasco JA, Hodge JM, Williams LJ. Dietary tryptophan and bone: a cross-sectional study. POSTER
- De Abreu LLF, Holloway KL, Mohebbi M, Sajjad MA, Kotowicz MA, Pasco JA. Fracture risk in Australian women dysglycaemia. ORAL
- Goganovic M, Holloway KL, Hyde NK, O'Neil A, Williams LJ, Pasco JA. Sarcopenic obesity is associated with inflammation in elderly men: a cross-sectional study. POSTER
- Holloway KL, De Abreu LLF, Kotowicz MA, Sajjad MA, Pasco JA. Trabecular bone score in women with dysglycaemia and diabetes. ORAL
- Hosking SM, Pasco JA, Beauchamp A, Williams LJ, Buchbinder R, Brennan-Olsen SL. Health literacy and uptake of osteoporosis prevention recommendations in women. POSTER
- Hyde NK, Brennan-Olsen SL, Wark JD, Hosking SM, Pasco JA. Gestational Vitamin D and offspring bone measures; does maternal bone quality mediate the association? POSTER
- Pasco JA, Stuart AL, Holloway KL, Rufus PG, Hyde NK, Williams LJ, Sui SX, Tembo M, Kotowicz MA. Polymorbidity sarcopenia: a cross-sectional study of elderly women. POSTER
- Rufus P, Holloway KL, Diez-Perez A, Kotowicz MA, Brennan-Olsen SL, Pasco JA. A preliminary investigation into the association between age and impact microindentation in men. PLENARY POSTER
- Stuart AL, Pasco JA, Mohebbi M, Kotowicz MA, Williams LJ. Pattern of osteoporosis prevalence and medication use among Australian women over two decades. POSTER
- Sui SX, Holloway KL, Tembo M, Williams LJ, Leach S, Pasco JA. Low hand grip strength as a marker of poor mobility and falls in older women. PLENARY POSTER
- Tembo M, Holloway KL, Williams LJ, Brennan-Olsen SL, Kotowicz MA, Pasco JA. Musculoskeletal health and fatigue. POSTER
- Cleminson JR, Stuart AL, Pasco JA, Hodge JM, Williams LJ. Dietary tryptophan and bone in older women: a cross-sectional study. POSTER

13th World Congress of Biological Psychiatry, WFSBP. Copenhagen, Denmark. June 18-22 2017.

- Dean O. Free Communication: The efficacy of minocycline as an adjunctive treatment for major depressive disorder: A double blind, randomised, placebo controlled trial
- Berk M. Lithium compared to quetiapine in the maintenance phase after a first episode of mania.
- Berk M. Novel adjunctive therapy approaches inflammatory disturbances in psychiatric disorders.
- Berk M. Targeting inflammation to prevent depression.
- Berk M. The use of machine learning and big data predict suicide.
- Ashton M. *Garcinia mangostana* linn (mangosteenpericarp as an add-on treatment for bipolar depression. POSTER

37th International Symposium on Forecasting. Cairns, Australia. June 25-28, 2017.

- Mohebbi M. Assessing the performance of prediction models: Development, internal validation, external validation and model updating.

CONFERENCE PRESENTATIONS 2017

38th Annual Conference of the International Society for Clinical Biostatistics. Vigo, Spain. July 9-13, 2017.

- Mohebbi M. Mapping the modified Rankin Scale (mRS) measurement to the Assessment of Quality of Life (AQoL) utility values.

19th International Conference on Computational Statistics and Data Analysis; Rome, Italy. July 17-18, 2017.

- Mohebbi M. Developing and evaluating clinical risk prediction models for coronary artery bypass graft surgery.

Australian Diabetes Society (ADS) and the Australian Diabetes Educators Association (ADEA) Annual Scientific Meeting. Perth, Australia. August 30-September 1, 2017.

- Sajjad MA, Holloway KL, De Abreu LLF, Mohebbi M, Kotowicz MA, Pedler D, Pasco JA. The incidence, frequency and length of stay for all-cause hospitalisation in adults with impaired fasting glucose and diabetes mellitus: a longitudinal study. POSTER

American Society for Bone and Mineral Research (ASBMR). Denver, USA. September 08-11, 2017.

- Holloway KL, De Abreu LLF, Kotowicz MA, Sajjad MA, Pasco JA. Bone turnover markers in men with dysglycaemia. (Sponsor: Mark Kotowicz). POSTER
- Pasco JA, Holloway KL, Rufus PG, Hyde NK, Tembo M, Sui SX, Williams LJ, Kotowicz MA. Sarcopenia and estimates of fracture risk. (Sponsor: Julie Pasco). POSTER
- Tembo MC, Holloway KL, Williams LJ, Sui SX, Brennan-Olsen SL, Kotowicz MA, Hosking SM, Pasco JA. Frailty and fracture risk in older women. (Sponsor: Sarah Hosking). POSTER

PsyAcademy. Melbourne, Australia. September 09, 2017.

- Jacka FN. Diet and mental health.

Australasian Society for Bipolar and Depressive Disorder (ASBDD). Melbourne, Australia. September 15-17, 2017.

- Walker A, Price J, Borreggine K, Sutor S, Gogos A, McGillivray J, Frye M, Tye S. Early response to lithium augmentation associated with mTOR activation in peripheral blood mononuclear cells in rodent model of antidepressant-resistance.
- Young C, Trapani K, Dawson S, O'Neil A, Kay-Lambkin F, Berk M, Jacka F. Online lifestyle interventions for depressed populations: a systematic review.
- Turner A, Dean OM, Malhi G, Ng C, Cotton SM, Dodd S, Sarris J, Mohebbi M, Berk M. Substance use outcomes in a randomised controlled trial of N-acetylcysteine and other mitochondrial agents in bipolar depression.
- Cleminson JR, Stuart AL, Pasco JA, Hodge JM, Williams LJ. Dietary tryptophan and bone in older women: a cross-sectional study.
- Cowdery S, Stuart AS, Green D, Berk M, Ashley D, Pasco JA, Williams LJ. Common Mental Disorders and Cancer Onset: A Nested Case Control Study of Men and Women.
- Dean O. Antibiotics in psychiatry.
- Gliddon E, Cosgrove V, Berk L, Lauder S, Mohebbi M, Grimm D, Dodd S, Coulson C, Raju K, Suppes T, Berk M. MoodSwings 2.0: Outcomes of an international randomized controlled trial.
- Gliddon E, Berk L, Lauder S, Cosgrove V, Grimm D, Dodd S, Suppes T, Berk M. The role of discussion forum engagement within an online self-help program for bipolar disorder.

Australasian Society of Lifestyle Medicine. Sydney, Australia. September 17, 2017.

- Jacka FN. Diet and mental health.

CONFERENCE PRESENTATIONS 2017

RANZCP Tasmania Branch. Tasmania, Australia. September 26-27, 2017.

- Jacka FN. Diet and mental health.

World Psychiatric Association. Berlin, Germany. October 09-12, 2017.

- Berk M. From neuroprogression to neuroprotection: the first episode as a treatment window.
- Fernandes BS. C-Reactive protein is increased in schizophrenia but is not altered by antipsychotics: meta-analysis and implications.

Fernwood Fitness National Conference 2017. Queensland, Australia. October 12, 2017.

- Jacka FN. Diet and mental health.

International Society for Research on Internet Interventions (ISRII). 9th Scientific Meeting. Berlin, Germany. October 12-14, 2017.

- Berk M. MoodSwings 2.0: Outcomes of an international randomized controlled trial. POSTER

International Federation of Psychiatric Epidemiology (IFPE). Melbourne, Australia. October 17-20, 2017.

- Cleminson JR, Stuart AL, Pasco JA, Williams LJ, Hodge JM, Berk M. Dietary tryptophan and bone in older women: a cross-sectional study. POSTER
- Cowdery S, Stuart AL, Green D, Berk M, Ashley D, Pasco JA, Williams LJ. Common mental disorders and cancer onset: a nested case control study of women. ORAL
- Davis J, Stuart AL, Jacka FN, Chandrasekaran V, Pasco JA. Feasibility of participants providing stool samples when displaying anxiety or depressive symptoms.
- Pasco JA, Holloway KL, Rufus PG, Sui SX, Williams LJ. Positive and negative affect in association with falls. POSTER
- Williams LJ, Stuart AL, Quirk SE, Pasco JA, Brennan-Olsen SL, Hodge JM, Chandrasekaran V, Berk M. Personality disorder and physical health comorbidities: A link with bone health?

The Australian and New Zealand Neuropsychiatry and Behavioural Neurology Conference. Sydney, Australia. October 27-28, 2017.

- Jacka FN. Diet and mental health.

Health Matters: Clinical weekend meeting sponsored by Servier Foundation. Melbourne, Australia. November 11-12, 2017.

- Jacka FN. Prescribing a diet to treat depression.

Biological Psychiatry. Oslo, Norway. November 15, 2017.

- Berk M. An overview of inflammation in major psychiatric disorders.
- Berk M. Environmental sources of inflammation and risk pathways as a prevention target.
- Berk M. Inflammation as a treatment target in psychiatric disorders.

Australian and New Zealand Society for Sarcopenia and Frailty Research (ANZSSFR). Adelaide, Australia. November 24-25, 2017.

- Lim K, Sanders KM, Connaughton C, Naureen G, Stuart AL, Scott D, Nicholson GC, Busja L. Using falls data to identify patterns in the environment and circumstances of injurious falls among older community-dwelling women. POSTER
- Pasco JA, Holloway KL, Hyde NK, Kotowicz MA, Tembo MC, Rufus PG, Sui SX, Berk M. Profile of musculo-skeletal health among the pretiree demographic. POSTER
- Tembo MC, Holloway KL, Williams LJ, Sui SX, Brennan-Olsen SL, Kotowicz MA, Hosking SM, Pasco JA. Frailty and fracture risk in older women. ORAL

CONFERENCE PRESENTATIONS 2017

Symposium on Frontiers in Global Health: Deakin and its partners in India. Chennai, India. November 29, 2017.

- Dean O. What's going on at IMPACT SRC?

Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT). Brisbane, Australia. December 5-8, 2017.

- Hosking SM, Brennan-Olsen SL, Beauchamp A, Buchbinder R, Williams LJ, Pasco JA. Health literacy and uptake of anti-fracture medications in a population-based sample of Australian women. POSTER

Society for Mental Health Research Conference (SMHR). Canberra, Australia. December 6-8, 2017.

- Kavanagh B. Personality disorder as a predictor of functional outcomes in patients with major depressive disorder.
- Chandrasekaran V, Brennan-Olsen SL, Stuart AL, Pasco JA, Berk M, Hodge JM, Williams LJ. Association between bipolar spectrum disorder and bone health: a meta-analysis and systematic review.
- Cleminson JR, Stuart AL, Pasco JA, Hodge JM, Berk M, Williams LJ. Serotonin pre-cursor, tryptophan, and bone in women and men of the Geelong Osteoporosis Study (GOS). ORAL
- Cowdery SP, Stuart AL Green D, Berk M, Ashley D, Pasco JA, Williams LJ. Mood disorders and cancer onset: A nested case-control study of women.
- Pasco JA, Holloway KL, Stuart AL, Sui SX, Williams LJ, Berk M. The subjective wellbeing profile among the retiree demographic.
- Quirk SE, Stuart AL, Berk M, Pasco JA, Brennan Olsen SL, Koivumaa-Honkanen H, Honkanen R, Lukkala PS, Chanen AM, Kotowicz MA, Williams LJ. Personality disorder is an excess risk factor for physical multimorbidity among women with mental state disorders.
- Stuart AL, Berk M, Pasco JA, Williams LJ. Bipolar disorder and pain in adult women: A case-control study.
- Williams LJ, Quirk SE, Stuart AL, Berk M, Brennan-Olsen SL, Koivumaa-Honkanen H, Honkanen R, Lukkala PS, Chanen AM, Kotowicz MA, Pasco JA. Personality disorder is an excess risk factor for physical multimorbidity among women with mental state disorders.

The IMPACT SRC team



Professors Michael Berk and Julie Pasco with the IMPACT SRC team

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