



School of Exercise and Nutrition Sciences

2022 Honours Projects

Bachelor of Food and Nutrition Sciences (Honours) (H418)

Bachelor of Exercise and Sport Science (Honours) (H442)

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Contents

Honours Overview.....	1
Why do Honours with SENS?	1
Benefits of Learning Research	2
What are the career pathways after Honours?	2
What types of Honours projects can I do in SENS?.....	3
Who supervises Honours projects?.....	4
How do I choose a topic?	4
Can I develop my own project?.....	4
What happens in the Honours year?	5
What are the admission requirements?	6
How do I apply for Honours?	6
How are projects allocated?.....	7
When do I find out if I have been accepted?	7
Additional Information	7
Honours Projects for 2022	8
Honours Supervisors for 2022.....	49

TEDDY ANG

Bachelor of Food and Nutrition Sciences (Honours)

Current Role: Undertaking PhD in Physiology and Metabolism at Deakin University

Honours Topic: Effects of omega-3 docosapentaenoic acid supplementation on oral glucose tolerance in an animal model of diet-induced glucose intolerance

Honours was undoubtedly the most challenging year of my undergraduate studies but also the most enriching. This is something you will hear from any Honours survivor, but the skills, experience and memories that you will acquire, if not embedded, during this 8-month roller coaster ride will be invaluable regardless of your future endeavours. For me, it was being able to work closely with a supervisory team and receive the hands-on laboratory training that I am truly grateful for, and not to mention, your very own unique masterpiece they call the 'Thesis' produced at the end. Honours is not simply another year of mundane coursework study, it is an opportunity to become part of something bigger and let it be known that the inevitable pain and struggle that accompanies it will be worth the blood, sweat and tears.

Honours Overview

The honours program in the School of Exercise and Nutrition Sciences (SENS) builds upon the foundations provided by a three-year undergraduate degree. The aim of the program is to provide students with the necessary knowledge and skills to enable them to undertake higher degree studies and advance their professional training.

The School offers the following Honours degrees:

- Bachelor of Food and Nutrition Sciences (Honours) H418
- Bachelor of Exercise and Sport Science (Honours) H442

All honours programs in the School have common features, specifically:

- Coursework units and a written thesis
- Undertaken over two semesters within a single year full time (~9 months total)
- Allocation of a supervisor and co-supervisor

Why do Honours with SENS?

- ✓ Our teaching facilities are outstanding
- ✓ We have strong industry partnerships/relations with over 150 sporting, government, community, health and food industry organisations
- ✓ Our students get 'hands-on' experience
- ✓ We provide a high-level of support and resources to assist students with their projects

You will learn to:

- ✓ Critically evaluate existing research
- ✓ Identify questions/hypotheses worth researching
- ✓ Understand and apply correct research methods to the collection and/or analysis of data
- ✓ Interpret study findings
- ✓ Understand strengths and limitations of research

Benefits of Learning Research

- ✓ Increased employability, skills transferable to many jobs/disciplines
- ✓ Learning & collaborative opportunities
- ✓ Independence to drive your ideas
- ✓ Opportunity to contribute to knowledge in your specialised area
- ✓ Gain important research skills and practical research experience

What are the career pathways after Honours?

Entry into Research/Research Degrees

Deakin University is interested in providing you with a fulfilling research experience in honours so that you will consider returning to complete a research masters or doctorate. These post-graduate research degrees allow you to further investigate in an area of interest to you and open up a range of career options; in academia, and as a leader in industry. The completion of Honours also opens up opportunities for employment in a research role within the School or other universities.

Careers

There are a range of careers that you can follow after gaining research experience in an Honours year. Aside from continuing to work in research, you can gain employment in industry such as in physiology, nutrition, fitness, and in government posts. In sport, you can work in player and team management, sports administration and development, strength and conditioning, sports science, and in coaching. The Honours degree allows you to gain some specialist knowledge in one of these areas and apply that knowledge.

KEREN BEST

Bachelor of Food and Nutrition Sciences (Honours)

Current Role: Project manager at IPAN, Deakin University

Honours Topic: Parental predictors of maintenance of physical activity over three years in children

Undertaking honours was both challenging and rewarding. Honours allows you to immerse yourself in the research world and gain a range of skills in a short amount of time. The analytical writing, research processes and data management skills developed have been invaluable in enhancing my project management career.

What types of Honours projects can I do in SENS?

Food and Nutrition Sciences

- Topic areas in food science and nutrition include:
- Nutrition choices and eating patterns;
- Salt, appetite control and blood pressure regulation;
- Fatty acids, inflammation, cognition and blood pressure regulation;
- Proteins, sport performance and muscle gain;
- Nutrition and ageing;
- Health effects of phytochemicals and minerals;
- Nutrition and gut bacteria;
- Food choice and perceptions;
- Food policy and safety;
- Early childhood influences on eating.

Exercise and Sport Science

- Health and injury in work and sport;
- Physical activity;
- Obesity prevention;
- Coaching practices;
- Exercise physiology;
- Women's health;
- Behavioural aspects of sport;
- Skill acquisition;
- Motor control and motor learning;
- Biomechanics and performance analysis,
- Strength and conditioning.

*****Refer to the back of this handbook for the 2022 Honours projects*****

Who supervises Honours projects?

Supervisors closely guide you through this first experience of research. They will assist you in planning your research, data collection and analysis and writing it in thesis format. In addition, they will offer you support in the planning and presentation of your oral assessments. All supervisors are experienced researchers who understand the rigours and requirements of your project and have knowledge of your topic area.

How do I choose a topic?

Each year the School provides a list of projects for you to peruse and choose those that interest you. We then advise that you speak to supervisors of these projects to gauge your interest and then to nominate your preferred projects during the application process. We aim to provide you with one of your preferences.

Can I develop my own project?

You are best to take a directed project in this first year of exposure to research, as it allows for the supervisor to direct the research in an area they know well. If you have a passion for something you may be able to tailor your Honours project to fulfil your interest or use that idea for a further degree; Honours is about research training.

*****Refer to the back of this handbook for the 2022 Honours projects*****

LILIA CONVIT

Bachelor in Exercise and Sports Sciences (Honours)

Current Role: Undertaking PhD in Female Exercise Physiology/Research Assistant/Casual Academic

Honours Topic: Sodium bicarbonate and sodium citrate as acute hyperhydration agents: indices of hydration status, buffering measures and gastrointestinal symptoms

The honours years was a wonderful experience, full of new challenges. COVID-19 allowed me to understand how resilient we can be. We had to reinvent the project, work with secondary data, learn and present our findings through Zoom. We were able to move this great learning experience to online mode and survive. I met great people and did a lot of networking. Honours allowed me to continue my career pathway with a PhD (with a scholarship), to start a research assistant role at Deakin and continue as a casual academic, while juggling with my private practice as a sports dietitian and my personal life as a wife and mum of two. The best advice I can give to anyone thinking about enrolling in an Honours year will be to go for it! If it is not now, when? Just be as organised as possible and plan ahead. Unexpected changes are always around the corner.

What happens in the Honours year?

Honours is an intense year and you will need to commit ~35 hours a week. Your Honours degree is mostly assessed on research but there is also a coursework component. Both parts count towards your final mark. The coursework is directed towards giving you the necessary research skills to complete your research project, and provides you with research training. There are two units in Semester 1, Research Methods (unit code HBS400) and Developing Research Skills (HSE401). They have classes and assignments to complete that incorporate aspects of your project. The remainder of your research is conducted in Semester 2 and this is where you complete your data collection, analyse the data and write a thesis (HSE402/HSN414). Aspects of these units are discussed below.

Research methods (HBS400; cloud-based unit)

This unit examines the ethics of research, critiquing research and an elective. It is directed towards your research and you can choose to take the quantitative (cloud), qualitative (cloud) or lab-based (on-campus, Burwood) stream. This unit is designed to help you develop the methods for your research project.

Literature review and research proposal (HSE401)

You are asked to read and review the previously published research (i.e. the literature) in the area of your project, find aspects that have not been fully investigated and then propose your research that will answer a specific research question. This will provide you with a thorough understanding of your area of research, form the introduction to your thesis and allow you to understand how your research project fits within the current research literature. You will also present your literature review and research proposal to your peers as an oral presentation.

Thesis (HSE402/HSN414)

After you have planned your research and received ethics approval (if required), you are ready to collect your data. The final step is to analyse and write your research in a thesis format. This 12,000 word document is set out in chapters and describes the existing research literature, your research methods, the results of your research and then discussion of your findings. You will then present your findings at the School Research day at the end of the year.

Timelines

The year is short and intense, beginning with an orientation session in February and completing with your oral presentation of your research in October. In between, there is plenty to keep you busy.

What are the admission requirements?

Bachelor Degree or major in a related discipline with a WAM of at least 65 in all level 3 and level 4 Deakin units (or in final year units for awards from other providers). Eligible students with degrees from other universities are welcome to complete their Honours year at Deakin University.

How do I apply for Honours?

To apply for Honours in the School of Exercise and Nutrition Sciences there are three steps:

1. Submit a Course Application

- You will need to submit a course application via the [Deakin applicant portal](#) by Sunday November 28th 2021 and submit your project preferences (see below) in addition to your other supporting documents. Supporting documents can include academic transcripts, personal statement, course completion certificates etc. *Note: Deakin students are not required to submit academic transcripts.*
- If you are unable to upload your documents or have any questions about the application portal, please email enquire@deakin.edu.au or call (03) 9244 6333

2. Review Project Offerings and Complete Your Project Preference Form

- Please review carefully the list of Honours research projects that the School is offering in 2022. This project booklet will be available on the course handbook sites:
 - [Bachelor of Food and Nutrition Sciences \(Honours\)](#)
 - [Bachelor of Exercise and Sport Science \(Honours\)](#)
- When you have selected the projects you are interested in, it is very important that you contact the named Supervisor (contact details are provided with each project) to discuss the proposed project/s. This will allow you to determine whether the project meets your career goals and allows the supervisor to determine whether you have the appropriate academic background to complete the research project.
- Once you have contacted the Supervisors of the projects that interest you, please complete the [online project preference form](#).
- Please direct queries related to the project preference selection to Dr Aaron Fox at sens_honours@deakin.edu.au

How are projects allocated?

Projects are allocated based on a combination of student project preferences, supervisor's student preferences and WAM. Students are advised that allocation to research projects is a competitive process and a student cannot be assured of being assigned to their choice of research project.

The list of available research projects reflects research being undertaken by Deakin staff and the availability of resources at the date of publication. It is the nature of research that projects change focus and direction over time and the final project therefore may not be exactly as described.

In rare cases, research staff and resources may become unavailable during the period when the project is being undertaken. If this occurs, the School will offer the student the best available alternative which will provide the opportunity to satisfy course requirements.

When do I find out if I have been accepted?

It is anticipated that successful candidates will be advised of their offer mid-December 2021.

Additional Information

You can also contact the Honours Coordinator on the contact details provided below:

Dr Aaron Fox

Ph: (03) 5247 9720

Email: sens_honours@deakin.edu.au

Honours Projects for 2022

The following pages provide a description of honours projects on offer within the school for 2022. Each project contains a project number, which you will need to provide when submitting your project preference form.

The primary supervisor contact details are provided for each project. It is strongly advised that you contact and discuss the project with the supervisor before including it on your preference list. These discussions will also allow you to obtain further information about the project and how it aligns to your interests. Some of the projects listed in this booklet are also broad and encompass multiple potential projects. Discussions with the listed supervisor(s) will provide more details about the possibilities within these broad areas. Each primary supervisor's name is linked to their profile at the end of this booklet, so please click these for more information on each supervisor.

Each project also has a location listed for where the project can be conducted. Please note that projects listed with an 'overseas or remotely' location are advisable for international applicants. These projects that can be completed remotely are, however, not limited to off-campus students and could also be completed by local students at the Melbourne Burwood or Waurin Ponds campuses.

Projects are grouped into the broad disciplines of Biomedicine, Exercise and Health or Disease, Food or Nutrition Science, Health or Food Behaviours, Public Health or Health Promotion, Sports Sciences, and Sustainability. Specific research topic area(s) are also provided with each project.

Biomedicine	9
Exercise and Health or Disease	11
Food or Nutrition Science	22
Health or Food Behaviours	29
Public Health or Health Promotion	31
Sports Sciences	37
Sustainability	47

HONOURS PROJECTS 2022: BIOMEDICINE

Glucose, lipid and amino acid metabolism in muscle and liver

Project Number: FN_1

Primary Supervisor: Clinton Bruce

E-mail: clinton.bruce@deakin.edu.au

Phone: 9244 6684

Co-Supervisor(s): Greg Kowalski; Lee Hamilton; Chris Shaw

Topic Area(s): Metabolism

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: We have a number of potential projects that can be developed according to individual interests. Projects will be particularly suited to students with a strong interest in the area of nutritional physiology, fuel metabolism and/or biochemistry. Potential areas of study include: - Understanding how liver glucose production is regulated following ingestion of various nutrients - Examining mechanisms of insulin resistance and hyperinsulinemia - Metabolic and hormonal responses following protein-carbohydrate co-ingestion - Understanding how lipids regulate skeletal muscle mass and mitochondrial function. Projects may involve human and animal experiments and will develop a broad range of skills including analytical laboratory skills. All techniques will be taught as part of honours training. Our projects may be of interest to both Food and Nutrition Sciences as well as Exercise and Sport Science students.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Quantitative analysis (statistics)

The role of intra-muscular testosterone levels in regulating the epigenome of females with PCOS

Project Number: ESS_1

Primary Supervisor: Danielle Hiam

E-mail: danielle.hiam@deakin.edu.au

Phone: +61 3 924 45883

Co-Supervisor(s): Associate Professor Severine Lamon

Topic Area(s): Epigenetics; Endocrinology

Project Location: Melbourne Burwood campus

Project Description: Polycystic Ovary Syndrome (PCOS) is a female reproductive and metabolic disorder with one of the defining characteristics being increased serum levels of the male sex hormone, testosterone. How and why this occurs is relatively unknown. Does this influence the epigenome? MicroRNAs are biological molecules that can influence whether a gene is expressed or not. Studies have shown an altered miRNA profile of females with PCOS in many tissues. However, no study has investigated the miRNA profile in the muscle of females with PCOS. This project aims to understand whether miRNAs are associated with higher testosterone in plasma and muscle, and whether this has a role in the development of PCOS. By completing this project, the student will have learned how to run and recruit for a human clinical trial, laboratory skills including biochemical analytical assays and miRNA expression analysis. They will also receive hands-on training in R (statistical programming platform) and bioinformatics.

Skills/Attributes Required: Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: BIOMEDICINE

How do long non-coding RNAs regulate muscle adaptations to physiological stress?

Project Number: ESS_2

Primary Supervisor: Adam Trewin

E-mail: a.trewin@deakin.edu.au

Phone: 92445687

Co-Supervisor(s): Prof. Glenn Wadley; A/Prof. Severine Lamon

Topic Area(s): Exercise physiology; Cell biology; biochemistry

Project Location: Melbourne Burwood campus

Project Description: This project will investigate mechanisms that determine how heart and skeletal muscle cells to adapt to protective stimuli such as exercise. We have identified RNAs known as long non-coding RNA (lncRNA) that may play a role in regulating the beneficial adaptations to physiological stress. The student will learn how to manipulate the expression of lncRNAs in cultured muscle cells and measure the corresponding changes in a range of cellular characteristics and function. This Honours project is ideally suited to students wishing to pursue postgraduate study, a future career in biomedical or physiology research (i.e. a PhD) or medicine. By completing this project, students will become proficient at performing key laboratory skills including cell culture and other molecular biology techniques that are common in physiology and biomedical research.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program)

Skills Developed: Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Image and/or video analysis; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

The effects of carbohydrate consumption on the hormonal responses to resistance exercise in hypoxia

Project Number: ESS_3

Primary Supervisor: Giselle Allsopp

E-mail: g.allsopp@deakin.edu.au

Phone: 03 5227 3194

Co-Supervisor(s): Craig Wright

Topic Area(s): Sports nutrition; Exercise; sport science; Exercise physiology

Project Location: Geelong Waurn Ponds campus

Project Description: Performing resistance exercise in simulated altitude (hypoxia) increases the hormonal responses to exercise. These hormones may play an important role in metabolism and the adaptations to chronic exercise training. All previous hypoxic training research was performed in a fasted state which is not practical for a real-world setting. This project will explore if carbohydrate consumption enhances the hormonal responses to hypoxic training. These findings will have real-world implications for exercise prescription recommendations. This project will involve a period of data collection, where the student will help facilitate exercise trials and analyse blood samples in a laboratory setting. This project would be suited for a student passionate about human exercise physiology research, who is also interested in the biochemical analysis of blood samples for hormones such as insulin and growth hormone. Students who enjoyed HSE201 and HSE304 may be interested in this project.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Exercise prescription and monitoring; Quantitative analysis (statistics)

Prehabilitation: Getting Fit for Prostate Cancer Surgery

Project Number: ESS_4

Primary Supervisor: Brenton Baguley

E-mail: b.baguley@deakin.edu.au

Phone: +61 3 924 68525

Co-Supervisor(s): Steve Fraser

Topic Area(s): Dietetics; Exercise physiology; Clinical exercise

Project Location: Melbourne Burwood campus

Project Description: Getting fit-for-surgery in prostate cancer has emerged as an important feature to reducing the prevalence of treatment-related side effects (i.e. urinary incontinence) and improving recovery. Growing evidence indicates increased fitness and a healthier body weight at the time of surgery improves clinical outcomes. Yet with this in mind, most men are overweight/obese at the time of surgery which places increased importance on getting fit-for-surgery. On average men have 4-5 weeks to prepare for prostate cancer surgery. Nutrition and exercise advice during this time varies in practice and the optimal nutrition and exercise prescription for improving fitness and body composition is relatively unknown. What is less clear is whether men are motivated, engaged and consider nutrition and exercise interventions acceptable during this time to show meaningful changes in clinical outcomes. This project will provide vital insight to the nutrition and exercise practice prior to prostate cancer.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in an exercise or sports science related field; Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Qualitative analysis

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

Prevalence of RED-S in elite adolescent ballet dancers

Project Number: ESS_5

Primary Supervisor: Dominique Condo

E-mail: dominique.condo@deakin.edu.au

Phone: 03 9244 5487

Co-Supervisor(s): Lee Hamilton

Topic Area(s): Sports nutrition; Applied Sports Science

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: Research on the energy availability of elite dancers suggests that this group is particularly vulnerable to the condition “Relative energy deficiency in sport” (RED-S). RED-S occurs when there is a sustained mismatch between energy intake and energy requirements, leading to poor bone health amongst other symptoms. A dance specific survey, the DEA-Q, has been developed to assess the prevalence of RED-S in dancers. Much of the research in this area has focused on elite adults, however adolescence is a critical developmental window when diet and exercise should be optimised to support lifelong bone health. Given that the pathway for elite ballet dancers involves a rapid jump in training volume during the adolescent period, it is critical to assess the prevalence of RED-S in elite adolescent dancers. We therefore aim to utilise the DEA-Q survey in a sample of elite adolescent ballet dancers to assess the prevalence of RED-S and eating habits in this population of athletes.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other project related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Survey development; Quantitative analysis (statistics)

Is there a role for membrane lipid metabolism in skeletal muscle hypertrophy?

Project Number: ESS_6

Primary Supervisor: Lee Hamilton

E-mail: lee.hamilton@deakin.edu.au

Phone: +61 3 92445207

Co-Supervisor(s): Clinton Bruce; Chris Shaw; Kirsten Howlett

Topic Area(s): Exercise physiology

Project Location: Geelong Waurin Ponds campus

Project Description: Growing muscle is often viewed as a protein centric process. Given that the contractile elements that allow muscle to function are made of protein, this view makes sense. However, we know that lipid membranes, and the connections between lipid membranes, the contractile elements and the extracellular matrix are critical for optimal muscle function. Despite knowing the critical role of lipid membranes in skeletal muscle health and function, their regulation under growth conditions is understudied. We think that in order for a muscle to grow, so too must the lipid membranes that encase the contractile elements. This project will therefore focus on understanding lipid membrane metabolism under muscle growth conditions. The project will suit students with an interest in the molecular underpinnings of muscle plasticity.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Image and/or video analysis; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

Understanding the development of impaired cardiac function in obesity

Project Number: ESS_7

Primary Supervisor: Kirsten Howlett

E-mail: kirsten.howlett@deakin.edu.au

Phone: 03 5227 2563

Co-Supervisor(s): Chris Shaw; Lee Hamilton

Research Mentor(s): Mark Renton

Topic Area(s):

Project Location: Geelong Waurin Ponds campus

Project Description: In individuals that are obese many suffer from impaired heart function, which over time can progress to heart failure. This specific disease is called obese cardiomyopathy and currently there are no effective treatments. Identifying the underlying mechanisms involved in the development of this disease is the next critical step in the development of a treatment. This project aims to explore how changes in the structure of the heart influences cardiac function in obesity. The outcomes from this project will reveal new aspects about the basic biology underpinning obese cardiomyopathy and potentially identify new molecular targets for therapeutic prevention of this disease or to slow disease progression.

Skills/Attributes Required: Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to work as a team member

Skills Developed: Ability to work with blood and/or muscle biopsy samples; Laboratory techniques

Exploring the Feasibility of Voice-Controlled Intelligent Personal Assistants

Project Number: ESS_8

Primary Supervisor: Paul Jansons

E-mail: paul.jansons@deakin.edu.au

Phone: 402283624

Co-Supervisor(s): Associate Professor David Scott; Jakub Mesinovic

Research Mentor(s): Prof Bodil Rasmussen

Topic Area(s): Dietetics; Exercise physiology; Physical activity

Project Location: Overseas or remotely

Project Description: Our software has the potential to estimate treatment effects and deliver a personalised lifestyle program using conversation-based interactions in specific culturally and linguistically diverse languages. We will conduct a 8-week feasibility trial of a personalised exercise and dietary intervention to delivered via Voice-Controlled Intelligent Personal Assistants in 10 adults aged 60 to 89 years with insulin and/or oral controlled type 2 diabetes mellitus (T2DM) that natively speak Hindi language. Our primary aim 1) is to assess feasibility outcomes 2) conduct co-design and barriers/facilitators to implementation and scale-up from the perspective of stakeholders and participants. Secondary aims are to compare pre-post changes in self-management, diabetes distress, objectively-assessed physical activity, self-reported fruit and vegetable intakes, health-related quality of life, and productivity.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Exercise prescription and monitoring; Image and/or video analysis; Survey development; Quantitative analysis (statistics); Qualitative analysis; Co-design, software development

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

Effect of chronic overfeeding on tissue oxidized cysteine profile in healthy individuals

Project Number: FN_2

Primary Supervisor: Shaun Mason

E-mail: s.mason@deakin.edu.au

Phone: 03 9244 6577

Co-Supervisor(s): Prof Glenn Wadley

Topic Area(s): Nutritional Biochemistry

Project Location: Melbourne Burwood campus

Project Description: This project will involve the measurement of redox signaling-related changes in human tissue samples in response to a period of chronic overfeeding in healthy adults. Short-term, high energy overfeeding increases the production of reactive oxygen species (ROS) in lean humans to levels observed in obese, insulin-resistant states. However, little is currently known about specific redox signaling changes induced by overfeeding-related ROS production that may underlie subsequent dysregulation of glucose metabolism. Mass spectrometry techniques will be used to examine proteins that are altered in tissues by the production of ROS in response to overfeeding. Findings will have relevance to understanding redox signaling in health and disease (particularly insulin resistance). Tissue samples have already been collected, and human ethics has also been obtained. This project will provide a great opportunity to an honours student to develop advanced analytical skills in redox biology.

Skills/Attributes Required: Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program)

Skills Developed: Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Quantitative analysis (statistics)

Understanding physical and psychosocial predictors of experimental and clinical pain

Project Number: ESS_9

Primary Supervisor: Clint Miller

E-mail: c.miller@deakin.edu.au

Phone: 924 46605

Co-Supervisor(s): Dr Patrick Owen

Topic Area(s): Exercise; sport science; Sport / exercise psychology; Exercise physiology; Clinical exercise

Project Location: Melbourne Burwood campus

Project Description: Persistent pain affects approximately 20% of the Australian population and interferes with activities of daily living. But managing pain is complex. Pain is moderated by a number of factors beyond the intervention chosen to treat pain. An athlete or client's beliefs, expectations, the environment, and the coach or clinician moderate the experience of pain. The use of exercise on moderating pain is equally complex. It is not clear which factors might predict a reduction in pain as a result of an acute bout of exercise in people with chronic pain. To understand these interactions, this study will explore physical (fitness, anthropometrics, muscle composition (MRI)), and psychosocial factors to determine predictors for reducing pain following an acute bout of exercise. The findings will be used to inform a program of research for a PhD project offering in 2023 aimed at optimising an acute exercise prescription approach for reducing pain in people with chronic musculoskeletal pain.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability to work as a team member

Skills Developed: Exercise prescription and monitoring; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

The role of expectations on pain following exercise in people with and without chronic pain

Project Number: ESS_10

Primary Supervisor: Clint Miller

E-mail: c.miller@deakin.edu.au

Phone: 924 46605

Co-Supervisor(s): Dr Patrick Owen

Topic Area(s): Exercise; sport science; Sport / exercise psychology; Exercise physiology; Clinical exercise

Project Location: Melbourne Burwood campus

Project Description: Persistent pain affects approximately 20% of the Australian population. Pain is moderated by a number of factors beyond the intervention chosen to treat pain. An athlete or client's beliefs, expectations, the environment, and the coach or clinician moderate the experience of pain. The use of exercise to moderate pain is equally complex. It is not clear which factors might predict a reduction in pain as a result of an acute bout of exercise in people with chronic pain, however there is emerging evidence that expectations of treatment may influence its effectiveness on pain. The purpose of this project (existing dataset) is to explore the effect of expectations for pain relief before and following a novel exercise designed to provide temporary relief of pain. The findings will be used to inform a program of research for a PhD project offering in 2023 aimed at manipulating expectations of pain relief associated with a novel exercise in people with chronic musculoskeletal pain.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Exercise prescription and monitoring; Qualitative analysis

Evaluating and implementing guideline-based back pain management in hospital emergency departments

Project Number: ESS_11

Primary Supervisor: Patrick Owen

E-mail: p.owen@deakin.edu.au

Phone: 92445013

Co-Supervisor(s): Dr Clint Miller

Topic Area(s): Exercise physiology; Clinical exercise; Health service research

Project Location: On-campus at Melbourne Burwood -OR- Overseas or remotely

Project Description: Low back pain is the leading cause of disability worldwide and affects approximately four million Australians (16% of the population). Low back pain is the seventh most common reason for emergency department presentation in Australia with >130,000 per year. The average patient spends 4.8 hours in the emergency department, including 3.6 hours receiving treatment. Moreover, 25% of Australian low back pain presentations result in admission, with an average length of stay of six days. Subsequently, low back pain costs the Australian healthcare system >A\$9 billion per year. Adhering to evidence-based clinical guidelines for the management of low back pain reduces financial costs and improves patient outcomes, yet adherence is suboptimal. This project will explore low back pain management guidelines in the emergency department setting, such as those that govern radiological imaging, medication use and exercise prescription, to improve the health of Australians with low back pain.

Skills/Attributes Required: Knowledge and background in anatomy and/or physiology; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Quantitative analysis (statistics); Data management

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

Determining pain phenotypes in adults with low back pain to improve treatment efficacy

Project Number: ESS_12

Primary Supervisor: Patrick Owen

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Phone: 92445013

Co-Supervisor(s): Dr Clint Miller; Dr Jamie Tait

Topic Area(s): Exercise physiology; Clinical exercise; Physical activity

Project Location: On-campus at Melbourne Burwood -OR- Overseas or remotely

Project Description: Low back pain is the leading cause of disability worldwide and affects approximately four million Australians (16% of the population). Whilst low back pain is a heterogeneous condition that varies in clinical presentation, 90% of cases are deemed 'non-specific' (i.e. a definitive cause of pain that meaningfully influences treatment cannot be identified). This is further complicated by 'flare-ups' that can leave patients physically immobilised for an undefined period of time. It is therefore pertinent to improve our understanding of how we conceptualise low back pain in an attempt to better characterise and subsequently treat patients. This project will identify clinical phenotypes using variables related to physical function and the experience of pain. The ultimate goal of this work is to enhance our understanding of low back pain presentations and its clinical manifestations, so that future treatment approaches may be tailored to the key features of this debilitating condition.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Quantitative analysis (statistics); Data management

Investigating the effects of exercise-intensity and volume on vascular health and function

Project Number: ESS_13

Primary Supervisor: Lewan Parker

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Co-Supervisor(s): A/Prof Michelle Keske; Dr Kim Way

Topic Area(s): Exercise; sport science; Applied Sports Science; Exercise physiology

Project Location: Melbourne Burwood campus

Project Description: The heart and large arteries help transport blood throughout the body. However, it is the smallest blood vessels (the microvasculature) that are responsible for the final delivery and exchange of gases (e.g., oxygen), nutrients (fats, sugars, and protein), and hormones (e.g., insulin) between various tissues including skeletal muscle. The cardiac and large artery response to exercise is well characterised, yet very little is known about how exercise intensity and volume affect muscle microvascular blood flow in humans. This research project aims to investigate the effects of manipulating exercise intensity and volume on skeletal muscle microvascular blood flow and blood haemodynamics (e.g., oxygenation, haematocrit, blood pressure). The student will assist with and learn techniques in exercise testing and prescription (VO₂ max testing, Wingate testing), blood analysis (blood lactate, glucose, and oxygenation), and modern ultrasound imaging of the microvasculature in skeletal muscle.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Exercise prescription and monitoring; Image and/or video analysis; Quantitative analysis (statistics); Intravenous infusion of an ultrasound solution to visualise blood flow in skeletal muscle; Ultrasound assessment of the femoral artery and microvasculature in skeletal muscle

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

If you're not measuring, you're guessing: Non-invasive assessment of the anaerobic threshold

Project Number: ESS_14

Primary Supervisor: Jonathan Rawstorn

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Co-Supervisor(s): Dr Kim Way; Dr Clint Miller

Topic Area(s): Exercise; sport science; Clinical exercise

Project Location: Melbourne Burwood campus

Project Description: The anaerobic threshold (AT) is an important indicator of sub-maximal exercise performance for athletic, healthy, and clinical populations but specialised/invasive measurement techniques (respiratory gas exchange; blood lactate concentration) are not feasible for many practitioners. We will investigate the validity and sensitivity of a proposed heart rate variability threshold (HRVT) as a proxy measure of AT. Students will gain skills in lab- and field-based exercise testing, measurement of respiratory gas exchange and blood lactate concentration, study design, quantitative data analysis, and applying exercise test data to improve exercise training. We expect to develop an HRVT detection method that can assess exercise performance, including changes over time. Motivated students may have opportunities to extend this work by developing real-time data analysis and reporting tools that integrate with an existing smartphone/web-based remote exercise monitoring and coaching platform.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts

Skills Developed: Recruitment of participants; Primary data collection skills; Exercise prescription and monitoring; Quantitative analysis (statistics)

Jumping to Health: Is the Jump Rope for Heart Program on Fitness, Movement Skills and Physical Activity

Project Number: FN_3

Primary Supervisor: Shannon Sahlqvist

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Phone: 9241 7782

Co-Supervisor(s): A/Prof Nicky Ridgers; A/Prof Lisa Barnett

Topic Area(s): Physical activity

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: The Heart Foundation's Jump Rope for Heart Program has been implemented in Australian schools since 1983. Each year it reaches over 300,000 students from 1,300 schools. A team of researchers within the School have been working with the Heart Foundation to evaluate the Program. They have, and continue to, collect data from hundreds of children to determine the impact of the Program on children's (a) physical activity (measured via accelerometry), (b) fundamental movement skills, (c) cardiorespiratory and muscular fitness and (d) behavioral outcomes. We are now seeking students who are interested in examining the impact of this national Program on any of these outcomes. In doing so, students will gain experience in the evaluation of complex real-world interventions as well as data collection, analysis and interpretation and working within a wider team.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other project related tasks

Skills Developed: Primary data collection skills; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

Exercise is Medicine: Exploring the Role of Accredited Exercise Physiologists

Project Number: ESS_15

Primary Supervisor: Shannon Sahlqvist

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Phone: 9241 7782

Co-Supervisor(s): Dr Peter Kremer; Dr Helen Brown

Topic Area(s): Exercise; sport science; Physical activity

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: General practitioners (GPs) can play an important role in the promotion of physical activity (PA) through their provision of PA related advice and counselling, and, where appropriate, by referring patients to an accredited exercise physiologist (AEP). To date, however, GP referral rates to AEPs are low with less than 1% of overweight and obese adults and less than 4% of patients with diagnosed type 2 diabetes being referred. Our own work has shown that, compared with other allied health professionals, both current medical students and GPs are less aware of the role of AEPs, and that, as such, further work is required to understand how AEPs can be better integrated into the primary care setting. This project will expand upon this work by exploring, in depth, the views that GPs, AEPs and/or the public have towards the role of AEPs. The student(s) can choose an appropriate sampling strategy, population group and methodology to explore this in-depth.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Survey development; Quantitative analysis (statistics); Qualitative analysis

Autophagy and the regulation of metabolism in health and disease

Project Number: ESS_16

Primary Supervisor: Chris Shaw

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Phone: 03 5227 3394

Co-Supervisor(s): Giselle Allsopp; Lee Hamilton

Topic Area(s): Exercise physiology

Project Location: Geelong Waurn Ponds campus

Project Description: Autophagy is a quality control system which recycles old or damaged proteins and therefore prevents cellular dysfunction. As autophagy is activated by exercise it may play a role in the muscle adaptations that occur with exercise training. On the other hand, autophagy is impaired with age and may explain the decline in tissue function (e.g. mitochondrial dysfunction, lipid accumulation) and risk of chronic diseases as we get older. It has been proposed that autophagy can also specifically target proteins involved in carbohydrate and fat metabolism but few studies have explored its relevance for metabolism in skeletal muscle. We are currently performing studies in humans and animal models to explore the role of autophagy in metabolism, the adaptations to regular exercise and the development of metabolic disease associated with obesity and ageing. Please contact me for more information on the projects available.

Skills/Attributes Required: Knowledge and background in anatomy and/or physiology; Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

Moving for mental health: Examining the link between physical activity, screen time & mental health

Project Number: ESS_17

Primary Supervisor: Megan Teychenne

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Co-Supervisor(s): Dr Riaz Uddin; Dr Sarah Costigan; Dr Katherine Downing; Dr Lauren Arundell

Research Mentor(s): Eloise Litterbach

Topic Area(s): Exercise; sport science; Sport / exercise psychology; Physical activity

Project Location: Overseas or remotely

Project Description: The burden of mental health problems (particularly anxiety and depression) has continued to rise globally and exacerbated by COVID-19. It is crucial that strategies are identified to help prevent and/or treat these conditions. Increasing physical activity and reducing screen time are two key behavioural factors that are likely to play an important role in managing mental health. Since risk of anxiety and depression is particularly prevalent in mothers with young children, who are also more likely to be physically inactive and use screens during leisure-time, it is important to investigate whether lifestyle factors such as physical activity and sedentary behaviour are in fact associated with mental health outcomes in this target group. This cross-sectional study will involve secondary statistical analyses using survey data previously collected from approximately 500 women involved in the Mums, Dads and Kids (MDK) study (2013-2014).

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Quantitative analysis (statistics); The project has the flexibility to be developed into a prospective study - should the student wish to gain skills in the field (data collection and recruitment of participants).

Are mitochondria secreted into the circulation during endurance exercise?

Project Number: ESS_18

Primary Supervisor: Glenn Wadley

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Co-Supervisor(s): A/Prof Severine Lamon; Dr Adam Trewin

Research Mentor(s): Jessica Silver

Topic Area(s): Exercise physiology

Project Location: Melbourne Burwood campus

Project Description: Mitochondria are secreted into the circulation by tissues or cells and it is postulated that they may play a role in the adaptive response or contribute to cross-talk between tissues. However, it is unknown if the secretion of mitochondria are altered by stressors such as exercise. Pilot experiments will first be conducted to validate the extraction method of mitochondria from previously collected blood samples. An exercise study will then be conducted in healthy participants with blood samples taken before, during and after a bout of endurance exercise. The mitochondria will be isolated from the blood samples and the quantity and quality will be measured. All laboratory techniques will be taught to the student as part of the honours training. By completing this project, students will become proficient at exercise/VO₂max testing of healthy volunteers and also at laboratory techniques that are common in physiology and biomedical research, including various mitochondrial measurements.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Exercise prescription and monitoring; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

Exercise and oxidative stress in skeletal muscle

Project Number: ESS_19

Primary Supervisor: Glenn Wadley

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Co-Supervisor(s): Dr Shaun Mason

Topic Area(s): Exercise physiology

Project Location: Melbourne Burwood campus

Project Description: Oxidative stress during exercise is due to increased production of reactive oxygen species (ROS) in the contracting skeletal muscle. The increased ROS is thought to be one of the mechanisms that stimulates muscle to adapt to exercise training. This project will use mass spectrometry to identify for the first time all the proteins that are altered in human skeletal muscle by ROS during a bout of endurance exercise. All laboratory techniques will be taught to the student as part of the honours training. By completing this project, students will become proficient at laboratory techniques that are common in physiology and biomedical research and also learn cutting-edge techniques utilizing mass spectrometry and proteomics that are only available in a few laboratories worldwide.

Skills/Attributes Required: Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques

Skills Developed: Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Quantitative analysis (statistics)

Evaluating home-based blood flow restriction exercise training

Project Number: ESS_20

Primary Supervisor: Stuart Warmington

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Phone: (03) 92517013

Co-Supervisor(s): TBC

Topic Area(s): Exercise; sport science; Applied Sports Science; Strength; Conditioning; Exercise physiology; Physical activity

Project Location: Melbourne Burwood campus

Project Description: Blood flow restriction (BFR) exercise is a training method that stimulates gains in muscle strength despite using light training loads. BFR exercise is also effective with aerobic walking, and is the emerging training and recovery technique from the Tokyo 2020 Olympics. However, until recently BFR exercise was only possible in laboratory settings, which limits our understanding of the feasibility and applicability of BFR exercise as a home-based training method. This project aims to examine a home-based BFR training programme to evaluate the practicality, effectiveness and monitoring of participant progress and compliance. You will gain and use skills associated with BFR exercise and its prescription, portable commercial BFR devices, and technology platforms to monitor and examine participants via telepractice. It is expected that this project will lead to publication of the study in a scientific journal enhancing your opportunity to pursue further research (e.g. PhD).

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Laboratory techniques; Exercise prescription and monitoring; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: EXERCISE AND HEALTH OR DISEASE

Characterising the blood flow response to blood flow restriction exercise

Project Number: ESS_21

Primary Supervisor: Stuart Warmington

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Phone: (03) 92517013

Co-Supervisor(s): Andrew Betik; Michelle Keske

Topic Area(s): Exercise; sport science; Exercise physiology

Project Location: Melbourne Burwood campus

Project Description: Blood flow restriction (BFR) exercise is a training method that stimulates gains in muscle strength despite using light training loads. BFR exercise is also effective with aerobic walking, and is the emerging training and recovery technique from the Tokyo 2020 Olympics. However, the measurable effect of BFR on exercising muscle blood flow is unknown, which is fundamental to understanding the mechanisms by which BFR may stimulate gains in muscle strength. This project aims to measure the blood flow response to BFR exercise to answer questions no others researchers have attempted. In addition, you will explore how characteristics of BFR exercise prescription impact this blood flow response. You will gain and use skills associated with BFR exercise and its prescription, ultrasound imaging to measure limb flow, and it is expected that this project will lead to publication of the study in a scientific journal enhancing your opportunity to pursue further research (e.g. PhD).

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Laboratory techniques; Exercise prescription and monitoring; Image and/or video analysis; Quantitative analysis (statistics)

Exercise Performance Following Immunisation

Project Number: ESS_22

Primary Supervisor: Craig Wright

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Phone: 03 5247 9266

Co-Supervisor(s): Dr Giselle Allsopp

Topic Area(s): Exercise physiology; Biomechanics

Project Location: Geelong Waurin Ponds campus

Project Description: The fear of adverse reactions are more often than not, the reason why 60% of Australians do not receive seasonal vaccinations. A season viral endemic leads to an increase in incidence rates amongst the entire population leaving those susceptible more vulnerable. Exercise is known to improve the efficacy of vaccination. Despite anecdotal evidence, little is known about the exercise and physiological response to exercise following vaccination. Therefore there are no exercise-immunisation guidelines leading to low vaccination rates among the healthy active populations. Providing this data may increase vaccination rates amongst the Australian population which in turn may reduce the morbidity and mortality and lessen the burden on the Australian health care system. This study seeks to collect pilot data on the interaction between immunisation and exercise tolerance

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Exercise prescription and monitoring; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: FOOD OR NUTRITION SCIENCE

Sugar reduction in processed and packaged foods: how are food companies approaching the challenge?

Project Number: FN_4

Primary Supervisor: Shirani Gamlath

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Co-Supervisor(s): Staff from CASS Food Research centre; To be confirmed

Research Mentor(s): Dipendra Mahato

Topic Area(s): Sensory; consumer science

Project Location: Melbourne Burwood campus

Project Description: Reformulating packaged foods to reduce nutrients such as added sugar is one strategy likely to have significant impacts on improving the diets and health of Australian consumers. However, consumers also demand that processed and packaged foods meet expectations and overall liking. This necessitates the use of clever formulation strategies to reduce added sugar but maintaining consumer satisfaction. This project will examine the strategies currently being used by food manufacturers to reduce added sugar in products (e.g. in “low sugar” variants), including an analysis of ingredients and formulation changes (e.g. whether sugar replacers are used and/or whether other ingredients such as fat are substituted) by utilising the MINTEL Global New Products Database. The data will provide an insight into future product reformulation strategies.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in a sensory or consumer science; Basic familiarisation with laboratory techniques

Skills Developed: Laboratory techniques; Quantitative analysis (statistics)

Microbial Food Spoilage: A major concern for food waste

Project Number: FN_5

Primary Supervisor: Snehal Jadhav

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Phone: 03 92468606

Co-Supervisor(s): Associate Professor Robert Shellie

Research Mentor(s): Agnes Mukurumbira

Topic Area(s): Food Safety

Project Location: Melbourne Burwood campus

Project Description: Food waste due to microbial spoilage is a major hindrance for food sustainability. Food spoilage and pathogenic microbes can proliferate in a range of different foods ranging from fresh produce to ready-to-eat food products and bring about chemical changes in the food rendering it unsuitable or unsafe for consumption. The presence of these microbes and their metabolites can also serve as markers of food quality and food freshness. The current project aims to develop an understanding of microbial spoilage in perishable foods to eventually identify early markers of food quality. The project will include training for industry relevant basic and advanced food microbiology and analytical skills in the laboratory.

Skills/Attributes Required: Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability to work as a team member

Skills Developed: Primary data collection skills; Laboratory techniques; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: FOOD OR NUTRITION SCIENCE

Safety of Alternative proteins

Project Number: FN_6

Primary Supervisor: Snehal Jadhav

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Co-Supervisor(s): Associate Prof Rob Shellie

Research Mentor(s): Agnes Mukurumbira

Topic Area(s): Food Safety

Project Location: Melbourne Burwood campus

Project Description: The rising global food insecurity has made sustainability in food systems an important goal for our communities. Resource intensive proteins such as red meat are no longer considered sustainable. Instead, foods containing alternative protein sources such as plant-based proteins or insect-based proteins are becoming more popular. There is also a growing number of artisanal businesses selling some of these on e-commerce websites and very little is known about how safe these commercially available products are especially considering that there is an overall lack of standardisation in industry practises. The current project would look at the compositional analysis and microbial safety of commercially available alternative protein sources. This study would inform consumers about any safety concerns in these products and would also help highlight any food safety risks associated with this industry. The project will include training for industry relevant basic and advanced food microbiology.

Skills/Attributes Required: Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability to work as a team member

Skills Developed: Primary data collection skills; Laboratory techniques; Quantitative analysis (statistics); Qualitative analysis

Does omega-3 DPA supplementation with high fat reduce inflammatory cytokine levels in liver tissue?

Project Number: FN_7

Primary Supervisor: Gunveen Kaur

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Co-Supervisor(s): A/Prof Michelle Keske; Dr Paul Della Gatta

Topic Area(s): Nutrition science; disease prevention

Project Location: Melbourne Burwood campus

Project Description: Docosapentaenoic acid (DPA) is a long chain n-3 polyunsaturated fatty acid found in our diet through fish and lean red meat. Recent studies have shown that DPA is an important bioactive fatty acid that improves lipid metabolism and reduces inflammation in various cell culture and animal models. We have recently studied the effects of DPA in rats fed a high fat diet (HFD). We found that all HFD animals had increased liver fat and the lipid species composition was altered by n-3 DPA. We would like to further investigate if this altered lipid composition is linked with reduced levels of inflammatory cytokines in the (already collected) liver tissue? This will provide important new knowledge if n-3 DPA can prevent the development of NAFLD in high fat fed animals. This project will provide the student with knowledge in role of fat and lipid metabolism in health and disease prevention, cytokine analysis and an opportunity to be part of a successful research team.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to work as a team member

Skills Developed: Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Image and/or video analysis; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: FOOD OR NUTRITION SCIENCE

Does hospital food intake affect health outcomes in people with cancer?

Project Number: FN_8

Primary Supervisor: Nicole Kiss

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Co-Supervisor(s): Professor Judi Porter; Jenelle Loeliger

Topic Area(s): Dietetics; Nutrition; chronic disease

Project Location: Combination of on site at Peter MacCallum Cancer Cancer and Melbourne Burwood

Project Description: Adequate nutrition for hospital inpatients is crucial for optimal health outcomes. However, achieving an adequate nutritional intake can be challenging for patients due to illness and other factors. This project will utilise mobile intake which electronically captures the food and fluid intake of inpatients at Peter MacCallum Cancer Centre and provides real time data on patient's protein and energy intake, as well as food wastage. Data for a large number of inpatients from the 3 main inpatient wards and across all meal periods is available to analyse for nutritional adequacy with the ability to link to clinical outcomes including length of stay, hospital readmission and survival. There is scope to tailor the project to the specific interest areas of potential students within this broad concept.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Primary data collection skills; Quantitative analysis (statistics); Dietary analysis

Young children's diets

Project Number: FN_9

Primary Supervisor: Katie Lacy

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Co-Supervisor(s): Jazzmin Zheng; Alison Spence; Kristy Bolton; Konsita Kuswara

Topic Area(s): Dietetics; Public health nutrition

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: Young children's diets impact their current and future health. Describing and understanding young children's diets, and influences on these, is important to inform public health strategies. A project in this research area would include analysis of existing data from the InFANT Program (500 children aged 9mo-5y) - the only Australian study with multiple 24hr diet recalls for children 2y, complemented by survey data on parenting/home food environments. Project topics could include (or other related interests can be discussed): - Associations between parent feeding practices, family meals and child dietary intakes over time - How macronutrient intakes during infancy influence body weight in early childhood - Tracking of energy density over time - Frequency/distribution/tracking of dietary intakes As an alternative option in the same age group, there is also a long daycare food provision dataset currently being collected, and available for posing research questions and analysis in 2022.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Quantitative analysis (statistics); In-depth knowledge of early childhood nutrition, plus skills in analysing, interpreting and presenting dietary data in a way which informs health professionals as well as researchers.

HONOURS PROJECTS 2022: FOOD OR NUTRITION SCIENCE

Sensory marketing and online food choices

Project Number: FN_10

Primary Supervisor: Gie Liem

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Phone: 458988996

Co-Supervisor(s): Russell Keast

Topic Area(s): Sensory; consumer science

Project Location: Melbourne Burwood campus

Project Description: Online grocery shopping, online Food Delivery Platforms, as well as online meal box services have been growing by 24 to 34% in the past years and by 45% following the COVID' 19 pandemic. Analysts expect the surge in online food shopping to continuously increase following the strong general increase in e-commerce across the globe. Online food shopping enables food manufacturers and retail to broaden their potential consumer base and make restaurants less dependent on in-house seating capacity. However, the increase of online food options goes hand in hand with an increased accessibility to mostly unhealthy foods, which has been linked to sustained weight gain. To be able to influence online food choices, we need to understand how these food choices are made and how they can be changed. This project will be focused on sensory expectations and sensory marketing

Skills/Attributes Required: Knowledge and background in a sensory or consumer science; Ability to learn relevant software programs (e.g. Excel, statistical software program)

Skills Developed: Recruitment of participants; Primary data collection skills; Survey development; Quantitative analysis (statistics)

Sensory marketing and online reviews

Project Number: FN_11

Primary Supervisor: Gie Liem

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Co-Supervisor(s): Russell Keast

Topic Area(s): Sensory; consumer science

Project Location: Melbourne Burwood campus

Project Description: One of the most important changes to everyday food choices in the past years has been the surge in e-commerce and online food choices. But how do consumers make online food choices? Online food choices are partly influenced by consumer reviews and star ratings by consumers. Reviews can contain information about the service of the delivery, food characteristics (e.g. flavour, texture, portion size) and price. This project will investigate the relative importance of different elements of food reviews on consumer satisfaction.

Skills/Attributes Required: Knowledge and background in a sensory or consumer science

Skills Developed: Survey development; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: FOOD OR NUTRITION SCIENCE

Investigating the effects of antioxidant supplementation on muscle blood flow and glucose metabolism

Project Number: FN_12

Primary Supervisor: Lewan Parker

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Co-Supervisor(s): A/Prof Michelle Keske; Dr Kim Way

Topic Area(s): Sports nutrition; Vascular health; function; Nutrient metabolism; Antioxidant supplementation; Endocrinology

Project Location: Melbourne Burwood campus

Project Description: Oxidative stress (an imbalance between highly reactive molecules and neutralising antioxidants) can lead to vascular dysfunction which plays a major role in cardiometabolic diseases including type 2 diabetes. Although antioxidant supplementation can decrease oxidative stress and improve heart and large artery function, research has yet to investigate the impact of antioxidants on the smallest blood vessels (the microvasculature) in the body. This research is important as the microvasculature is responsible for the final delivery and exchange of gases (e.g., oxygen), nutrients (fats, sugars, and protein), and hormones (e.g., insulin). The aim of this project is to investigate the impact of antioxidant supplementation (intravenous infusion) on skeletal muscle blood flow and glucose metabolism. The student will assist with and learn techniques in blood analysis (blood lactate, glucose, and oxygenation), modern vascular imaging of the thigh, and intravenous infusion of an antioxidant.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to work with blood and/or muscle biopsy samples; Laboratory techniques; Image and/or video analysis; Quantitative analysis (statistics); Indirect calorimetry (face mask to measure fat and lipid metabolism); Intravenous infusion of an antioxidant; Intravenous infusion of an ultrasound solution to visualise blood flow in skeletal muscle; Ultrasound assessment of the femoral artery and microvasculature in the thigh muscle

Hand Grip Strength as an indicator of nutritional status in a subacute inpatient unit

Project Number: FN_13

Primary Supervisor: Judi Porter

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Phone: 039246 8625

Co-Supervisor(s): Dr Brenton Baguley; Joseph Wai; Christine Reicha

Topic Area(s): Dietetics

Project Location: Data collection at McKellar Centre, Barwon Health

Project Description: Handgrip strength (HGS) has been proposed as a simple, reliable and objective measure of nutritional status its change. Although the relationship is well-established, the implementation of measuring HGS in clinical settings is slow. The traditional approach of using weight change as nutritional marker is flawed, since weight can be influenced by non-nutrition factors. This observational cross-sectional study aims to: - Measure HGS (consecutive sample) of every patient admitted to McKellar Inpatient Rehabilitation; - Determine the correlation between HGS, weight, Subjective Global Assessment (SGA), Malnutrition Screening Tool (MST), mid-arm circumference (MAC) Functional Independence Measure (FIM) – Primary outcome. - Explore the feasibility of adopting HGS measurement as a routine nutritional assessment tool – Secondary outcome (time motion work, benefits, primary cost, implementation, qualitative interviews).

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Survey development; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: FOOD OR NUTRITION SCIENCE

GOTCHA: Identifying fake food using Gas Open Tubular CHromatography Analysis

Project Number: FN_14

Primary Supervisor: Rob Shellie

E-mail: robert.shellie@deakin.edu.au

Co-Supervisor(s): Snehal Jadhav

Research Mentor(s): Valarie Heng

Topic Area(s): Food Analysis; Food Science

Project Location: Melbourne Burwood campus

Project Description: More than ever, consumers want to understand and trust the provenance and authenticity of foods they consume. However, spotting fake food remains an immense challenge. This project AIMS to use instrumental analysis to record chemical signatures of genuine foods and compare them with those recorded from fake / adulterated examples. The beauty of this project lies in a novel data science approach invented by A/Prof Shellie. YOU will develop skills in food analysis using state-of-art laboratory instrumentation and participate in discussions with industry stakeholders. These are great skills to develop if you are hoping to work in industry after Honours and the significant opportunity to contribute to publication(s) will surely interest those who wish to apply for PhD.

Skills/Attributes Required: Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Laboratory techniques; Quantitative analysis (statistics); Qualitative analysis; NB the above refer to qualitative and quantitative chemical analysis

Undernutrition and overweight/obesity in Vietnam

Project Number: FN_15

Primary Supervisor: Ewa Szymlek-Gay

E-mail: ewa.szymlekgay@deakin.edu.au

Phone: +61 3 9244 5404

Co-Supervisor(s): Dr Ngan Hoang

Topic Area(s): Public health nutrition; Paediatric nutrition; Food behaviour

Project Location: Overseas or remotely

Project Description: Malnutrition, which encompasses both undernutrition as well as overnutrition, continues to be a global challenge. In Vietnam, a country undergoing nutrition transition, undernutrition remains a key challenge while the prevalence of overweight/obesity has increased rapidly. Strategies that can reduce undernutrition and overweight/obesity in Vietnam are needed. Our program of research includes a number of studies in this area conducted in Vietnam, which will help inform future interventions, policy, or public health initiatives, for example: a trial assessing the effect of a fortified dairy product on nutritional status, gastrointestinal disorders, and infection in 2-5-year-old children; or a cross-sectional study assessing fast food consumption and associated factors in young adults. We encourage students with an interest in nutrition in low- and middle-income countries to contact us to discuss potential projects.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Quantitative analysis (statistics); In-depth knowledge of the chosen topic

HONOURS PROJECTS 2022: FOOD OR NUTRITION SCIENCE

Whole nuts and nut butter: Which food is more filling?

Project Number: FN_16

Primary Supervisor: Sze-Yen Tan

E-mail: szeyen.tan@deakin.edu.au

Phone: 03-92468977

Co-Supervisor(s): Prof Russell Keast

Topic Area(s): Dietetics; Sensory; consumer science; Public health nutrition

Project Location: Melbourne Burwood campus

Project Description: The amount and types of foods humans consume are regulated by appetite sensations. For example, hunger initiates food intake, fullness terminates an eating event, while desire-to-eat promotes food ingestion even in the absence of hunger. Therefore, appetite regulation plays an important role in body weight regulation. This study will compare the appetitive effects of nuts, and determine which form (e.g. whole nuts vs. nut butter) will have superior effects in appetite regulation. Human participants will be recruited from the community, and they will be asked to consume test foods including whole nuts, nut butter, or pretzels (as control) on three separate days, and they will be asked to report their appetite and food intake on these test days. In this study, the student will learn about techniques used to assess appetite, as well as analysis of dietary intake using the Australian Food Composition software.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in a sensory or consumer science; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Laboratory techniques; Survey development; Quantitative analysis (statistics)

Nuts and seeds: Do they lead to weight gain?

Project Number: FN_17

Primary Supervisor: Sze-Yen Tan

E-mail: szeyen.tan@deakin.edu.au

Phone: 03-92468977

Co-Supervisor(s): Dr Elena George

Topic Area(s): Dietetics; Public health nutrition

Project Location: Overseas or remotely

Project Description: Two out of three Australians are overweight or obese. Foods that are energy dense, especially those high in sugar and fat and often viewed as the culprit of weight gain. Nuts and seeds are high in fat, and there are concerns about whether they increase the risk of being overweight or obese. However nuts and seeds are a rich source of healthy fats and a suite of other beneficial nutrients, so energy density is not likely to be an issue. This has been shown in studies including nuts but has not yet been established in nuts and seeds as a combination. In this project, the student will conduct secondary data analysis on the US national health and nutrition survey to determine if intake of nuts and seeds is linked to higher body weight, BMI, and waist circumference. This project is suitable for students who work remotely in Australia, or from overseas.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Quantitative analysis (statistics)

HONOURS PROJECTS 2022: HEALTH OR FOOD BEHAVIOURS

Parents' perceptions school lunch provision for their primary school children

Project Number: FN_18

Primary Supervisor: Claire Margerison

E-mail: claire.margerison@deakin.edu.au

Phone: 39257293

Co-Supervisor(s): Alison Booth; Janandani Nanayakkara

Topic Area(s): Public health nutrition; Nutrition Promotion

Project Location: Overseas or remotely

Project Description: This study aims to explore parents' perceptions and current practices in providing school lunch for their primary school children, as well as their opinions of school lunch programs. An online survey will be employed to gather Victorian parents' opinions of the above. We expect that the survey findings will enable us to identify various influences on parents' school lunch planning, food purchasing, and preparation. Moreover, this study will provide insights into the challenges they face in school lunch provision and any strategies they employ to mitigate those challenges. The honours student gets a chance to involve in participant recruitment and the online data collection process. The survey includes both qualitative and quantitative data, therefore the student will gain skills in analysing both types of data.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability to work as a team member; ability to learn basic qualitative analysis techniques

Skills Developed: Recruitment of participants; Primary data collection skills; Survey development; Quantitative analysis (statistics); Qualitative analysis

Dietary patterns and lipid profiles in women with diabetes during pregnancy

Project Number: FN_19

Primary Supervisor: Paige van der Pligt **E-mail:** p.vanderpligt@deakin.edu.au

Phone: 92468738

Co-Supervisor(s): Dr Rebecca Leech; Dr Stacey Ellery

Topic Area(s): Public health nutrition; Diet; chronic disease

Project Location: On campus at Burwood or remotely if suitable

Project Description: Women diagnosed with gestational diabetes mellitus (GDM) in pregnancy are at significantly increased risk of developing Type 2 Diabetes following pregnancy. These women are also at high risk of developing cardiovascular disease (CVD) later in life. Diet quality and dietary lipid profiles are important in assessing the risk and development of CVD. In women with GDM, diet assessment during pregnancy is a key step in identifying modifiable factors that can be targeted for assisting positive pregnancy outcomes and future health. The aim of this project is to compare the diet quality and dietary lipid profiles (e.g. omega 3) of women diagnosed with GDM compared to women without GDM. This project will employ quantitative methods and involve analysis of existing data as part of the Creatine and Pregnancy Outcomes Study led by Dr Stacey Ellery at The Hudson Institute. Women with GDM will form a sub-set of this sample and their data will be compared to a matched group of women without GDM.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member; Understanding of diet and cardiovascular disease and knowledge regarding pregnancy nutrition will also be useful

Skills Developed: Quantitative analysis (statistics)

HONOURS PROJECTS 2022: HEALTH OR FOOD BEHAVIOURS

Understanding the development of children's eating behaviours

Project Number: FN_20

Primary Supervisor: Georgie Russell

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Phone: 61 3 924 68503

Co-Supervisor(s): Alissa Burnett

Research Mentor(s): Tracy Lee OR Jennifer McCann OR Manuela Rigo

Topic Area(s): Dietetics; Sensory; consumer science; Public health nutrition

Project Location: Depending upon the project it could be on-campus or remotely

Project Description: This project will explore the development of children's eating and appetite-related behaviours. We are interested in understanding how and why differences in children's eating behaviours arise. This includes identifying which characteristics of children and parents are important, how environmental factors impact different children, and how family and other social environments influence eating. According to the interests of the student, this project will explore one element of the development of children's eating behaviours as an important precursor to diet and weight outcomes. Projects can either be secondary data analysis, or primary data collection via questionnaire or behavioural tasks. Example projects include secondary data analysis to understand unique eating "profiles", secondary data analysis to understand infants' acceptance of vegetables, or testing the influence of packaging design on children's food choices. Please contact Georgie to discuss potential topics.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Basic familiarisation with laboratory techniques; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Survey development; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: PUBLIC HEALTH OR HEALTH PROMOTION

Secondary analysis of urinary excretion and diet recall data in Victorian adults over time

Project Number: FN_21

Primary Supervisor: Kristy Bolton

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Phone: +613 5227 8277

Co-Supervisor(s): Dr Carley Grimes

Topic Area(s): Public health nutrition

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: Projects are available using secondary data collected from a recent state-wide salt reduction initiative implemented across Victoria (<https://pubmed.ncbi.nlm.nih.gov/31992370/>; <https://pubmed.ncbi.nlm.nih.gov/31817767/>). The aim of the project was to reduce salt intake in the population of Victoria by 1 gram per day, over four years. Data was collected cross-sectionally in 2016/17 (n=340) and 2019/20 (n=210). Data includes demographic characteristics, discretionary salt use behaviours, urinary biochemistry (e.g. sodium/salt, potassium) via 24-hour urine collection and a subsample participated in a 24-hour dietary recall. Potential projects include: examining changes in potassium intake over time, or salt intake via socioeconomic status or weight status categories. It is also possible to examine changes in sodium/salt/potassium longitudinally using additional data from 2011 and 2014. Contact Kristy for more information and ideas in this area.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Quantitative analysis (statistics); Data preparation and management, interpretation of findings

School Food Literacy Education

Project Number: FN_22

Primary Supervisor: Alison Booth

E-mail: alison.booth@deakin.edu.au

Phone: 392517211

Co-Supervisor(s): Claire Margerison; Janandani Nanayakkara

Research Mentor(s): Gozde Aydin

Topic Area(s): Public health nutrition

Project Location: Overseas or remotely

Project Description: Even with limited coverage in the curriculum, teachers often find it a challenge to devote adequate time to teaching food and nutrition due to competing priorities, interests, lack of content knowledge and resources. This results in a wide variety of both quality and quantity of food literacy education delivered to primary school students. Gaining insight into how teachers approach food literacy education across different environments has potential to open up opportunities for improved food literacy practices in a variety of school settings. The aim of the honours project will be to investigate school food and nutrition environments and explore different approaches to food literacy education in primary and secondary schools. This research forms part of a broader research partnership between University of British Columbia Canada, Deakin University Australia, the University of Gothenburg Sweden and Sweet Briar College, USA.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Interest in qualitative data collection and analysis

Skills Developed: Recruitment of participants; Ability to conduct interviews; Survey development; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: PUBLIC HEALTH OR HEALTH PROMOTION

Dietary intake of Victorian primary schoolchildren

Project Number: FN_23

Primary Supervisor: Carley Grimes

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Phone: +61 3 9244 6223

Co-Supervisor(s): Dr Kristy Bolton; Dr Katie Lacy

Topic Area(s): Dietetics; Public health nutrition

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: Projects are available using secondary data collected with the Salt and Other Nutrients In Children (SONIC) study (<https://pubmed.ncbi.nlm.nih.gov/25592666/>). This was a large cross-sectional study conducted in Victorian primary schoolchildren. Data was collected at two time-points among two separate samples of children (2010-13: >600 children participated and 2018-19: >150 children participated). Within this study a range of measures were assessed, including: dietary intake via a 24-hour dietary recall; sodium and potassium intake via a 24-hour urine collection; and child and parental knowledge, attitudes and behaviours related to dietary salt. Projects can be developed that assess changes in dietary intake over time, for example changes in diet quality measures including ultra-processed food consumption or that examine the relationship between knowledge and attitudes on children's sodium intake.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Quantitative analysis (statistics); The student will develop in-depth knowledge of children's dietary intakes as well as skills in data management and communicating research findings to target audiences.

Physical activity (and nutrition) in early childhood education and care

Project Number: ESS_23

Primary Supervisor: Jill Hnatiuk

E-mail: jill.hnatiuk@deakin.edu.au

Phone: 9246 8776

Co-Supervisor(s): Penny Love

Topic Area(s): Public health nutrition; Physical activity

Project Location: Overseas or remotely

Project Description: A growing number of children between birth and five years old in Australia attend early childhood education and care (ECEC). Despite the influential role of ECECs in children's lives, little is known about the policies and practices that exist related to young children's physical activity levels and active play. This research project will use data from a 2021 study of physical activity policies, practices and environments in long day care services throughout Australia. Some examples of projects include examining educator practices promoting physical activity in young children, or content analyses of existing physical activity policies within centres. Data was also collected around feeding practices and meal time environments, so opportunities exist to examine both nutrition and physical activity if desired. In this project, students will gain comprehensive knowledge of the ECEC sector, young children's physical activity behaviours, and quantitative or qualitative data analysis skills.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects)

Skills Developed: Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: PUBLIC HEALTH OR HEALTH PROMOTION

Physical activity and screen time in young children's home and community environments

Project Number: ESS_24

Primary Supervisor: Jill Hnatiuk

E-mail: jill.hnatiuk@deakin.edu.au

Phone: 9246 8776

Co-Supervisor(s): Katherine Downing

Topic Area(s): Physical activity

Project Location: Overseas or remotely

Project Description: Students involved in this research project will use data from the Screen Time, Physical Activity in Children's Environments Study (SPACES), a cross-sectional study of approximately 500 parents of 2-5 year old children. Students can select their topic depending on their interests. Some examples of research questions include: (1) examining the relationship between the home physical environment (e.g., the number and availability of screen devices, the size and type of indoor and outdoor spaces in the home) and children's physical activity and/or screen time; or (2) examining how the social features of the family/neighbourhood interact with physical environmental characteristics to influence children's physical activity and/or screen time. Additional research questions are possible; this can be discussed further when the student meets with the supervisor(s). Opportunities for fieldwork may also be possible and students wishing to publish their findings are welcomed.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects)

Skills Developed: Quantitative analysis (statistics)

Food insecurity in Australia

Project Number: FN_24

Primary Supervisor: Rebecca Lindberg

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Phone: 03 9246 8947

Co-Supervisor(s): Kate Wingrove; Fiona McKay; Paige van der Pligt

Topic Area(s): Public health nutrition

Project Location: On campus OR remotely

Project Description: Australia is a wealthy country, but some population groups experience high rates of food insecurity. We welcome enquiries from anyone interested in this area generally. Two example projects are provided below. 1. The development of a comprehensive tool to measure household food insecurity. The tool has been piloted with a group of mothers. There is an opportunity to test the tool with other population groups for e.g. older people, people living in regional/rural areas, and/or people living in public housing. In the future, this tool could become part of the robust monitoring system that is needed to inform policies that promote food and nutrition security. 2. Models to empower people with lived experience of food insecurity. Often overlooked and hard-to-reach and yet these people are vital to include for sustainable/meaningful support. There is potential to develop and test an intervention that would enable community members to have a platform in the development of policies/programs.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Survey development; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: PUBLIC HEALTH OR HEALTH PROMOTION

Food and nutrition resources used in Victorian primary schools – are they evidence-based?

Project Number: FN_25

Primary Supervisor: Penelope Love

E-mail: penny.love@deakin.edu.au

Phone: 03 5227 8484

Co-Supervisor(s): Dr Claire Margerison

Research Mentor(s): Gozde Aydin

Topic Area(s): Public health nutrition

Project Location: Overseas or remotely

Project Description: Schools are regarded as a key setting for children to learn about food and health behaviours. In Victorian primary schools, only 2.6% of the Victorian Curriculum appears to relate to food and nutrition education, taught predominantly through two (of seven) learning outcomes. Food and nutrition teaching resources are available to teachers via the Department of Education and Training (DET) website – FUSE. A variety of food and nutrition resources exist, sourced from Australian and other international sources. This research will explore the evidence-base of food and nutrition resources available on the FUSE website and their appropriateness for the Australian context.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Survey development; Quantitative analysis (statistics); Qualitative analysis

Diet quality as a predictor of cognitive decline and dementia risk

Project Number: FN_26

Primary Supervisor: Helen Macpherson

E-mail: helen.Macpherson@deakin.edu.au

Phone: 92445317

Co-Supervisor(s): Catherine Milte

Topic Area(s): Dietetics; Public health nutrition

Project Description: Poor diet is recognised as a risk factor for cognitive decline and dementia. However, the underlying mechanisms responsible for these associations are uncertain. The aim of this study is to investigate the relationship between cognition and health parameters relevant to diet such as cardiovascular health and body composition. Participants in this study will be older people with subjective memory complaints, which can serve as an early marker of cognitive impairment. The findings from this study will be used to inform the development of targeted interventions designed to benefit brain health in older people.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts

Skills Developed: Primary data collection skills; Ability to conduct interviews; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: PUBLIC HEALTH OR HEALTH PROMOTION

Digital health exercise interventions to maintain musculoskeletal health during weight loss

Project Number: ESS_25

Primary Supervisor: David Scott

E-mail: d.scott@deakin.edu.au

Phone: 03 9246 8438

Co-Supervisor(s): Jakub Mesinovic; Paul Jansons

Topic Area(s): Dietetics; Public health nutrition; Exercise; sport science; Strength; Conditioning; Exercise physiology; Physical activity

Project Location: Melbourne Burwood campus

Project Description: Weight loss can improve metabolic health in older adults with obesity but a concern is associated loss of bone and muscle mass which may increase fracture risk. Clinical exercise programs have been proven effective at preventing bone and muscle loss during weight loss, but translation of these interventions has not occurred due in part to barriers such as cost and lack of time. Digital health-delivered home-based exercise programs may circumvent these barriers. In this project, we will explore the feasibility and safety of a home-based exercise program targeting musculoskeletal health, delivered using Physitrack software in adults with obesity undertaking diet- or surgically-induced weight loss. The outcomes from this project can be readily translated into community-based programs, clinical practice and public health recommendations for older adults with obesity in Australia and worldwide.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Exercise prescription and monitoring; Quantitative analysis (statistics)

Physical function and bone health in postmenopausal women with low bone mass

Project Number: ESS_26

Primary Supervisor: David Scott

E-mail: d.scott@deakin.edu.au

Phone: 03 9246 8438

Co-Supervisor(s): Jakub Mesinovic; Paul Jansons

Topic Area(s): Strength; Conditioning; Exercise physiology; Clinical exercise

Project Location: Melbourne Burwood campus

Project Description: One in three women aged over 50 years have osteoporosis or osteopenia, increasing risk of fractures. Physical function assessments can easily be incorporated into a clinical setting given they are feasible and recommended for risk assessment and diagnosis for a range of conditions. Components of physical function (e.g. muscle strength, size, mass, quality, power and performance) that best predict bone health outcomes (e.g. bone density, geometry, microarchitecture and strength) are unclear. In this project, we will determine associations between physical function and bone health in community-dwelling postmenopausal women with low bone mass. Students will have the opportunity to work alongside patients, academic researchers and clinical experts, and gain experience in assessments of physical function and musculoskeletal imaging techniques. The outcomes from this project may help identify physical function outcomes that can be used in clinical settings to predict poor bone health.

Skills/Attributes Required: Knowledge and background in anatomy and/or physiology; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Image and/or video analysis; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: PUBLIC HEALTH OR HEALTH PROMOTION

Physical activity over the transition out of secondary school

Project Number: ESS_27

Primary Supervisor: Anna Timperio

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Phone: 9251 7244

Co-Supervisor(s): Venurs Loh

Topic Area(s): Physical activity

Project Location: Overseas or remotely

Project Description: The transition out of secondary school is a time of significant change as individuals adapt to new routines and life pathways. ProjectADAPT tracked the physical activity, sedentary behaviour and eating behaviours of Year 11 students over two years as they transitioned out of secondary school. The rich data from ProjectADAPT can be used to answer several important questions about physical activity over this significant transition stage. Example research questions include how feelings of safety and the social environment within the neighbourhood (eg. perceived crime, seeing others being active) impact walking among girls in Year 11 and whether this changes over time, and how social support for physical activity changes over the transition out of school and whether this impacts physical activity. This is a secondary analysis project in which students will develop skills in statistics and quantitative data analysis.

Skills/Attributes Required: Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects)

Skills Developed: Quantitative analysis (statistics)

HONOURS PROJECTS 2022: SPORTS SCIENCES

Health and performance issues in Australian Rules Football: Preliminary Sports Science Investigation

Project Number: ESS_28

Primary Supervisor: Elizabeth Bradshaw

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Phone: 9244 6646

Co-Supervisor(s): Dr Eric Drinkwater

Topic Area(s): Applied Sports Science; Strength; Conditioning; Biomechanics

Project Location: Melbourne Burwood campus

Project Description: This project offers the opportunity to conduct research in sports science topics related to Australian Rules Football. Example topics include: - Validity and reliability of inertial measurement units for measuring biomechanical loads when running on different ground surfaces - Reliability of measures of head injury protective factors - Strengthening the neck and trunk to lower the risk of concussion injury This research project will provide new knowledge to support longitudinal, cross-sectional studies in football codes on strength conditioning practices for injury prevention in youth players.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Laboratory techniques; Exercise prescription and monitoring; Quantitative analysis (statistics)

The impact of the AFL Junior Coaching Curriculum on coach practice

Project Number: ESS_29

Primary Supervisor: Helen Brown

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Phone: 92446327

Co-Supervisor(s): Tim Konoval

Research Mentor(s): Glenn Wadley

Topic Area(s): Sports coaching

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: The AFL has recently introduced an innovative Junior Coaching Curriculum which utilises a blended approach to delivery. This project aims to examine to what extent sport coaches have used the new curriculum in practice, as well as exploring the impact the program has on player perceived physical competency and self-efficacy. The study will involve both qualitative (selected interviews) and quantitative (survey) methodologies and provide feedback to the AFL on potential modifications required. Students who are interested in sport at the community level and the factors influencing player participation and coach development will benefit from being involved in the study.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Survey development; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: SPORTS SCIENCES

Evaluation of 'NetGoals' - a Netball Victoria program for youth living in social disadvantage

Project Number: ESS_30

Primary Supervisor: Helen Brown

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Phone: 92446327

Co-Supervisor(s): Dr Peter Kremer; Dr Tim Konoval

Topic Area(s): Exercise; sport science

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: Net Goals is a program run by Netball Victoria, aiming to utilise sport as a way to engage youth living in social disadvantage across Victoria. This honours project aims to use the evaluation results of the pilot program (conducted in 2021) to design the next version of the program and assess the feasibility of implementing the newly designed program in other areas across Victoria. Students who are interested in sport and the use of sport for development are encouraged to apply. You will have an opportunity to work directly with Netball Victoria and gain insight into the development of their programs.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other project related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Survey development; Quantitative analysis (statistics); Qualitative analysis

Netball injuries in South-West Victoria – an analysis of emergency department presentations

Project Number: ESS_31

Primary Supervisor: Lyndell Bruce

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Phone: 03 9246 8967

Co-Supervisor(s): Dr Aaron Fox; Dr Stephen Gill; Prof. Richard Page; Dr Julian Stella

Topic Area(s): Applied Sports Science

Project Location: It will be possible to complete this project from either campus, but there will be a requirement to attend hospitals in Geelong and Warrnambool for data collection.

Project Description: Netball has high injury rates compared to other ball sports. Most evidence to date has focused on injuries in elite or sub elite level players, and only a small portion has included recreational players. No studies have directly compared netball injury profiles of males and females, and only a few studies have compared netball injuries with Australian Football injuries, which is important given the increasing numbers of females playing Australian Football. The aim of the study is to address knowledge gaps by investigating 1) injury profiles in recreational netballers, 2) comparing netball injury profiles in females and males, and 3) comparing injury profiles between netballers and Australian footballers. The study will involve collecting the data from up to 10 emergency departments throughout Geelong and Southwest Victoria. Data will be extracted from the medical records of patients who presented to the emergency departments with a netball related injury in the preceding 1-3 years.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other project related tasks

Skills Developed: Primary data collection skills; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: SPORTS SCIENCES

Understanding the Talent Development Environment in Australia

Project Number: ESS_32

Primary Supervisor: Lyndell Bruce

E-mail: lyndell.bruce@deakin.edu.au

Phone: 03 9246 8967

Co-Supervisor(s): Dr Luana Main

Research Mentor(s): Tanisha Bardzinski

Topic Area(s): Applied Sports Science

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: A large amount of time and effort is placed upon selecting the 'best' talent for further development in sporting environments. However, little understanding is placed upon the environment these talented athletes are placed into. The aim of this project is to understand the talent development environment and the impact this may be having on an athletes development. There will be an opportunity to examine the talent development environment across different sports, genders and/or age groups dependent on the interest of the student.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Quantitative analysis (statistics)

Do measures of "readiness to perform" predict performance in AFL matches?

Project Number: ESS_33

Primary Supervisor: Dan Dwyer

E-mail: dan.dwyer@deakin.edu.au

Phone: 5227 3476

Co-Supervisor(s): Chris Young

Topic Area(s): Performance Analysis

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: The primary aim of this project is to determine whether we can identify a measure of "readiness", that is predictive of match performance in the AFL. This project is conducted in partnership with the Geelong Football Club. We have a large pre-collected data set that consists of a valuable measure of match performance for a whole season (i.e. coaches votes). We also have a range of measures of load and "readiness" from weekly training sessions. This includes measures such as playerload, heart rate recovery rate, neuromuscular function and peak running speed. The project will involve the analysis of the data to identify relationships and determine whether one or more of the load and readiness measures is a good predictor of in-match performance. An aptitude for handling data is desirable, but we will also teach you everything you need to know to complete the analysis for this project.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program)

Skills Developed: Quantitative analysis (statistics)

HONOURS PROJECTS 2022: SPORTS SCIENCES

Are cricket coaches shortening the pitch for adolescent fast bowlers?

Project Number: ESS_34

Primary Supervisor: Simon Feros

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Phone: +613 5247 9723

Co-Supervisor(s): Peter Kremer

Research Mentor(s):

Topic Area(s): Sports coaching

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: Adolescent fast bowlers have a higher incidence of career threatening lower back injuries and stress fractures compared with adult fast bowlers. Research indicates adolescent fast bowlers can bowl with a safer and more effective technique if shorter pitch lengths are adopted. Shorter cricket pitches are enforced in junior cricket competition, but it is not known if cricket coaches shorten cricket pitches in training. Therefore, this project aims to elucidate current training practices of cricket coaches with respect to shortening cricket pitches in training of adolescent fast bowlers. An improved understanding of current training practices will likely influence coach and player education, as well as future practice of cricket coaches. The improvement of training practices may be important to reduce the incidence of career threatening lower back injuries and stress fractures, as well as improving performance among adolescent fast bowlers.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability to work as a team member

Skills Developed: Survey development; Quantitative analysis (statistics)

Using musculoskeletal modelling and simulation to understand gait performance and injury risk

Project Number: ESS_35

Primary Supervisor: Aaron Fox

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Phone: (03) 5247 9720

Co-Supervisor(s): Dr Jason Bonacci; Dr Danielle Trowell

Research Mentor(s): Ms Meghan Keast

Topic Area(s): Strength; Conditioning; Biomechanics

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: Biomechanical analysis of gait via musculoskeletal modelling and simulation are used to understand human gait – including movement strategies, joint forces, and muscle function. Our gait laboratory uses these techniques to investigate performance/injury risk and this project description encompasses a series of projects to select from which focus on this broad goal, including: (i) Simulating the effect of concurrent strength training on running technique and economy, to understand the mechanisms underpinning training effects; (ii) Simulating common patellofemoral pain running technique modifications, to investigate how they alter joint forces and muscle function; and (iii) Simulating changes to walking technique in patients with knee osteoarthritis, to investigate how they alter joint forces to reduce pain and joint degradation. Each project includes a similar methodological focus (i.e. musculoskeletal modelling simulation) applied in the context of the research question.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Laboratory techniques; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: SPORTS SCIENCES

Understanding biomechanical mechanisms of injury in sport

Project Number: ESS_36

Primary Supervisor: Aaron Fox

E-mail: aaron.f@deakin.edu.au

Phone: (03) 5247 9720

Co-Supervisor(s): Dr Natalie Saunders; Dr Jason Bonacci

Research Mentor(s): Ms Tess Rolley

Topic Area(s): Biomechanics; Injury Prevention

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: An understanding of injury mechanisms in sport is crucial for developing appropriate targeted injury prevention strategies. Our research team uses a combination of techniques (e.g. motion capture, force plates, modelling and simulation, video analysis) to investigate mechanisms of injury, with a particular focus on prominent injuries within women's sport (e.g. anterior cruciate ligament rupture, concussion). This project description encompasses a series of projects to select from which focus on this broad area, including: (i) Examining the effect of mid-air perturbations on landing biomechanics, to understand its impact on anterior cruciate ligament injury risk; and (ii) Assessing the characteristics of head and neck impacts in women's Australia Football, to identify potential concussion injury scenarios. Each project will focus on identifying the characteristics that underpin sport injury mechanisms, applied in the relevant sport-specific context.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Ability to work as a team member

Skills Developed: Laboratory techniques; Quantitative analysis (statistics)

Dietary supplements as adjuvants to strength training

Project Number: ESS_37

Primary Supervisor: Lee Hamilton

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Phone: +61 3 92445207

Co-Supervisor(s): Chris Shaw; Luana Main; Simon Feros; Andrew Betik

Topic Area(s): Sports nutrition; Exercise; sport science; Applied Sports Science; Strength; Conditioning; Exercise physiology

Project Location: Melbourne Burwood campus

Project Description: Our research team has recently been awarded some funding to explore the influence of a novel dietary supplement (which acts as an analgesic) on strength training outcomes. Analgesics are heavily used by athletes and many can impair strength training outcomes. This project will be a placebo controlled, parallel design, double blind, randomised controlled trial to determine if the analgesic we are testing impacts strength training adaptations like other over the counter analgesics. Subjects will undergo 8 weeks of supervised strength training. They will receive either the supplement or the placebo and outputs will involve body composition analysis (DEXA), muscle mass (pQCT), performance and sleep well-being outcomes. This project will suit students who are interested in strength and conditioning and sports supplements. They will get hands on experience in exercise training and performance testing.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Laboratory techniques; Exercise prescription and monitoring; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: SPORTS SCIENCES

The effect of training status on cross-activation during single limb contractions

Project Number: ESS_38

Primary Supervisor: Ashlee Hendy

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Phone: 9244 6221

Co-Supervisor(s): Helen Macpherson

Research Mentor(s): Hans Leung

Topic Area(s): Exercise physiology

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: Unilateral (single-limb) movements are primarily driven by activation of neurons in the contralateral motor cortex. However, brain stimulation studies have established that high intensity movements also evoke activity in the ipsilateral motor cortex. This spill-over of activity can be measured with transcranial magnetic stimulation (TMS), with increased excitability of the inactive motor pathway (resting limb) referred to as 'cross-activation'. Previous research has determined that the magnitude of cross-activation depends on the contraction type, muscle of interest, and the intensity of the contraction. At present, it is not known if the training status of the individual influences cross-activation. This study will use TMS to quantify inhibitory and excitatory activity in the resting limb during graded isometric hand-grip contractions. The aim of the study will be to determine any differences in cross activation for participants who are strength-trained, skill-trained or untrained.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts

Skills Developed: Recruitment of participants; Primary data collection skills; Laboratory techniques; Quantitative analysis (statistics)

Validity and reliability of a mobile device for measuring velocity-based training

Project Number: ESS_39

Primary Supervisor: Ashlee Hendy

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Phone: 9244 6221

Co-Supervisor(s): Danielle Trowell

Topic Area(s): Exercise; sport science; Applied Sports Science; Strength; Conditioning; Biomechanics

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: Velocity-based training (VBT) is a popular method for developing muscular power in athletes. Accurate real-time measurements of peak and mean movement velocities allow athletes and coaches to manipulate loads in order to prioritise target movement velocities according to the force-velocity curve. Currently, there are several commercially available devices available for measuring bar velocity in gym settings, many of which have been tested for validity and reliability against lab-based gold standard measures. This study will assess the validity and reliability of a new tool developed by Core Advantage Athletic Development. The mobile device application will be used to measure peak and mean bar velocity in athletes of varying levels of lifting competency, using a variety of loads across the force-velocity curve. Reliability and validity of measurements from the mobile application will be determined against peak and mean velocity data from Deakin Universities 3D motion capture system.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Basic familiarisation with laboratory techniques; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts

Skills Developed: Recruitment of participants; Primary data collection skills; Laboratory techniques; Image and/or video analysis; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: SPORTS SCIENCES

Tight vs Loose: Sports clothing fit on thermoregulation, comfort and performance

Project Number: ESS_40

Primary Supervisor: Samantha Hoffmann

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Phone: 5227 3398

Co-Supervisor(s): A/Prof Paul Collins (School of Engineering)

Research Mentor(s): Izzy Di Domenico

Topic Area(s): Exercise; sport science; Applied Sports Science; Exercise physiology

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: This study will investigate the effect of clothing fit on thermal, physiological, perceptual, and performance measures during exercise in hot and humid conditions. Previous literature speculates that both tight- and loose-fitted sports clothing have specific strengths and limitations in regards to body cooling and wearer comfort. However, very few studies have actually explored nor compared the effect of tight and loose fitted clothing during exercise in the heat, or determined the level of fit most optimal to promote heat loss, improve comfort or enhance exercise performance. Such work may generate practical insights for the development of specific clothing recommendations for elite-level athletes and recreational exercise goers when exercising in hot climates.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Exercise prescription and monitoring; Quantitative analysis (statistics)

The development of a subjective measure for monitoring training adaptation in tactical athletes

Project Number: ESS_41

Primary Supervisor: Luana Main

E-mail: luana.main@deakin.edu.au

Phone: 9244 5030

Co-Supervisor(s): Dr Lyndell Bruce

Topic Area(s): Exercise; sport science; Applied Sports Science; Sport / exercise psychology

Project Location: Can be conducted from home (remotely)- but needs to be a local student to collect hardcopies of surveys to enter data so could nominate as on-campus at burwood with capacity to work from home?

Project Description: Military training provides recruits with the opportunity to learn the necessary skills of their profession, preparing them for military service. However, like in sport contexts high workloads, insufficient recovery opportunities, and increased stress during training have been linked to a number of negative training outcomes, such as injury, illness and overtraining. Self-report measures have the potential to provide valuable insights into the current state of tactical personnel. While these subjective measures are standard practice in elite sport, to date there are no validated self-report measures specific to the defence context. As we draw upon sport science principles to train our tactical athletes, so too are we seeing the potential for cross-pollination with subjective measures. Therefore the aim of this project is to develop a psychometrically valid self-report measure for monitoring training adaptation in tactical athletes.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects)

Skills Developed: Exercise prescription and monitoring; Survey development; Quantitative analysis (statistics)

HONOURS PROJECTS 2022: SPORTS SCIENCES

Relationships between sleep, training load, and game performance among Australian-rules footballers

Project Number: ESS_42

Primary Supervisor: Spencer Roberts

E-mail: s.roberts@deakin.edu.au

Phone: 0422 352 936

Co-Supervisor(s): Dominique Condo

Topic Area(s): Applied Sports Science

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: Sleep quality may influence the training responses and perceived wellbeing of professional Australian-rules footballers. In addition, sleep quality and duration may influence athletic performance, with studies demonstrating improved endurance and sports-specific skill execution in athletes following sleep extension. Despite this, research has not yet examined relationships between sleep and in-season training responses and/or game-performances of professional Australian-rules footballers. This project will use an existing database to examine relationships between sleep, training load, and game performance in professional Australian-rules footballers. Findings will advance understanding on the importance of sleep in professional Australian-rules football.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability to work as a team member

Skills Developed: Quantitative analysis (statistics)

Maximal fat oxidation in endurance athletes

Project Number: ESS_43

Primary Supervisor: Chris Shaw

E-mail: chris.shaw@deakin.edu.au

Phone: 03 5227 3394

Co-Supervisor(s): Kirsten Howlett

Topic Area(s): Sports nutrition; Exercise; sport science; Exercise physiology

Project Location: Geelong Waurin Ponds campus

Project Description: Recent studies have shown a remarkable individual variation in the capacity to utilise fat during exercise, even amongst similar groups of professional athletes. Factor such as aerobic capacity, habitual diet, physical activity, body composition and muscle fibre type are believed to explain some, but not all, of this variation. This project will examine the determinants of maximal fat oxidation in endurance cyclists and explore the impact of substrate utilisation during prolonged exercise. These results will test the usefulness of athlete metabolic profiling which could have implications for personalised training and nutrition strategies.

Skills/Attributes Required: Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Laboratory techniques; Exercise prescription and monitoring

HONOURS PROJECTS 2022: SPORTS SCIENCES

Diet and exercise manipulation strategies during weight loss in female athletes

Project Number: FN_27

Primary Supervisor: Rhiannon Snipe

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Phone: 03 9244 6737

Co-Supervisor(s): Assoc Prof Severine Lamon; Dr Lee Hamilton

Research Mentor(s): Lilia Convit

Topic Area(s): Sports nutrition; Exercise; sport science; Exercise physiology

Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: The preservation of lean (e.g. muscle) body mass in athletes during weight loss is vital for athletic performance. Recent research has demonstrated that increased dietary protein intake in conjunction with resistance exercise is an effective strategy for preserving lean body mass during weight loss in male athletes. However, research on female athletes is currently lacking. This project therefore aims to investigate dietary and exercise manipulation strategies of female athletes during weight loss. This project will establish current practices of female athletes and will be used to inform future research into the role of dietary protein in preserving the loss of lean body mass during energy restriction in female athletes. The successful applicant will gain skills in study design, participant recruitment, survey design, data collection of diet and exercise practices, data analysis, and gain a deeper understanding of female-specific sports nutrition issues.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in an exercise or sports science related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Knowledge and background in sports nutrition

Skills Developed: Recruitment of participants; Primary data collection skills; Exercise prescription and monitoring; Survey development; Quantitative analysis (statistics); dietary monitoring and analysis

Menstrual cycle effects on nutrition, exercise and health

Project Number: ESS_44

Primary Supervisor: Rhiannon Snipe

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Phone: 03 9244 6737

Co-Supervisor(s): Dr Amelia Carr; Dr Dominique Condo

Research Mentor(s): Lilia Convit

Topic Area(s): Sports nutrition; Exercise physiology

Project Location: Melbourne Burwood campus

Project Description: There is a substantial disparity between males and females in exercise science research with only 4-13% of publications focused on female athletes. Female athletes are often excluded from research due to physiological differences such as fluctuating sex steroid hormones across the menstrual cycle or with oral contraceptive use. Yet little is known about the effects of the menstrual cycle and oral contraceptives on female athletes and how these hormones affect nutrition, exercise and health outcomes. This research project aims to enhance our understanding on the effects of the menstrual cycle and oral contraceptives on nutrition, exercise and health outcomes in female endurance athletes. The successful applicant will gain skills in participant recruitment, survey administration, data collection of diet and exercise practices, data analysis and gain a deeper understanding of issues that influence female athlete nutrition and exercise practices.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in an exercise or sports science related field; Knowledge and background in anatomy and/or physiology; Ability to learn relevant software programs (e.g. Excel, statistical software program); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Exercise prescription and monitoring; Survey development; Quantitative analysis (statistics); dietary monitoring and analysis

HONOURS PROJECTS 2022: SPORTS SCIENCES

Practice Design Knowledge and Implementation of Volunteer Coaches

Project Number: ESS_45

Primary Supervisor: Will Vickery

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Co-Supervisor(s): Tim Konoval

Topic Area(s): Sports coaching

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: Worldwide, sport is mostly played by non-professionals who have limited time to train and access to the support that those in professional sport are afforded. One major difference in these settings is the professional coaching staff that can dedicate their time to developing and implementing effective and evidence-based training sessions. Coaches involved in a non-professional sport typically don't have knowledge and experience in the area of practice design, which makes it challenging to effectively develop an athlete's performance. The broad aim of this project is to gain a greater understanding of where volunteer coaches get their knowledge of practice design from and what this translates to in the training environment. Students will get the opportunity to develop their skills in both quantitative and qualitative analysis as this will provide the best methodology to meet the aim of this project.

Skills/Attributes Required: Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other project related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Image and/or video analysis; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: SUSTAINABILITY

Designing plant-based protein alternatives

Project Number: FN_28

Primary Supervisor: Shirani Gamlath

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Co-Supervisor(s): A member from CASS Food Research Centre -To be confirmed

Research Mentor(s): Dipendra Mahato

Topic Area(s): Sensory; consumer science

Project Location: Melbourne Burwood campus

Project Description: This project focuses on designing protein alternatives from novel plant sources. The study will be a continuation of a recent consumer study conducted using MINTEL GNPD on plant-based meat alternatives. Based on the existing data, a product concept will be developed for prototype development. Developed products will be evaluated using, physicochemical, sensory and chemical methods.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in a sensory or consumer science; Basic familiarisation with laboratory techniques

Skills Developed: Recruitment of participants; Laboratory techniques

Healthy and sustainable diets

Project Number: FN_29

Primary Supervisor: Rebecca Lindberg

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Phone: 03 9246 8947

Co-Supervisor(s): Georgie Russell; Kristy Bolton

Topic Area(s): Public health nutrition

Project Location: On campus OR remotely

Project Description: Both planetary and human health goals can be achieved if we can improve dietary behaviours, food environments and the food system. We have a range of projects available focusing on healthy and sustainable food and welcome enquiries from anyone interested in this area generally. Two example projects are provided below. The first project focuses on the affordability of sustainable foods. Building on previous work that examined the affordability of a diet consistent with the Eat Lancet's planetary health diet in comparison to a typical Australian diet, this project could sample in new regions, repeat the analysis and compare over time (2019 to 2022) and/or assess consumers willingness to pay for sustainable product attributes. The second project explores young adults food behaviours, values and preferences. Survey data has been collected and there's an opportunity to analyse this. This study will help to establish how younger people living in Australia choose food.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Ability to learn relevant software programs (e.g. Excel, statistical software program); Ability and willingness to learn intermediate quantitative statistics (recommended for secondary data analysis projects); Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member; Ability to travel to offsite for data collection and other projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Ability to conduct interviews; Survey development; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2022: SUSTAINABILITY

Utilizing citizen science to understand and influence children's healthy and sustainable eating

Project Number: FN_30

Primary Supervisor: Georgie Russell

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Phone: 61 3 924 68503

Co-Supervisor(s): Kristy Bolton; Alison Booth; Alissa Burnett

Research Mentor(s): Tracy Lee OR Jennifer McCann OR Manuela Rigo

Topic Area(s): Sensory; consumer science; Public health nutrition

Project Location: Either Burwood or Waurin Ponds Campuses

Project Description: Citizen Science is defined by the Australian Citizen Science Association as “public participation and collaboration in scientific research with the aim to increase scientific knowledge”. Citizen Scientists may work collaboratively with scientists to define the research questions, collect data and interpret results. Citizen Science provides many benefits to scientists, society and the participants themselves as well as offering many new opportunities for developing new ways of understanding the development of children's eating in families. However despite its many benefits to other scientific endeavours, particularly environmental science, Citizen Science has rarely been used in research on children's healthy and sustainable food behaviours. This overall focus of this project is explore how the principles of Citizen Science can be applied to understand and/or influence primary school aged children's eating behaviours. Please contact Georgie to discuss potential project options.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Interpersonal skills and ability to communicate directly with participants and other project contacts; Ability to work as a team member

Skills Developed: Recruitment of participants; Primary data collection skills; Survey development; Quantitative analysis (statistics)

SUPERVISOR PROFILES

Honours Supervisors for 2022

Clinton Bruce

Our research broadly encompasses the areas of physiology, metabolism and endocrinology. We are interested in understanding how glucose, fat and amino acid metabolism are regulated and integrated at the whole-body, organ and cellular level. An area of particular interest is examining the regulation of liver, adipose, and skeletal muscle metabolism by the hormones insulin and glucagon. We also have a strong interest in mitochondrial biology. We use a range of experimental approaches in humans, rodents and cell systems to understand metabolic regulation. We employ a broad range of laboratory-based techniques. Our research is particularly relevant for conditions with metabolic underpinnings such as insulin resistance, diabetes, fatty liver and cardiovascular disease.

Danielle Hiam

Dr Hiam's research focus is to investigate the role of sex hormones in regulating the female epigenome across the lifespan. Her research seeks to map the life-course history of female-specific conditions such as PCOS on skeletal muscle metabolism and the risks of developing type 2 diabetes and muscle atrophy in later life. She has vast experience in managing human clinical trials, expertise in an array of specialised molecular laboratory techniques and advanced bioinformatic skills. Please see her Deakin profile for comprehensive overview of her research by following the link www.deakin.edu.au/about-deakin/people/danielle-hiam

Adam Trewin

Dr. Adam Trewin is a postdoctoral research fellow whose research aims to better understand the molecular mechanisms that determine how muscle cells adapt to stresses such as physical activity to improve metabolic health (research profile: <https://orcid.org/0000-0001-7322-4054>). Dr. Trewin is an expert in mitochondria (the powerhouse of the cell) and muscle biology. As an Honours student, you will benefit from Dr. Trewin's international experience and be provided with training in important laboratory techniques and other transferable research skills while conducting an exciting study to better understand cardiac and skeletal muscle cell biology.

Giselle Allsopp

Giselle's research focuses broadly on exercise physiology in the context of hypoxic training, ageing, muscle health and immune function. Giselle's previous research focused on the effects of ageing on the training adaptations, circulating hormones and immune responses to resistance training in simulated altitude (termed hypoxia). You can read about this research here: <https://orcid.org/0000-0003-1124-7706>

Brenton Baguley

Dr Brenton Baguley is an Accredited Practising Dietitian and Lecturer in Nutrition and Dietetics in the School of Exercise and Nutrition Sciences. Brenton's research focuses on improving disease- and treatment-related outcomes for adults with cancer through nutrition and exercise interventions.

Dominique Condo

Dr Dominique Condo is a senior lecturer in sports nutrition. She is an Accredited Practising Dietitian and Accredited Sports Dietitian, consulting at Geelong Football Club and the WNBL Deakin Melbourne Boomers. Dr Condo is passionate about nutrition in the athletic population and optimising overall health and wellbeing as well as performance, with a specific interest in team sports. Her current research interests include investigating the relationship between diet and sleep in athletes as well as energy availability in female athletes.

Lee Hamilton

Dr Lee Hamilton is a lecturer in exercise physiology across the lifespan. His research interests are primarily in understanding how exercise and nutrition interact to improve health and or performance outcomes. He has supervised 20+ honours students with many going on to complete postgraduate study. You can view his recent research outputs here: https://scholar.google.com.au/citations?hl=en=n0i1FWQAAAAJ=list_works=pubdate

SUPERVISOR PROFILES

Kirsten Howlett

Dr Kirsten Howlett research program is focused on understanding the physiological and metabolic responses that underpin the development of diseases such as obesity, insulin resistance and type 2 diabetes. Her research also examines the role of exercise in the maintenance of good health, and prevention and treatment of these disease.

Paul Jansons

Dr Jansons is an exercise physiologist and a Research Fellow at the Institute for Physical Activity and Nutrition, Deakin University. He also holds an honorary appointment with the Bone and Muscle Research Group, within the School of Clinical Sciences at Monash Health, Monash University. Previously, he has been an exercise physiologist at Monash Health for >12 years and completed a part-time PhD at Monash University in November 2018. His clinical expertise focuses on the management of people with chronic conditions and has an emerging international reputation in this area. His original research has led to changes in practice via guideline development and invited narrative clinical reviews published in high-impact clinical journals. <https://www.deakin.edu.au/about-deakin/people/paul-jansons>

Shaun Mason

Dr Shaun Mason is a lecturer in Nutrition Science, and undertakes research in redox biology across domains of chronic metabolic disease, exercise and nutrition. As part of Dr Mason's research, he has undertaken clinical trials involving antioxidant supplementation treatments in healthy individuals and in patients with type 2 diabetes. Dr Mason's main teaching areas are diet and disease, nutritional physiology, and sports nutrition. Dr Mason's research profile can be found via Orcid at: <https://orcid.org/0000-0002-6138-2239>

Clint Miller

Dr Miller is a research-clinician (accredited exercise physiology) and deputy course director of the Masters of Clinical Exercise Physiology. His research focusses on optimizing exercise approaches for reducing pain and disability in chronic pain conditions. He is leading novel exercise prescription approaches designed to provide immediate reductions in pain and the manipulation of contextual factors for the optimization of exercise delivery for people suffering from chronic pain. He is co-lead of the musculoskeletal pain research group and has supervised 11 honours students and currently supervises 1 local and 2 international PhD students. Dr Miller has a strong passion for mentoring enthusiastic students to become high achieving, independent researchers.

Patrick Owen

Dr Owen is a Dean's Postdoctoral Research Fellow and Co-lead of the Musculoskeletal Pain Research Group at Deakin University. He is also a Statistical Consultant at Brigham Young University (USA) and Associate Editor at BMJ Open Sport Exercise Medicine. His research focuses on musculoskeletal health, with particular interests in back pain, research methods and biostatistics. He has supervised three Honours (mean grade: 83%), four Masters (mean grade: 81%) and two Doctoral completions. Three of his students have since commenced Doctoral degrees and two are now medical doctors. Under his supervision, his students have been awarded two publication awards, a postgraduate research scholarship, a conference travel grant and presented at national/international conferences on 11 occasions.

Lewan Parker

Dr Parker is funded by a competitive National Health and Medical Research Council Heart Foundation Research Fellowship (2019-2023). Through successful research funding (>\$1,700,000) he has dedicated his career to conducting novel human studies that explore how the body responds to and adapts to various exercise and nutrient-based interventions (e.g., high-intensity interval exercise, high-fat and high-glucose diets, various drugs and medications including antioxidant treatment). He has extensive experience in measuring exercise performance, capacity, and recovery, nutrient metabolism, the administration of drugs and antioxidants including intravenous infusions, modern ultrasound imaging of the vascular system, and biochemical analysis of blood and muscle samples.

Jonathan Rawstorn

Jonathan's research explores the use of digital technologies such as smartphones, sensors, and mobile/web apps for understanding and influencing healthy behaviours. He has particular interests in exercise and heart disease, and his work combines elements of exercise, behaviour, computer, and implementation sciences. Jonathan has experience designing and developing digital health technologies, evaluating them in experimental trials, and working with key stakeholders to implement them in real-world practice. He has supervised 3 honours students to completion, and co-supervises current PhD students at IPAN/SENS. For more information see: <https://deakin.edu.au/about-deakin/people/jonathan-rawstorn> and <https://orcid.org/0000-0002-9755-7993>

SUPERVISOR PROFILES

Shannon Sahlqvist

Shannon Sahlqvist is a Senior Lecturer in Physical Activity and Health (based at Waurn Ponds). Shannon's research is primarily focused on understanding and promoting physical activity. She has considerable expertise in the design, delivery and evaluation of large-scale physical activity interventions, including those in the school setting.

Chris Shaw

Dr Chris Shaw is a Senior Lecturer in Exercise Physiology in the School of Exercise and Nutrition Sciences/IPAN. His research focuses on the physiological and metabolic adaptations to exercise which underpin improvements in sports performance and the health benefits of exercise. He is also interested in the mechanisms that contribute to the development of metabolic diseases associated with obesity and inactivity. He performs research in humans and animal models, and uses a combination of whole body and tissue specific techniques to examine fuel use and gene and protein expression.

Megan Teychenne

Dr Megan Teychenne is a Senior Research Fellow in the School of Exercise and Nutrition Sciences at Deakin University (Melbourne, Australia), undertaking her research at the Institute for Physical Activity and Nutrition (IPAN). Dr Teychenne's research investigates the links between physical activity, sedentary behaviour and mental health. Dr Teychenne has extensive experience supervising Honours, Masters and PhD students, and has a passion for working with students and supporting them through all aspects of research, from writing to data analysis right through to career planning and graduate opportunities.

Glenn Wadley

A key focus of Prof Wadley's research program is investigating the molecular mechanisms regulating skeletal and cardiac muscle adaptations following exercise. These topics have important implications for the treatment and prevention of Type 2 diabetes and cardiovascular disease. His research utilizes a range of approaches from human exercise trials down to animal and cell culture experiments to investigate these areas. He has successfully supervised over 20 Honours students to completion and his previous Honours students have been successful in obtaining entry to competitive postgraduate programs including PhD, Medicine, Physiotherapy and Master of Dietetics. Prof Wadley's research profile can be viewed at:

<https://orcid.org/0000-0002-6617-4359>

Stuart Warmington

Dr Warmington is an experienced Honours supervisor. His students typically pursue further research (PhD), demonstrating his commitment to training students interested in enhancing their knowledge and skills, and their interests in research to further their career goals. His research interests are focused on cardiovascular system manipulation and measurement to benefit muscle health and human performance. He is a global authority on blood flow restriction exercise as a method of cardiovascular system manipulation to improve muscle development that is particularly relevant to populations with a high prevalence of muscle loss (e.g. older adults or athletes in rehabilitation).

<https://www.deakin.edu.au/about-deakin/people/stuart-warmington>

<https://www.linkedin.com/in/swarmington/>

Craig Wright

Craig Wright is a member of the Institute for Physical Activity and Nutrition (IPAN) and a Senior lecturer at Deakin University in Exercise and Sport Science. His long term research goal is to understand how the immune system regulates skeletal muscle health, how the immune system becomes suppressed following intense exercise and how modulating the immune system through exercise and nutritional interventions can contribute to skeletal muscle health and healthy ageing. His current research projects utilise a range of approaches from human exercise trials down to animal and cell culture experiments to investigate these areas. Craig has previously supervised research students, all of whom have achieved first class honours research degrees and are now completing PhD research.

SUPERVISOR PROFILES

Shirani Gamlath

Dr Shirani Gamlath is a lecture in Food Innovation and also a researcher in CASS Food Research Centre. Shirani's research interests are within the use of bioactive/functional ingredients in designing sustainable and healthy products. Her current research focuses on sugar reduction in foods and designing plant protein alternatives. Shirani also investigates the changes in sensory perception and physicochemical properties of structure modified foods.

Google Scholar: <https://scholar.google.com.au/citations?hl=en=ixGl7wsAAAAJ>

Research Gate: <https://www.researchgate.net/profile/Shirani-Gamlath>

Snehal Jadhav

Dr Snehal Jadhav is working with the CASS Food Research Centre in the School of Exercise and Nutrition Sciences. Her current research focuses on developing solutions for maintenance of microbial food safety in food and food processing environments. Her previous research experience in food microbiology has been linked with the dairy and meat industry in Australia, mainly working on developing advanced and rapid approaches to characterise foodborne pathogens. She has previously supervised honours and PhD students at Deakin.

Gunveen Kaur

Dr Gunveen Kaur is a Senior Lecturer in Nutritional Sciences at the School of Exercise and Nutrition Sciences, Deakin University. Gunveen obtained her PhD in 'Nutrition and Molecular Biology' and her research mainly focuses on fatty acid and lipid metabolism. Gunveen is interested in investigating relationship between nutrition and impairments in muscle metabolism, and how these relate to lifestyle diseases such as obesity, cardiovascular disease and type 2 diabetes. <https://www.deakin.edu.au/about-deakin/people/gunveen-kaur>

Nicole Kiss

Associate Professor Nicole Kiss is an Advanced Accredited Practising Dietitian and Victorian Cancer Agency Senior Clinical Research Fellow in the School of Exercise and Nutrition Sciences. Nicole's research investigates interventions to optimise nutritional and functional outcomes during cancer treatment, improving the recognition and management of cancer malnutrition and sarcopenia, and the evaluation of novel models of health care delivery to inform evidence-based clinical dietetic practice in oncology.

Katie Lacy

This listing includes several project ideas from early childhood nutrition researchers—our focus areas are described below. Please contact Dr Lacy to discuss your own interests and potential supervisor team. Katie Lacy: promoting evidence-based strategies to improve child/adolescent energy/vegetable intakes. Alison Spence: promoting child nutrition, including understanding/improving diet quality, parental feeding practices and family/childcare meals for children 5 yrs. Jazzmin Zheng: dietary, environmental and behavioural factors in the development of obesity in childhood. Kristy Bolton: designing, implementing and evaluating complex obesity prevention interventions. Konsita Kuswara: promoting healthy lifestyle behaviour in early childhood among culturally/linguistically diverse families

Gie Liem

Gie Liem is an associate professor in sensory and consumer science. For more information see:

<https://www.deakin.edu.au/about-deakin/people/gie-liem>

<https://scholar.google.com/citations?user=v-mi468AAAAJ=en>

Judi Porter

Professor Judi Porter is a senior researcher in the Institute of Physical Activity and Nutrition and a Fellow of Dietitians Australia. She has led many nutrition research projects in health services including multiple clinical trials investigating treatments for malnutrition (<https://orcid.org/0000-0002-7535-1919>). Another experienced academic at Deakin, Dr Brenton Baguley, also joins this supervisory team. In this research we will work closely with two Accredited Practising Dietitians at Barwon Health. Joseph Wai, is the Deputy Manager Nutrition Dietetics at McKellar Centre. He has research interests in workforce planning and outcome measurements. Christine Reicha is an Accredited Practising Dietitian who works clinically and also as the Clinical Educator for Barwon Health.

SUPERVISOR PROFILES

Rob Shellie

I am an experienced research supervisor who has supervised 7 Hons, 3 MSc and 25 PhD students to successful and timely completion. My research focuses on developing new food analysis approaches and features in >150 scientific papers and 2 World Patents. Positions my past research students have held include Proteomics Scientist at NZ Crown Research Institute (NZ), Assistant Professor at University of Natural Resources and Life Sciences (AT), Environmental Scientist at SINTEF Ocean (Norway's equivalent of CSIRO), Analytical Scientist at Pfizer (IE), Applications Specialist at SCIEX (USA), Application Chemist at ThermoFisher Scientific (DE), Post Doc at Australian Wine Research Institute, Analytical and Food Chemist at Nourish Ingredients, and Pesticide Residue Chemist at OMIC Australia.

Ewa Szymlek-Gay

Dr Ewa Szymlek-Gay is a Senior Lecturer in Nutrition Sciences. She leads a research program that focuses on micronutrients and health. Specifically, her research investigates micronutrient absorption/utilisation and requirements; the aetiology and functional consequences of micronutrient deficiencies/excess; and strategies to enhance the content and bioavailability of micronutrients in diets of at-risk populations in both low-income and high-resource countries, and the impact of these interventions on growth, health, and cognitive function. Ewa has successfully supervised numerous Honours, Masters, and PhD students, who have published first-author articles in international journals and presented their research at national and international conferences.

Sze-Yen Tan

Dr Sze-Yen Tan is a Senior Lecturer in Nutrition Science and an Advanced Accredited Practising Dietitian. His research focuses on dietary strategies that regulate body weight and promote metabolic health. His current research focuses on the health benefits of nuts and seeds, as well as the nutritional implications of taste. His researcher profile can be found on <https://www.researchgate.net/profile/Sze-Yen-Tan/research>

Claire Margerison

Dr Claire Margerison is an Accredited Practising Dietitian and Senior Lecturer within the School of Exercise and Nutrition Sciences. Her broad interests include nutrition and dietetics education and dietary intakes. Current research includes: nutrition education curriculum in schools; food literacy education; student mental health and young adults dietary intakes. She is part of the food practices research group in the Institute of Physical Activity and Nutrition (IPAN). She has supervised 5 Masters and 4 Honours students since 2017 and is currently supervising 4 PhD students.

Paige van der Pligt

Dr van der Pligt is an Advanced Accredited Practising Dietitian and Senior Lecturer in Postgraduate Nutrition. She is particularly interested in assessment of dietary intakes in women during pregnancy, the link with pregnancy complications (gestational diabetes, hypertension, micronutrient deficiencies and maternal obesity) and how this impacts the long-term health of women and babies. Her research targets identifying early risk factors for cardiovascular and cardiometabolic disease in pregnancy and implementing change to health service delivery. Dr van der Pligt is an experienced qualitative and quantitative researcher and has over several years' experience working as a Dietitian in the clinical setting and private practice.

Georgie Russell

Dr Georgie Russell leads a program of work aimed at understanding infants', children's and adults' eating behaviours. Georgie is interested in understanding how and why individuals eat in the ways that they do, what effective strategies for influencing what people eat are, and how novel methods and measures can generate new insights in this area. Georgie's work encompasses both healthy and sustainable eating. She has published more than 50 peer reviewed journal articles in this area. Georgie teaches about healthy and sustainable food systems and behaviours as well as research methods. Georgie enjoys supervising motivated students in topics related to healthy and sustainable eating behaviours.

Google scholar: <https://scholar.google.com/citations?user=B8iSpAMAAAJ=en=sra>

SUPERVISOR PROFILES

Kristy Bolton

Dr Kristy Bolton is a Senior Lecturer in Nutrition Sciences a researcher within the Institute for Physical Activity and Nutrition (IPAN) based at the Waurn Ponds campus. Her research focuses on obesity prevention, particularly in infants and children. She has designed, implemented and evaluated many complex obesity prevention interventions; and has recently been part of a team evaluating a Victorian state-wide salt reduction initiative in adults and children. She has supervised 4 honours, 2 masters students to completion, along with dietetics and psychology placement students. Kristy is currently supervising 2 honours, 3 PhD students. More information about her research profile can be found here: <https://www.deakin.edu.au/about-deakin/people/kristy-bolton>

Alison Booth

Dr Alison Booth is a senior lecturer and Registered Nutritionist and specialises in nutrition promotion. Her current research focuses on food and nutrition education in schools and the school food environment. She has co-supervised 7 Honours students, one PhD student to completion, won two category 1 grants and published over 27 publications. She currently co-supervises four PhD students and two Master students.

Carley Grimes

Dr Grimes is a Senior Lecturer in Population Nutrition and an Accredited Practising Dietitian. Her primary research focuses on dietary intakes of children. This includes measurement of what children are eating, describing children's diets and related health outcomes and the design of interventions to improve dietary intakes. She has supervised two Honours students to completion in the role of primary supervisor and supported both students to prepare and publish findings from their Honours thesis into published peer-reviewed manuscripts. She has also supervised PhD students (1 primary, 2 co-supervisor) to completion. Further information about her research profile can be found here <https://www.deakin.edu.au/about-deakin/people/carley-grimes>

Jill Hnatiuk

Dr Jill Hnatiuk is a Senior Lecturer in Physical Activity and Health, with a research interest in physical activity promotion during early childhood (birth – 5 years old). Jill works alongside community organisations and families to understand, promote and incorporate healthy movement behaviours into everyday life. For more information please visit: <https://www.deakin.edu.au/about-deakin/people/jill-hnatiuk>

Rebecca Lindberg

Dr Rebecca Lindberg is a mixed-methods researcher with more than a decade of experience in community food and nutrition security. Her projects often include community partners and applied outcomes, seeking to translate evidence and inform practice with her research. Rebecca is a Post-Doctoral Research Fellow in the Institute for Physical Activity and Nutrition (IPAN), Director of The Community Grocer and facilitator of The Public Health Qualitative Methods Collective.

Penelope Love

Dr Penny Love is an Advanced Accredited Practising Dietitian and a senior lecturer. The focus of her research is identifying and addressing research-practice gaps for the implementation of childhood obesity prevention interventions at scale. <https://www.deakin.edu.au/about-deakin/people/penny-love2>

Helen Macpherson

Dr Helen Macpherson completed undergraduate studies in Psychology and Psychophysiology. She conducts research on healthy brain ageing, with a focus on dementia prevention. Dr Macpherson is currently leading a randomised controlled trial examining the effects of dietary supplementation combined with physical activity on brain health and cognitive function in older people at risk of dementia. Dr Macpherson has conducted numerous randomised controlled trials to investigate the cognitive and mood effects of nutritional interventions including dietary supplements and whole diet change.

SUPERVISOR PROFILES

David Scott

A/Prof Scott (<https://www.deakin.edu.au/about-deakin/people/david-scott>) conducts research focused on exploring relationships between sarcopenia (the age-related decline in skeletal muscle quality and function), osteoporosis and obesity in older adults, and exercise and nutritional interventions for their prevention and treatment. He is an exercise scientist with expertise in objective assessment of physical activity and physical performance in older adults, and imaging techniques for estimating body composition and muscle quality. He has published over 170 articles in peer-reviewed journals and books, and have received over \$5M in competitive research funding, including a current National Health and Medical Research Council Investigator Grant.

Anna Timperio

Anna's research focuses on understanding the range of influences on physical activity and sedentary behaviour, particularly among children and adolescents, and over critical life transition periods. A major focus of her work has been understanding how the neighbourhood environment shapes active living. Anna has >200 publications. Her profile and publications can be found here:

<https://www.deakin.edu.au/about-deakin/people/anna-timperio>

Elizabeth Bradshaw

Dr Elizabeth (Liz) Bradshaw returned to Deakin in 2018 after working at the New Zealand Academy of Sport (now known as Sport Performance Research New Zealand), and the Australian Catholic University. She has extensive experience in supervising Honours and Higher Degree Research students. Her research is focused upon biomechanics and motor control of human movement with a specific interest in pre-adolescent and adolescent athletes, sports performance, injury mechanisms, movement variability, and human gait. Liz and is an ESSA Accredited Sport Scientist (Level 2) and a Life Member/Fellow of the International Society of Biomechanics in Sport.

Helen Brown

Dr Helen Brown is a Senior Lecturer in Sport Coaching. Her expertise is in behaviour change and her research focuses on promoting sport for health and wellbeing, particularly in inclusive and diverse populations, using coach development as a central pillar for promoting participation. Dr Brown is also interested in knowledge translation – moving research evidence into practice more effectively and uses this field of research to translate evidence into innovative coach education design.

Lyndell Bruce

Dr Lyndell Bruce has multidisciplinary research interests including sports analytics, expertise development, athlete development and understanding training structure. Dr Bruce uses a range of technologies (including wearables, applications and software) and analytic techniques to offer insights into research questions. Click here <https://www.deakin.edu.au/about-deakin/people/lyndell-bruce> for more information.

Dan Dwyer

<https://www.deakin.edu.au/about-deakin/people/dan-dwyer>

Simon Feros

Dr Simon Feros is a Lecturer in Functional Anatomy / Strength and Conditioning Sciences based at the Geelong Waurn Ponds campus. His research is primarily focused on the management and development of cricket fast bowlers for the purposes of enhancing performance and reducing injury incidence. The majority of his research is strategically aligned and linked with Cricket Australia and Cricket Victoria. A strong focus of his industry work is to translate evidence-based, scientific findings into 'real-world' practical applications and policy changes, to ensure young cricket fast bowlers in particular are better managed and developed. ResearchGate profile:

<https://www.researchgate.net/profile/Simon-Feros>

Aaron Fox

Dr Aaron Fox is a lecturer and researcher in the Centre for Sport Research and has expertise in the area of neuromechanics and human performance. Aaron's work involves the use of a range of technologies (including motion capture, wearable sensors, force plates, and electromyography) and analytical techniques to identify optimal neuromuscular and biomechanical strategies for improving performance and reducing injury risk. Google Scholar Profile: <https://scholar.google.com.au/citations?user=p0QjWTQAAAAJ=en>

SUPERVISOR PROFILES

Ashlee Hendy

Ashlee is a Lecturer in Motor Learning, with an interest in the effects of exercise on the brain and nervous system. She conducts research that investigates changes in the brain (neuroplasticity) following exercise programs. She uses a variety of non-invasive brain stimulation techniques to promote strength gains, motor performance, and cognition. She has supervised 6 Hons, 3 Masters, and 2 PhD students to completion, and has 28 peer reviewed publications. Students working with Ashlee will gain comprehensive knowledge of state of the art technology used to test neurological function and measure brain plasticity. They will also gain an insight into the exciting and rapidly growing field of 'exercise neuroscience', bridging the gaps between fitness, sports performance and neuroscience.

Samantha Hoffmann

Sam Hoffmann is a lecturer in Applied Exercise and Sport Science, and a member of the Centre for Sport Research. Sam's research interests include understanding the physiological responses and performance adaptations to acute exercise and exercise training, with a specific focus on female-specific demands and considerations. <https://www.researchgate.net/profile/Samantha-Hoffmann>

Luana Main

Dr. Main investigates the relationship between stress exposure (i.e. training load/ environmental factors), the resultant fatigue, and impact on wellbeing and physical performance. Specifically in the areas of sport and physically demanding occupations (i.e. firefighters and Defence). Ultimately with the goal of identifying early warning signs of excessive stress exposure to minimise risk of injury, illness, and compromised long-term health. She has supervised eight honours students. Three have gone onto PhDs with scholarship, one into Masters of Clinical Exercise Physiology, and the others went to industry positions.

Spencer Roberts

Dr Roberts' research has focused on the effects of sleep on athlete performance, improving sleep in athlete populations, and the monitoring of athlete health and recovery status using measures of sleep and autonomic function. Dr Roberts' research has been published in world-leading sport science journals, and disseminated through national media (e.g., Herald-Sun) and international associations, including the American College of Sports Medicine, and The Physiological Society (UK). Dr. Roberts has also consulted with elite and professional sporting organisations on strategies for improving and monitoring athlete sleep.

Rhiannon Snipe

Rhiannon is an advanced sports dietitian with her current research focused on female-specific sports nutrition. Her research aims to enhance the health, well-being and performance of female athletes. She also aims to enhance knowledge on the interaction between the menstrual cycle and hormonal contraceptives with nutrition and athletic performance.

https://www.deakin.edu.au/about-deakin/people/rhiannon-snipe#tab_1--1

Will Vickery

Dr Will Vickery is a Lecturer of Sport Coaching based at the Melbourne Burwood campus. His research focuses on the impact of coaching on athlete performance, with a specific focus on practice design. Dr Vickery has experience working within a more applied (field-based) setting, using mainly quantitative analysis techniques (e.g. GPS, variety of associated software). In more recent times he has taken a more qualitative approach to his work (e.g. interviews, questionnaires) and is currently working on projects that look to improve the effectiveness of training sessions from the coach's perspective. Research profile: <https://scholar.google.com.au/citations?user=dv-g-zUAAAJ=en>