School of Exercise and Nutrition Sciences

2024 Honours Projects

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

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

deakin.edu.au

Deakin University CRICOS Provider Code: 001138

Contents

TEDDY ANG
Bachelor of Food and Nutrition Sciences (Honours)
Former Honours & PhD student 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)
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

- 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;
- Plus more!

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;
- Sports management
- Sports marketing;
- Plus more!

*****Refer to the back of this handbook for the 2024 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 2024 Honours projects*****

LILIA CONVIT
Bachelor in Exercise and Sports Sciences (Honours)
Current PhD Student 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 skills and knowledge needed to 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 26th 2023 and submit your project preferences (see below) in addition to your other supporting documents. Supporting documents can include academic transcripts (for non-Deakin students), personal statement, course completion certificates etc.
- Applications for the degree will remain open across December, however the first round of project allocations will occur in early December – so it is beneficial to get your applications in by the above-mentioned date.
- 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 2024 (see the back of this booklet).
- 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 2023 / early-January 2024.

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 2024

The following pages provide a description of honours projects on offer within the school for 2024. 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 Waurn 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 Management and Marketing, and Sports Sciences. Specific research topic area(s) are also provided with each project.

HONOURS PROJECTS 2024: BIOMEDICINE

Glucose, lipid and amino acid metabolism in muscle and liver

Project Number: ESS_1

Primary Supervisor: Clinton Bruce **E-mail:** clinton.bruce@deakin.edu.au **Phone:** 9244 6684

Co-Supervisor(s): Chris Shaw; Greg Kowalski
Research Mentor(s):

Topic Area(s): Metabolism; physiology
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. 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); 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)

Understanding the development of impaired heart function in obesity.

Project Number: ESS_2

Primary Supervisor: Kirsten Howlett **E-mail:** kirsten.howlett@deakin.edu.au **Phone:** 03 52272563

Co-Supervisor(s): Chris Shaw;
Research Mentor(s):

Topic Area(s): Biology of health; disease
Project Location: Geelong Waurn Ponds campus

Project Description: Obesity-related cardiovascular disease is a leading contributor to death worldwide. In individuals that are obese many suffer from impaired cardiac function, which over time can progress to heart failure. This specific form of cardiac dysfunction 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. An emerging area of research highlights that changes or remodelling of the heart muscle and associated structural components (extracellular matrix) is linked to altered cardiac function in obesity. This project aims to explore how changes in the structure and function of the heart muscle 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 dis

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 to work as a team member

Skills Developed: Primary data collection skills; Laboratory techniques

HONOURS PROJECTS 2024: BIOMEDICINE

Quantifying oxidative stress in skeletal muscle following endurance exercise

Project Number: ESS_3

Primary Supervisor: Glenn Wadley **E-mail:** glenn.wadley@deakin.edu.au **Phone:** 92446018

Co-Supervisor(s): Dr Shaun Mason;
Research Mentor(s):

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.

Skills/Attributes Required: Knowledge and background in anatomy and/or physiology

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

HONOURS PROJECTS 2024: EXERCISE AND HEALTH OR DISEASE

Determining mechanisms of improved cardiovascular health from exercise training in cancer survivors

Project Number: ESS_4

Primary Supervisor: Associate Professor Steve Fraser **E-mail:** steve.fraser@deakin.edu.au **Phone:** 392446012

Co-Supervisor(s): Associate Professor Erin Howden;
Research Mentor(s):

Topic Area(s): Clinical exercise
Project Location: Baker Heart and Diabetes Institute

Project Description: Cardiovascular disease is a leading cause of death in cancer survivors. The increased risk of cardiovascular disease for cancer survivors is multifactorial with cancers themselves, cancer treatment and lifestyle factors and possibly genetic factors all interacting.We have shown that exercise training during cancer treatment can offset some of the negative impacts on the cardiovascular system in women with breast cancer. While these initial findings are promising, we need more evidence. Specifically, we seek to understand what are the mechanism that lead to improved cardiovascular health in cancer survivors. This information will also help us understand who might benefit most from exercise interventions. This study will be undertaken at the Baker Heart and Diabetes Institute in collaboration with A/Prof Erin Howden. The successful student will have the opportunity to work with cutting edge imaging approaches as well as metabolic and molecular profiling.

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

Effect of oxidative stress and antioxidants on the plasma redox proteome

Project Number: ESS_5

Primary Supervisor: Shaun Mason **E-mail:** s.mason@deakin.edu.au **Phone:** 392446577

Co-Supervisor(s): Glenn Wadley;
Research Mentor(s):

Topic Area(s): Exercise physiology
Project Location: Melbourne Burwood campus

Project Description: Oxidative stress, caused by an excess of reactive oxygen species (ROS), is a causative factor in many contemporary chronic diseases. However, ROS are also important signalling species in normal physiology, including in skeletal muscle adaptations to exercise training. Emerging technologies such as redox proteomics using mass spectrometry provides an exciting opportunity to comprehensively measure levels of oxidized proteins in biological samples in response to oxidative stress scenarios. This study aims to investigate effects of oxidative stress scenarios with and without concomitant antioxidant treatment on the redox proteome in humans. Models utilizing exercise or diet may be involved. To date, there is a lack of investigation of global oxidized proteins utilizing redox proteomics techniques in humans in response to combined oxidative stress and antioxidant therapies. In this project you will develop advanced analytical laboratory skills as well as quantitative analysis skills.

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)

HONOURS PROJECTS 2024: EXERCISE AND HEALTH OR DISEASE

Understanding physical and psychosocial predictors of experimental and clinical pain

Project Number: ESS_6

Primary Supervisor: Dr Clint Miller **E-mail:** c.miller@deakin.edu.au **Phone:** 9244 6605

Co-Supervisor(s): TBA
Research Mentor(s):

Topic Area(s): Clinical exercise
Project Location: Melbourne Burwood campus

Project Description: Persistent pain affects approximately 20% of the Australian population and interfers 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 clinican 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 and psychosocial factors as moderators of endogenous analgesia (ability of the body to reduce pain intensity) following exercise. The findings will be used to inform a program of research for a PhD project offering in 2025 aimed at understanding the effect of different types of exercise on moderating pain in people with chronic 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); 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)

Exercise advice for patients with musculoskeletal pain discharged from emergency department

Project Number: ESS_7

Primary Supervisor: Dr Niamh Mundell **E-mail:** niamh.mundell@deakin.edu.au **Phone:**

Co-Supervisor(s): Patrick Owen
Research Mentor(s): Claire Samanna

Topic Area(s): Exercise; sport science; Exercise physiology; Clinical exercise
Project Location: Overseas or remotely

Project Description: Musculoskeletal pain is one of the leading reasons for emergency department presentation in Australia, yet a proportion of patients may be managed using exercise. This project will involve secondary analysis from the study "An audit of discharge referral practices to exercise rehabilitation following emergency department presentation". The larger study examines data from 288 charts to determine the referral practices of emergency department clinicians at three public hospitals. The project will examine characteristics of patients provided with exercise advice on discharge. The nature of advice will also be compared to existing treatment guidelines. The student will gain experience in statistical analysis and reporting the results of a cohort study in line with STROBE guidelines. Students should have strong attention to detail and preference will be given to those who intend to gain a publication from the project.

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); 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; Exercise prescription and monitoring; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2024: EXERCISE AND HEALTH OR DISEASE

Effects of running in adults with chronic low back pain: the ASTEROID randomised controlled trial

Project Number: ESS_8

Primary Supervisor: Dr Patrick J Owen **E-mail:** p.owen@deakin.edu.au **Phone:** 92445013

Co-Supervisor(s): TBC
Research Mentor(s):

Topic Area(s): Clinical exercise
Project Location: Project/s can be tailored to individual student circumstances

Project Description: Low back pain is the leading cause of global disability and individuals with this condition are often told they will never run again. We recently challenged this notion by successfully conducting the first randomised controlled trial examining the effects of running in adults with chronic low back pain. The full protocol is published and can be freely viewed online (PMID 36684712; doi: 10.1136/bmjsem-2022-001524). We are now ready to analyse a range of clinically relevant patient outcome measures collected via methods such as magnetic resonance imaging, questionnaire and functional assessment. Variables that can form part of an Honours study (pending student interest) include, yet are not limited to: pain intensity, disability, intervertebral disc health, muscle/bone morphology, intermuscular fat infiltration, marrow adipose tissue, habitual physical activity, quality of life, recovery and treatment expectations, kinesiophobia, symptoms of depression/anxiety/stress and social support.

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: Image and/or video analysis; Quantitative analysis (statistics); Manuscript preparation emanating from Honours study

Metabolic health of young, non-obese individuals

Project Number: ESS_9

Primary Supervisor: Chris Shaw **E-mail:** chris.shaw@deakin.edu.au **Phone:** 03 5227 3394

Co-Supervisor(s): Clinton Bruce; Andrew Betik
Research Mentor(s): Vicky Kuriel

Topic Area(s): Human Physiology
Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: Insulin resistance is characterized by high insulin concentrations (termed hyperinsulinemia) and is a condition that precedes the development of metabolic disease (such as type 2 diabetes). While commonly thought of as a condition linked to overweight and obesity, surprisingly, we have found a significant proportion of young, non-obese individuals are hyperinsulinemic and insulin resistant. There is very little understanding of what causes these conditions in normal weight individuals. These projects will use human metabolic experiments incorporating feeding interventions, blood samples and metabolic tracers alongside body composition and dietary analysis to assess the underlying causes of insulin resistance and hyperinsulinemia in young, healthy individuals.

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 work with blood and/or muscle biopsy samples; Laboratory techniques

HONOURS PROJECTS 2024: EXERCISE AND HEALTH OR DISEASE

Are mitochondria secreted into the circulation during endurance exercise?

Project Number: ESS_10

Primary Supervisor: Glenn Wadley **E-mail:** glenn.wadley@deakin.edu.au **Phone:** 92446018

Co-Supervisor(s): Dr Shaun Mason;
Research Mentor(s):

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 characterise the quality and quantity of mitochondria isolated from human blood samples using mass spectrometry. An exercise study will then be conducted in healthy participants with blood samples taken before and after a bout of endurance exercise. The mitochondria will be isolated from the blood and the abundance of all proteins in the mitochondria will be measured (proteomics) using mass spectrometry . 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, particularly mass spectrometry

Skills/Attributes Required: Knowledge and background in anatomy and/or physiology

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)

Feasibility and compliance of home-based blood flow restriction (BFR) exercise/training

Project Number: ESS_11

Primary Supervisor: Stuart Warmington **E-mail:** stuart.warmington@deakin.edu.au **Phone:** 92517013

Co-Supervisor(s): ;
Research Mentor(s):

Topic Area(s): Exercise; sport science; Strength; Conditioning; Exercise physiology; Clinical exercise; Physical activity
Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: Join us in revolutionizing time-efficient exercise through innovative blood flow restriction (BFR) training. Enhance muscle strength and cardiovascular health in a home-based setting, aided by telehealth monitoring. Investigate the feasibility and compliance of this dual-purpose approach while exploring its broader impact on 'low-functioning' populations like older adults and surgery rehabilitation and prehabilitation for athletes. Shape the future of personalized, efficient, and impactful exercise interventions with endless possibilities for application!

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; Exercise prescription and monitoring; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2024: EXERCISE AND HEALTH OR DISEASE

The impact of working from home on health

Project Number: ESS_12

Primary Supervisor: Dr Michael Wheeler **E-mail:** michael.wheeler@deakin.edu.au **Phone:** 401602006

Co-Supervisor(s): Prof David Dunstan; Dr Paddy Dempsey
Research Mentor(s):

Topic Area(s): Exercise; sport science; Exercise physiology; Physical activity
Project Location: Melbourne Burwood campus

Project Description: The new "working from home" model has created much needed flexibility for workers in the face of COVID restrictions. However, it has also cut opportunities for active commuting, incidental physical activity, and social interaction associated with face-to-face meetings. It is unknown what the toll of this will be on metabolic health. This honours opportunity, with the Baker-Deakin Department of Lifestyle and Diabetes, will investigate whether the working from home model poses a health risk to portions of the population due to changes in the pattern of physical activity, sedentary behaviour, and social interaction throughout the day; and how changes in these behaviours might impact glucose regulation and blood pressure regulation. This is a broad project with flexibility to work on quantitative or qualitive data collection with multiple potential outcomes of interest.

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; Ability to conduct interviews; Exercise prescription and monitoring

The association between physical activity/sedentary behaviour and the location of fat deposition

Project Number: ESS_13

Primary Supervisor: Dr Michael Wheeler **E-mail:** michael.wheeler@deakin.edu.au **Phone:** 401602006

Co-Supervisor(s): Prof David Dunstan; Dr Paddy Dempsey;
Research Mentor(s):

Topic Area(s): Exercise; sport science; Exercise physiology; Physical activity
Project Location: Melbourne Burwood campus

Project Description: Fat that accumulates in the visceral region is more deleterious to health than fat that accumulates in subcutaneous regions. Therefore, understanding factors associated with visceral versus subcutaneous fat deposition is important in order to design interventions that might affect where fat is deposited. Physical activity and sedentary behaviour may affect the location of fat deposition. There is an opportunity to investigate the association between physical activity/sedentary behaviour and visceral/subcutaneous fat mass in an existing ethics approved cross sectional dataset of people with type 2 diabetes. The dataset includes high quality objective measures of physical activity, sedentary behaviour, and DXA derived measured of visceral and subcutaneous fat mass.

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 to work as a team member

Skills Developed: Quantitative analysis (statistics)

HONOURS PROJECTS 2024: EXERCISE AND HEALTH OR DISEASE

Evaluating AI-generated content for chronic disease self management

Project Number: ESS_14

Primary Supervisor: Yuxin Zhang **E-mail:** yuxin.zhang@deakin.edu.au **Phone:** +61 3 9246 8269

Co-Supervisor(s): Ralph Maddison;
Research Mentor(s):

Topic Area(s): Dietetics; Physical activity; digital health
Project Location: Overseas or remotely

Project Description: The potential of generative AI tools has captured significant attention in healthcare. They offer a unique opportunity to revolutionise personalised healthcare. They can generate effective communications for individuals with varying levels of health literacy, and have the potential to enhance patient outcomes and reduce overall healthcare costs. The aim of the project is to assess the quality of AI-generated interventions for people with chronic conditions. We will focus on evaluating and comparing AI-generated interventions with recommendations from healthcare clinicians. This evaluation will be conducted across three key dimensions: 1) Completeness, 2) Explainability, and 3) Level of detail. Students will gain practical insights into the utilisation generative AI tools within health contexts, and acquire essential research skills. If you are interested in intersection of AI, healthcare, and research, let's meet to talk about your options.

Skills/Attributes Required: 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; Interested in digital health and AI

Skills Developed: Recruitment of participants; Ability to conduct interviews; Qualitative analysis; Digital health tool design and evaluation

HONOURS PROJECTS 2024: FOOD OR NUTRITION SCIENCE

Food, nutrition and sustainability education and practices in primary schools

Project Number: FN_1

Primary Supervisor: Alison Booth **E-mail:** alison.booth@deakin.edu.au **Phone:** 392517211

Co-Supervisor(s): Jessica Kempler; Claire Margerison
Research Mentor(s):

Topic Area(s): Public health nutrition
Project Location: Overseas or remotely

Project Description: Food, nutrition and sustainability (FNS) education in the primary school years is important for establishing children's food literacy and ecological awareness. This has both short and long-term implications for population and planetary health. Students who choose this project will work closely with supervisors in designing a project that would be of interest to them in one of the following areas related to primary school food systems: A. school food environments B. school food provision models C. school food sustainability practices D. opportunities for FNS education at school (including during school lunch) E. FNS curriculum and training resources for teachers. Projects may include interviews or surveys with school staff, teachers or other stakeholders. Findings from this study will have real-world implications for school-based food, nutrition and sustainability education and practice. It is intended that this project could lead to publication of the study in a scientific journal.

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

The Effect of Exercise on Taste

Project Number: ESS_15

Primary Supervisor: Andrew Costanzo **E-mail:** andrew.costanzo@deakin.edu.au **Phone:** 03 9246 8207

Co-Supervisor(s): Rhiannon Snipe;
Research Mentor(s):

Topic Area(s): Sensory; consumer science; Sports nutrition; Exercise; sport science
Project Location: Melbourne Burwood campus

Project Description: Physical activity initiates a variety of mechanisms to regulate the maintenance and restoration of depleted substrates and nutrients. One mechanism is taste perception. For example, sweet taste sensitivity increases following acute physical exercise to restore liver and muscle glycogen. The effect of exercise on the newly identified alimentary tastes (fat, umami, and starchy) and differences in taste perception between trained and sedentary individuals in responses to exercise has not been investigated in humans. The aim of this project is to explore the effect of an acute exercise protocol on alimentary taste perception in trained and sedentary healthy adults. The outcomes of this project will provide a better understanding of the regulatory mechanisms that drive nutrient intake in response to energy metabolism. The student will conduct an experiment that combines techniques across multiple disciplines, including sensory evaluation and exercise.

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

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 2024: FOOD OR NUTRITION SCIENCE

The Effect of the Menstrual Cycle on Taste

Project Number: FN_2

Primary Supervisor: Andrew Costanzo **E-mail:** andrew.costanzo@deakin.edu.au **Phone:** 03 9246 8207

Co-Supervisor(s): Simone Lewin
Research Mentor(s):

Topic Area(s): Sensory; consumer science
Project Location: Melbourne Burwood campus

Project Description: It is important to understand how taste sensitivity is regulated since it is a driver of food desirability and intake. The taste sensitivity of a person is dynamic, in that it is constantly changing due to internal and external cues. One cue is the hormonal changes that occur during the menstrual cycle in eumenorrheic women. The effect of the menstrual cycle on the newly identified alimentary tastes (fat, umami, and starchy) has not been investigated. The aim of this study is to observe alimentary taste sensitivity patterns in eumenorrheic women across the menstrual cycle. Outcomes from this study will help understand how taste sensitivity is regulated in women and may explain dietary intake patterns throughout this cycle.

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

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

Diving Deep: Harnessing the Sea to Alleviate Food Spoilage and Wastage

Project Number: FN_3

Primary Supervisor: Dan Dias **E-mail:** dan.dias@deakin.edu.au **Phone:** +61 3 9244 6942

Co-Supervisor(s): Dr Snehal Jadhav; Dr Yada Nolvachai
Research Mentor(s): Miss Mayushi Jayakody

Topic Area(s): Natural Products
Project Location: Melbourne Burwood campus

Project Description: Food waste due to microbial spoilage is a major hindrance to 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. One strategy to alleviate microbial spoilage is to explore the marine environment for anti-microbial agents given that less than 10% of the world's biodiversity has been evaluated for biological activities, the challenge is to access this natural chemical diversity for the development of potential nutraceuticals, pharmaceutical, and agrochemical agents. This project aims to identify anti-microbial agents from the marine environment which potentially can mitigate microbial spoilage in perishable foods. This project will include training for industry-relevant basic and advanced food microbiology and analytical chemistry 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 2024: FOOD OR NUTRITION SCIENCE

Cracking Culinary Cases: Exposing Fake Olive Oil with Science Detectives

Project Number: FN_4

Primary Supervisor: Dan Dias **E-mail:** dan.dias@deakin.edu.au **Phone:** +61 3 9244 6942

Co-Supervisor(s): Dr Yada Nolvachai; Dr Snehal Jadhav; Miss Mayushi Jayakody
Research Mentor(s):

Topic Area(s):
Project Location: Melbourne Burwood campus

Project Description: In today's food-conscious world, people want to know that what they eat is genuine and trustworthy. However, detecting fake food remains a big challenge. This project centred around gas chromatography, aims to capture the unique fingerprint of real olive oils. We will then compare these signatures with those from fake or adulterated samples. By taking part, you will gain hands-on experience in food analysis using state-of-art laboratory instrumentation. Joining us also means becoming part of the HyTECH industrial transformation training centre, an inclusive collaborative initiative involving academia, industry, and end-users. The skills you develop through this experience will be highly valuable, particularly if you are looking to work in the industry after your Honours. Moreover, you will have a chance to contribute significantly to potential publications, which could be a valuable opportunity if you are considering a PhD.

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

Tracking raw milk quality from Pasture to Processing

Project Number: FN_5

Primary Supervisor: Snehal Jadhav **E-mail:** snehal.jadhav@deakin.edu.au **Phone:** 61392468606

Co-Supervisor(s): Dr Dan Dias; Dr Yada Novlachai
Research Mentor(s): Agnes Mukurumbira

Topic Area(s): Food Safety
Project Location: Melbourne Burwood campus

Project Description: Raw milk quality obtained at the farm can influence the shelf-life of milk post thermal treatment such as ultra-high temperature (UHT) treated milk. Spoilage microbes and poor cattle health can lead to increased heat stable proteolytic enzymes that may alter the metabolic profile of UHT treated milk, reducing its shelf life. Thus, it is important to assess the raw milk quality prior to thermal processing. The current project will provide students an opportunity to work directly with industry partners to investigate and map the quality of raw milk all the way from paddock to processing. The project will be supported by a major ARC funded training centre grant-HyTech giving access to state-of-the-art equipment and professional expertise. This project has the capacity to involve two students to understand the issues around raw milk quality from a microbial and metabolomic perspective. Students will receive training to use basic and advanced lab skills in microbiology and food science.

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; Experience in industry engagement

HONOURS PROJECTS 2024: FOOD OR NUTRITION SCIENCE

Beyond traditional biofluids: Advancing health research through saliva metabolite analysis

Project Number: FN_6

Primary Supervisor: Snehal Jadhav **E-mail:** snehal.jadhav@deakin.edu.au **Phone:** 61392468606

Co-Supervisor(s): Dr Dan Dias; Dr Yada Nolvachai; Heng Wan Sin
Research Mentor(s):

Topic Area(s): Metabolomics
Project Location: Melbourne Burwood campus

Project Description: Metabolic profiling of biofluids from human participants is now recognised as an important investigative strategy for health research. However, a major hindrance to this strategy is the difficulty and invasiveness in obtaining biofluids (e.g. blood or spinal fluid). The current research aims to investigate use of non-invasively collected saliva for metabolomic profiling. Most previous research has focussed on aqueous saliva which has inherent problems around sample collection and storage. The current study will focus on developing a novel dried saliva based untargeted metabolomics workflow with potential applications across various disciplines in human research. Students will be receiving training to use basic and advanced industry relevant-analytical laboratory skills and will also be benefiting from a major Australian Research Council funded training centre grant-HyTech giving access to state-of-the-art equipment and professional expertise.

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

Consumer perception and acceptance of cell cultivated meats

Project Number: FN_7

Primary Supervisor: Gie Liem **E-mail:** gie.liem@deakin.edu.au **Phone:**

Co-Supervisor(s): TBC
Research Mentor(s):

Topic Area(s): Sensory; consumer science
Project Location: Melbourne Burwood campus

Project Description: Cell-cultivated meats (CCM) are produced by growing animal cells in a bioreactor, without causing harm to animals. CCM requires fewer natural resources than conventional meats and has been approved by the FDA in the US. It is currently sold in Singapore and Israel, and is under review at FSANZ. To ensure the success of CCM, it is essential to have a good understanding of consumer perception. In this project, you will conduct sensory and consumer research, from data collection to data interpretation and communication. This project is suitable for students interested in sustainability, the psychology of food choice, and sensory/consumer science.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in a sensory or consumer science

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

HONOURS PROJECTS 2024: FOOD OR NUTRITION SCIENCE

The changing food environment is just a click away

Project Number: FN_8

Primary Supervisor: Gie Liem **E-mail:** gie.liem@deakin.edu.au **Phone:**

Co-Supervisor(s): TBC
Research Mentor(s):

Topic Area(s): Sensory; consumer science
Project Location: Melbourne Burwood campus

Project Description: One of the most significant changes in recent years to the way we make everyday food choices is the environment in which we make them. With the rise of online food shopping, immersive technology, and digital tracking, there are both opportunities and challenges for consumers and health professionals. For example, it is easier to control the environment, but there is also an increased availability of high-calorie, nutrient-poor foods. It is crucial to understand how consumers make food choices online and investigate the role of evoked sensory stimulation, how to immerse consumers in an online space, how to create food-specific desires online, how to use multi-sensory integration online, and how to measure its impact. In this project, you will conduct sensory and consumer research in the online environment, which may include different types of digital immersions and sensory/consumer research.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in a sensory or consumer science

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

Effect of vitamin C supplementation on the plasma proteome in people with type 2 diabetes

Project Number: FN_9

Primary Supervisor: Shaun Mason **E-mail:** s.mason@deakin.edu.au **Phone:** 392446577

Co-Supervisor(s): Glenn Wadley
Research Mentor(s):

Topic Area(s): Nutritional Biochemistry
Project Location: Melbourne Burwood campus

Project Description: There is a pressing need for better prognostic biomarkers for individuals at risk for developing type 2 diabetes (T2D), and for biomarkers of response to therapies in those with T2D. The current project will involve measuring hundreds of proteins in plasma samples taken from people with T2D before and after they were treated with oral vitamin C supplements to help improve their blood sugar control and health. Study findings will help to identify plasma proteins affected by vitamin C supplementation, with insights into mechanistic effects of vitamin C in people with type 2 diabetes. When combined with other 'omics data, these findings can help to elucidate pathways of diabetes development and treatment effects, and provide effective tools for T2D screening, diagnosis, and prognosis. In this project you will develop advanced analytical laboratory skills as well as quantitative analysis skills.

Skills/Attributes Required: Basic familiarisation with laboratory techniques

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

Appetite patterns after nuts vs. nut butter consumption: Does fat taste sensitivity matter?

Project Number: FN_10

Primary Supervisor: Dr Sze-Yen Tan **E-mail:** szeyen.tan@deakin.edu.au **Phone:** 03-9246 8977

Co-Supervisor(s): Dr Andrew Constanzo;
Research Mentor(s): Ms Jeew Hettiarachchi

Topic Area(s): Dietetics; Sensory; consumer science
Project Location: Melbourne Burwood campus

Project Description: Eating can trigger a variety of signals that are used by the human body to govern appetite and eating behaviours. In the oral cavity, longer chewing of foods and oral residence time are related to greater appetite suppression. After swallowing, foods that are rapidly digested into nutrients are also capable to reduce hunger and promote fullness more. It is unclear whether mechanical chewing or rapid nutrient release are more important in human appetite regulation. The objective of this project is to compare the appetite-regulating effects of nuts when consumed in whole (requires more chewing) vs. nut butter (rapid nutrient release) forms. Since nut butter is high in fat that are more rapidly available, this study also aims to investigate if oral sensitivity to fatty acids can further predict greater appetite reduction. This study will inform which form of nuts is optimal for appetite and food intake regulation in the future.

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; Quantitative analysis (statistics); Dietary analysis

HONOURS PROJECTS 2024: HEALTH OR FOOD BEHAVIOURS

Dietary Behaviour and Quality Among Students in HSN101: Foundations of Food, Nutrition and Health

Project Number: FN_11

Primary Supervisor: Katie Lacy **E-mail:** katie.lacy@deakin.edu.au **Phone:** 52273477

Co-Supervisor(s): Jennifer McCann;
Research Mentor(s):

Topic Area(s): sustainable diets
Project Location: Overseas or remotely

Project Description: Want to know more about the dietary behaviour of your peers? Using the dietary survey data from the last 5-10 years of data collection from HSN101 Foundations of Food, Nutrition and Health, this project gives students the opportunity to explore the types of diets followed, the reasons for choosing foods and food behaviours, and diet quality over time among students undertaking a first-year foundational nutrition unit. This project is flexible depending on the student's interests, and there is also potential to use a newly developed plant-based diet quality index for this research. Students will develop: knowledge of dietary behaviour and/or the relationship between dietary behaviour and diet quality among a cohort of students undertaking a first-year foundational nutrition unit (HSN101: Foundations of Food, Nutrition and Health) skills in critical analysis of relevant research literature, analysing, interpreting and presenting dietary survey data, and scientific writing

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)

Leveraging snacks to improve diets of Australian adults: a precision nutrition approach

Project Number: FN_12

Primary Supervisor: Rebecca Leech **E-mail:** rebecca.leech@deakin.edu.au **Phone:** +61 3 5227 8768

Co-Supervisor(s): Dr Georgie Russell;
Research Mentor(s):

Topic Area(s): Public health nutrition
Project Location: Either campus but can also be done remotely

Project Description: The overall aim of this project is to understand adults' snacking behaviour, including the contextual influences on healthy and unhealthy food choices at snacks. The contextual influences on snacking behaviour that may be examined in this project include intrapersonal factors and extrapersonal factors. Intrapersonal factors relate to factors experienced internally such as mood, hunger, stress, and emotions. Extrapersonal factors involve the external environment and include factors such as social settings and the built food environment. This project will involve secondary analysis of existing datasets that provide rich information on food intakes and contextual influences at snacks. These include the EveryDayLife Study where adult participants completed a 7-day Smartphone food diary (ARC DP170100544), and the Eating in Context Study (NHMRC APP1175250) where participants completed dietary recalls and wore small cameras to capture the eating environment.

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: Image and/or video analysis; Quantitative analysis (statistics)

HONOURS PROJECTS 2024: HEALTH OR FOOD BEHAVIOURS

Primary School Lunch Practices

Project Number: FN_13

Primary Supervisor: Janandani Nanayakkara **E-mail:** j.nanayakkara@deakin.edu.au **Phone:** +61 3 924 45967

Co-Supervisor(s): Alison Booth; Claire Margerison
Research Mentor(s):

Topic Area(s): Public health nutrition
Project Location: Overseas or remotely

Project Description: In 2022-2023, we ran an online survey to explore Victorian primary school students' perceptions of their school lunch practices. The survey aimed to identify children's current lunchtime practices and experiences and their needs and expectations regarding school lunches. An Honours student will be involved in the analysis of this survey data (both quantitative and qualitative data were collected). We are flexible and are happy to work with the student to develop a project to suit their interests and plan it around the skills they wish to develop (quantitative and/or qualitative data analysis).

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)

Skills Developed: Quantitative analysis (statistics); Qualitative analysis

Visual communication design: a neglected factor in nutrition promotion on food packaging

Project Number: FN_14

Primary Supervisor: Georgie Russell **E-mail:** georgie.russell@deakin.edu.au **Phone:** 03 9246 8503

Co-Supervisor(s): TBC
Research Mentor(s):

Topic Area(s): Public health nutrition; Behavioural nutrition
Project Location: Overseas or remotely

Project Description: Australians consume more than recommended amounts of unhealthy packaged foods. Government-regulated nutrition labelling systems including the Health Star Rating, and health and nutrient claims have been developed to assist consumers in making healthier food choices. However, this information is typically not able to influence consumers to the levels needed to bring about meaningful dietary change. The ability of on-pack nutrition labelling to influence consumers may be affected by its place in the overall design of the package. That is, manufacturers may choose to draw consumer attention towards or away from nutrition information by placing it higher or lower in the visual design hierarchy. Using images of products available from local supermarkets, this project will examine nutrition information in the context of the overall package design. The student will develop skills and knowledge in nutrition labelling and claims, visual communication design and quantitative analysis.

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

Skills Developed: Primary data collection skills; Image and/or video analysis; Quantitative analysis (statistics)

HONOURS PROJECTS 2024: PUBLIC HEALTH OR HEALTH PROMOTION

Exploring children's screen time and cognition

Project Number: ESS_16

Primary Supervisor: Dr Lauren Arundell **E-mail:** lauren.arundell@deakin.edu.au **Phone:** 92446278

Co-Supervisor(s): Dr Natalie Lander; Dr Michael Wheeler
Research Mentor(s):

Topic Area(s):
Project Location: Remotely or on campus at the Burwood Campus

Project Description: Excessive screen time is common among children and is a major concern for parents, researchers, health, and education organisations. Evidence shows screen time is linked to poor physical, social, and mental health and wellbeing. The impact of screen time on children's cognitive outcomes (e.g., working memory) is less known, but is important to understand for their immediate and future development; this project aims to explore this relationship. This project will use secondary data from a large study exploring factors associated with children's physical activity and screen time. As such, other associations of interest may also be explored. This project provides an opportunity to use data from a large existing dataset to explore a topic of interest to families and the health and education sectors. There may be an opportunity for fieldwork on related projects during the year.

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)

CARDIOBREAK: Using Movement Throughout the Day to Improve Heart Health in Type 2 Diabetes

Project Number: ESS_17

Primary Supervisor: Paddy Dempsey **E-mail:** paddy.dempsey@deakin.edu.au **Phone:** +61 3 9244 6908

Co-Supervisor(s): David Dunstan; Anne Turner
Research Mentor(s):

Topic Area(s): Exercise; sport science; Exercise physiology; Clinical exercise; Physical activity
Project Location: Data collection would be based at the Baker Heart Diabetes Institute

Project Description: People with Type 2 Diabetes (T2D) often have poor physical fitness and suffer disproportionately from cardiovascular problems. Regular exercise can help improve these issues, but few people with T2D achieve recommended exercise levels. In a world-first, our team is conducting a randomized trial (OPTIMISE) to examine the effects of a simple intervention that encourages people with T2D to 'sit less and move more' to improve their blood sugar levels. We are now leveraging this 6-month intervention in a sub-study of participants by including functional assessments of cardiopulmonary fitness and resting cardiac magnetic resonance (CMR) imaging. Given the nexus between T2D, sarcopenia, and associated stress-related complications, we will also include further measures of physical function and chronic stress. Students will gain new experience in the conduct of clinical trials. They will also gain skills in data collection, exercise testing, and novel cardiac and physiological measures.

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

HONOURS PROJECTS 2024: PUBLIC HEALTH OR HEALTH PROMOTION

Investigating Unique Lipidomic Profiles in Relation to Physical Activity and Sedentary Behaviour

Project Number: ESS_18

Primary Supervisor: Paddy Dempsey **E-mail:** paddy.dempsey@deakin.edu.au **Phone:** +61 3 9244 6908

Co-Supervisor(s): Professor David Dunstan; Professor Peter Meikle;
Research Mentor(s):

Topic Area(s): Exercise; sport science; Exercise physiology; Clinical exercise; Physical activity
Project Location: Ideally data would be analysed on-site at the Baker, but remote data-transfer may be a possibility

Project Description: Lipidomics, a branch of metabolomics, focusses on the structure and function of lipids and lipid derivatives (e.g. phospholipids). These molecules aid in pinpointing the molecular pathways linking health and disease and how they may be influenced by lifestyle behaviours. Historically, studies have focused exclusively on the metabolite response to exercise training. The aim of this project is to investigate how measurements of the lipidome differ according to levels of both habitual physical activity and sedentary behaviours. This will be achieved through our department's exclusive access to validated plasma lipidome data in the Australian Diabetes, Obesity, and Lifestyle (AusDiab) study. Students will gain skills and experience in epidemiological analyses, with unique exposure to world-leading systems biology and metabolomics research aiming to better understand the potential mechanisms by which different activities, particularly at the lower end of the spectrum, impact health.

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); 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: Laboratory techniques; Quantitative analysis (statistics)

Does a Physical Activity and Sitting Time Index (PASTBI) predict diabetes risk in adults?

Project Number: ESS_19

Primary Supervisor: Professor David Dunstan **E-mail:** david.dunstan@deakin.edu.au **Phone:** 392446313

Co-Supervisor(s): Paddy Dempsey; Michael Wheeler
Research Mentor(s):

Topic Area(s): Physical activity; Sedentary Behaviour
Project Location: Data analysis will require visits to the Baker Heart and Diabetes Institute in accordance with data management protocols

Project Description: Our team has shown for the first time that a simple index that takes into account a person's daily physical activity time and time spent sitting (PASTBI) can identify those who have the highest risk of dying prematurely from all-causes. In a world-first, we used data previously collected through the Australian Diabetes and Lifestyle Study (AusDiab) to create the PASTBI that calculates the ratio of physical activity to sitting time in 6,000 Australians. This project will extend this work by looking into the relationships of the PASTBI with changes in blood glucose levels over a 7 year period. Uniquely, AusDiab is one of only a few studies in the world to have involved an oral glucose tolerance test to determine both fasting and 2hr blood glucose levels in a large sample. Ethics clearance has been granted for the AusDiab study and our group includes scientists with extensive expertise/experience in epidemiological analytical methods to assist with the study design and data analysis.

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 projected related tasks

Skills Developed: Quantitative analysis (statistics)

HONOURS PROJECTS 2024: PUBLIC HEALTH OR HEALTH PROMOTION

Can allied health professionals lead physical inactivity risk identification in diabetes patients?

Project Number: ESS_20

Primary Supervisor: Professor David Dunstan **E-mail:** david.dunstan@deakin.edu.au **Phone:** 392446313

Co-Supervisor(s): Anna Chapman;
Research Mentor(s):

Topic Area(s): Physical activity
Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: Physical inactivity is a major contributor to multiple chronic diseases, including type 2 diabetes. In Australia there is an extensive research to practice gap with respect to identifying individuals who are physically inactive and have high levels of sedentary behaviour. Busy doctors and diabetes specialists commonly cite lack of time or lack of knowledge with respect to asking about these health behaviours. Our group has identified that allied health professionals (eg: diabetes educators, exercise physiologists) may play an important role in identifying those diabetes patients most in need for behaviour change interventions. However, currently little evidence exists in relation to the barriers/facilitators to physical activity counselling that allied health professionals currently experience in their clinics. This project will be involve qualitative research methods among allied health professionals in the Baker and Alfred Alliance Diabetes Clnics to clarify these questions.

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: Primary data collection skills; Ability to conduct interviews; Qualitative analysis

Dietary intake and its relationship with blood pressure in Victorian primary schoolchildren

Project Number: FN_15

Primary Supervisor: Dr Carley Grimes **E-mail:** carley.grimes@deakin.edu.au **Phone:** +61 3 924 46223

Co-Supervisor(s): Dr Ewa Szymlek-Gay; Dr Kristy Bolton
Research Mentor(s):

Topic Area(s): Dietetics; Public health nutrition
Project Location: Any location.

Project Description: This project will use data collected as part of 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 were 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 and blood pressure. A project can be developed that explores adherence to the Australian Dietary Guidelines and its relationship with blood pressure.

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 and dietary index scores as well as skills in data management and communicating research findings to target audiences.

HONOURS PROJECTS 2024: PUBLIC HEALTH OR HEALTH PROMOTION

Digital health technologies for improving health and lifestyle behaviours

Project Number: ESS_21

Primary Supervisor: Associate Professor Shariful Islam **E-mail:** shariful@deakin.edu.au **Phone:** 61451733373

Co-Supervisor(s): Professor Ralph Maddison; Dr Jonathan Rawstorn
Research Mentor(s):

Topic Area(s): Public health nutrition; Exercise; sport science; Exercise physiology; Physical activity; Health promotion (including policy)
Project Location: Overseas or remotely

Project Description: Recent developments in digital technologies such as sensors, wearables, medical devices and artificial intelligence are a promising way to improve health and lifestyle behaviours in people with chronic conditions. In this exciting project, we aim to explore the use of wearable devices for collecting health information from people with cardiovascular disease and diabetes and apply artificial intelligence to support physical activity, diet and sleep. This project will provide an opportunity for the selected student to test a proto-type wearable device system to explore how data are collected and used to improve physical exercise and diet. The selected student will develop skills in wearable device data collection, data analysis, and scientific writing and contribute to developing this exciting project.

Skills/Attributes Required: 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; Exercise prescription and monitoring; Survey development; Quantitative analysis (statistics); Qualitative analysis

Burden of diseases and risk factors

Project Number: ESS_22

Primary Supervisor: Associate Professor Shariful Islam **E-mail:** shariful@deakin.edu.au **Phone:** 61451733373

Co-Supervisor(s): Professor Ralph Maddison;
Research Mentor(s):

Topic Area(s): Dietetics; Public health nutrition; Exercise; sport science; Clinical exercise; Physical activity; Health promotion (including policy)
Project Location: Overseas or remotely

Project Description: Non-communicable diseases (NCDs) such as diabetes and heart diseases are a major cause of premature death, disability and poor health globally and in Australia. Diet and physical activity are key determinants of NCDs. This project aims to explore the prevalence and trend of dietary risk factors and their contribution to NCDs in Australia and Asia, by sex and age group. A secondary analysis of data from the Global Burden of Disease will be conducted. Publicly available country-specific data on dietary risk factors (i.e., diets low in fruits, vegetables, whole grains, nuts and seeds, milk, sugar-sweetened beverages,) and physical activity between 1990 and 2021 will be extracted for Australia and Asian countries. Location, sex and age-specific prevalence of these risk factors over time will be estimated as the number of deaths, disability-adjusted life-years, years of life lost, and years lived with disability.

Skills/Attributes Required: 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: Quantitative analysis (statistics)

HONOURS PROJECTS 2024: PUBLIC HEALTH OR HEALTH PROMOTION

Food insecurity in Australia

Project Number: FN_16

Primary Supervisor: Dr Rebecca Lindberg **E-mail:** r.lindberg@deakin.edu.au **Phone:** 03 9246 8947

Co-Supervisor(s): Kate Wingrove; Jennifer McCann
Research Mentor(s):

Topic Area(s): Public health nutrition
Project Location: Geelong Waurn Ponds campus

Project Description: Australia is a wealthy country, but some population groups continue to 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 and compare it and contrast it to other household food security instruments. 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 who are often overlooked, hard-to-reach and yet are vital to include for sustainable and 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 and pr

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; Ability to travel to offsite for data collection and other projected related tasks

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

Ultra-processed food consumption and multiple sclerosis: a case-control study from the UK Biobank

Project Number: FN_17

Primary Supervisor: Priscila Machado **E-mail:** p.machado@deakin.edu.au **Phone:** +61 3 9918 9061

Co-Supervisor(s): Lucinda Black ; Barbara Vitorino Alencar Brayner
Research Mentor(s):

Topic Area(s): Public health nutrition
Project Location: Overseas or remotely

Project Description: Background: Ultra-processed foods are ubiquitous and consumed at levels detrimental to health. Ultra-processed food consumption has been linked with > 15 health-related outcomes, but evidence with multiple sclerosis is still emerging. Diets rich in ultra-processed foods promote inflammation and oxidative stress, both conditions known to be involved in multiple sclerosis. Project aim: To analyse the association between ultra-processed-food consumption and multiple sclerosis using the UK Biobank data. Expected outcomes: This project has the potential to generate relevant evidence to inform guidelines, policies and practices for multiple sclerosis prevention, and strengthen links of ultra-processed foods with adverse health outcomes. In the long-term, this can bring significant gains to the general population. Skills: The student will have the opportunity to develop an understanding of the role of ultra-processed foods in human health and skills in nutritional epidemiology.

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 2024: PUBLIC HEALTH OR HEALTH PROMOTION

Communication strategies to improve public understanding of ultra-processed foods in Australia

Project Number: FN_18

Primary Supervisor: Priscila Machado **E-mail:** p.machado@deakin.edu.au **Phone:** +61 3 9918 9061

Co-Supervisor(s): Alfred Deakin Prof Sarah McNaughton; Dr Georgie Russell
Research Mentor(s):

Topic Area(s): Public health nutrition
Project Location: Overseas or remotely

Project Description: Background: Ultra-processed foods (UPFs) make up nearly half of Australian's diet. People are eating more UPFs each year, many without being aware of their harms. Project aims: To explore consumers understanding of UPFs to inform communication strategies to improve public understanding of UPFs in Australia (e.g., campaigns, front-of-pack warning labels). Expected outcomes: This project will generate new knowledge to guide communication to reduce UPF consumption, particularly tailored to priority groups to improve nutrition literacy of Australians. This can inform further development and implementation of policies (e.g., dietary guidelines), the media, advocacy groups, and professional practice, with potential to increase the nutrition literacy of Australians and public support for policy actions targeting UPFs. Skills: The student will have the opportunity to develop deeper understanding of UPFs, and skills in communication strategies to reduce UPF consumption.

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

Skills Developed: Primary data collection skills; Qualitative analysis

The relationship between omega 3 fatty acids and mood

Project Number: FN_19

Primary Supervisor: Helen Macpherson **E-mail:** helen.macpherson@deakin.edu.au **Phone:** 92445317

Co-Supervisor(s): Catherine Milte;
Research Mentor(s):

Topic Area(s): Dietetics; Public health nutrition
Project Location: Overseas or remotely

Project Description: This study will involve secondary analysis of baseline data from two randomised controlled trials investigating the health benefits of diet and exercise in older people. This project will involve combining data sets to examine associations between omega 3 fatty acid intake and blood levels and mood, along with other potential contributing factors. This project will suit a student who is interested in understanding links between diet and wellbeing. As the data for this project has already been collected the emphasis will be on secondary analysis. The student will gain a comprehensive understanding of how to design and conduct analysis for psychological and dietary variables.

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: Quantitative analysis (statistics)

HONOURS PROJECTS 2024: PUBLIC HEALTH OR HEALTH PROMOTION

How can we improve postnatal healthcare for immigrant women in Australia following childbirth?

Project Number: FN_20

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

Co-Supervisor(s): Dr Penny Love; A/Prof Fiona McKay
Research Mentor(s):

Topic Area(s): Health promotion (including policy),Healthcare systems; maternal health
Project Location: Travel may be required to conduct interviews with women

Project Description: Following childbirth and in the months after having a baby, women face many challenges. Immigrant women are a population group who often face additional barriers due to many reasons including language and cultural differences. Moving to Australia and having a baby in the antental system can be difficult. Many immigrant women have specific needs and research tells us that often these women do not engage in the postnatal healthcare system. This can impact healthcare and support for women's short and long term health in Australia. This project will qualitatively explore the experiences of immigrant women in Australia regarding postnatal care and the postnatal healthcare system. The aim of the project is to explore women's needs and expectations of postnatal healthcare after having a baby in Australia. Outcomes of this research will seek to inform the next steps in providing adequate healthcare and support for immigrant womn in the postnatal period.

Skills/Attributes Required: 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; Knowedege of the Australian healthcare system and previous work with diverse cultural groups would be useful

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

Exclusive enteral nutrition for adult inpatients with inflammatory bowel disease

Project Number: FN_21

Primary Supervisor: Prof Judi Porter **E-mail:** judi.porter@dekin.edu.au **Phone:** 9246 8625

Co-Supervisor(s): Dr Paige van der Pligt ; Ms Stef Riccardi (Western Hospital)
Research Mentor(s):

Topic Area(s): Dietetics
Project Location: The student will be required to travel to Western Hospital intermittently

Project Description: Inflammatory bowel disease (IBD) is a chronic inflammatory condition of the gastrointestinal tract that has long term impact on the lives of patients. IBD includes both Crohn's Disease (CD) and Ulcerative Colitis (UC). Exclusive enteral nutrition (replacement of foods and fluids with a liquid nutrition supplement for 4-12 weeks) is a well-established therapy in patients with CD and has been found to be as effective as medical intervention, but without harmful side effects. Poor compliance with exclusive enteral nutrition has been reported and this project aims to assess the rate of compliance at Western Hospital in patients with IBD and the reasons for poor compliance. This data will positively contribute to better understanding these major barriers to adult patients being able to tolerate exclusive enteral nutrition and contribute to developing strategies to optimise compliance.

Skills/Attributes Required: Knowledge and background in a nutrition 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; Ability to travel to offsite for data collection and other projected related tasks; This project would suit a Dietitian, recent Dietetics graduate or a student interested in clinical dietetics. Clinical nutrition knowledge is required.

Skills Developed: Quantitative analysis (statistics)

HONOURS PROJECTS 2024: PUBLIC HEALTH OR HEALTH PROMOTION

Understanding parents' ideas about the development of children's eating behaviours

Project Number: FN_22

Primary Supervisor: Georgie Russell **E-mail:** georgie.russell@deakin.edu.au **Phone:** 03 9246 8503

Co-Supervisor(s): Tracy Lee; Prof Carolyn Ross (external);
Research Mentor(s):

Topic Area(s): Public health nutrition; Behavioural nutrition
Project Location: Overseas or remotely

Project Description: Children develop their eating behaviours (e.g., being fussy, eating quickly, overeating) across childhood and these can have lasting influences on their diets and weight. Parents' cognitions (thoughts) about children's eating influence what and how children they feed their child, and therefore shape the development of children's eating behaviours. Although it is recognised that parent cognitions are central to understanding how and why children's eating behaviours develop, they are underexplored. This project will describe (i) parent concerns about their child's eating behaviours, and (ii) their expectations about how children should be eating and compare these across different child ages. This project will involve collecting data via an online survey from parents. The student will have the opportunity to develop skills in survey software (Qualtrics), participant recruitment, data cleaning and statistical analysis.

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

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

Nutrition promotion for children and staff in Early Childhood Education and Care (ECEC) settings

Project Number: FN_23

Primary Supervisor: Alison Spence **E-mail:** a.spence@deakin.edu.au **Phone:** 9244 5481

Co-Supervisor(s): Penny Love;
Research Mentor(s):

Topic Area(s): Dietetics; Public health nutrition; Early childhood (first 2000 days)
Project Location: Melbourne OR remote

Project Description: Child diets impact short- and long-term health, of both people and the planet. Early Childhood Education and Care (ECEC) settings (particularly childcare) are an important setting for health promoting behaviours. An ECEC project could be designed to suit the student. For example, analysis from collaboration with the School of Education to deliver nutrition content within the Bachelor of Early Childhood Education. Or piloting a childcare food waste reduction tool. Or assessing food and nutrition policies in childcare centres. Or assessing legume recipes for incorporating into childcare menus. This project offers opportunity to interact with the expertise of both the education and health sectors, and would be ideally suited to a student with intertest and/or experience in education as well as nutrition. There may be opportunity to interact with Nutrition Australia Vic and PhD students.

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: Depending on the student's project preference, could involve both data collection and analysis, using both qualitative (interview) and quantitative (survey) methods

HONOURS PROJECTS 2024: SPORTS MANAGEMENT AND MARKETING

Examining the Social Impacts of Multi-City Mega Sport Events

Project Number: ESS_23

Primary Supervisor: Dr. Jordan Bakhsh **E-mail:** j.bakhsh@deakin.edu.au **Phone:** +61 3 92468956

Co-Supervisor(s): A/Prof Katie Rowe;
Research Mentor(s):

Topic Area(s): Sport Management
Project Location: Melbourne Burwood campus

Project Description: Mega sport events, like the FIFA Women's World Cup, are designed to create positive social impacts for host communities and their members. However, community support needed to host mega sport events has faded in recent years. This has occurred over time as mega sport events have created greater costs than benefits for communities and their members. Accordingly, event organisers have endorsed a new hosting strategy designed to tackle this challenge: multi-city strategies. Multi-city strategies use multiple host locations (e.g., Adelaide, Brisbane, Melbourne, Perth, and Sydney). This strategy is designed to create positive social impacts for multiple host communities while also decreasing the cost for communities to host. In this project, the student will examine Australians' social impacts of the 2023 FIFA Women's World Cup, by analysing survey data collected post-event. The outcomes from this project will inform event governing bodies and future host destinations.

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 projected related tasks

Skills Developed: Quantitative analysis (statistics)

Social Innovation in Sport Management

Project Number: ESS_24

Primary Supervisor: Dr Jonathan Robertson **E-mail:** j.robertson@deakin.edu.au **Phone:** 61392468493

Co-Supervisor(s): Dr Steve Swanson;
Research Mentor(s):

Topic Area(s): Sport Management
Project Location: Overseas or remotely

Project Description: Australia's population is becoming older, less healthy, and less connected in an increasing digital age. Simultaneously, sport participation in many traditional sport organisations is declining. Sport is continually searching for new models of delivery and business models to meet this decline and deliver on its remit to produce social and health outcomes for society. One promising area of scholarship that addresses this domain is social innovation. Social innovation broadly refers to how social value is created, captured and distributed via individuals, organisations, and institutions within society. Non-traditional sport organisations (i.e., those that manage social sport events, leagues, and physical activity opportunities) provide a theoretically relevant setting to investigate social innovation in sport, as they are particularly adept at creating, capturing and distributing new norms and values that run counter to the prevailing decline of social value in many organisations.

Skills/Attributes Required: 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; Knowledge and background in sport management

Skills Developed: Ability to conduct interviews; Quantitative analysis (statistics); Qualitative analysis

HONOURS PROJECTS 2024: SPORTS SCIENCES

Barriers and enablers to the integration of skill acquisition knowledge in high-performance sport

Project Number: ESS_25

Primary Supervisor: Dr Zoe Avner **E-mail:** z.avner@deakin.edu.au **Phone:** +61 3 522 78502

Co-Supervisor(s): Dr Zoe Avner; Dr David Broadbent
Research Mentor(s): Dr Lyndell Bruce

Topic Area(s): Exercise; sport science; Applied Sports Science; Strength; Conditioning; Sports coaching
Project Location: This project has no on campus requirements and can be carried out remotely

Project Description: Skill acquisition specialists have become more prominent within high performance sport systems in recent years, and yet there remains little understanding of their roles and responsibilities, how they integrate effectively within the sport environment, and the barriers and enablers for developing a sustainable and healthy career in this field. The aim of this project is to provide insight into these questions by (a) conducting an extensive review of academic and industry literature to gather insights into the role and impact of skill acquisition specialists in high-performance sports, and (b) conduct interviews with skill acquisition specialists working within high performance sport to gain first-hand perspectives on the practical aspects, challenges, and success stories related to their roles. The insights gained from this project will inform sports organizations, coaches, and practitioners on how to effectively utilise and support skill acquisition specialists.

Skills/Attributes Required: 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 travel to offsite for data collection and other projected related tasks

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

Measuring impacts in sport and exercise using inertial sensors

Project Number: ESS_26

Primary Supervisor: Dr Liz Bradshaw **E-mail:** liz.bradshaw@deakin.edu.au **Phone:** 9244 6646

Co-Supervisor(s): Dr Eric Drinkwater;
Research Mentor(s):

Topic Area(s): Exercise; sport science; Applied Sports Science; Biomechanics
Project Location: Melbourne Burwood campus

Project Description: Inertial and magneto-inertial sensors (also known as inertial measurement units/ micro-sensors) are increasingly prevalent wearable measurement technologies used to measure impact loads in physical activity and sport instead of more expensive and time-intensive force plate and three-dimensional motion analyses. The loads from ground impacts during physical activity and sport are transmitted throughout the body and therefore affect all the segments. Few studies have examined acceleration loads at various anatomical locations. More detailed measures of patterns of shock wave absorption through the body during high impact movement, using multiple sensors, may provide insight on injury susceptibility (e.g., tibial stress fracture, low back pain) and/or dysfunction arising from injury (e.g., concussion).

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; Quantitative analysis (statistics)

HONOURS PROJECTS 2024: SPORTS SCIENCES

Dynamic landing stability in high impact sports

Project Number: ESS_27

Primary Supervisor: Dr Liz Bradshaw **E-mail:** liz.bradshaw@deakin.edu.au **Phone:** 9244 6646

Co-Supervisor(s): Dr Eric Drinkwater;
Research Mentor(s):

Topic Area(s): Exercise; sport science; Applied Sports Science; Strength; Conditioning; Biomechanics
Project Location: Melbourne Burwood campus

Project Description: Landing from high intensity activities in sport requires the ability to disperse the high impact forces whilst maintaining dynamic stability. Whilst reduced joint range of motion (e.g., ankle) and increased or uneven landing forces have been demonstrated to influence lower body injury rates, the assessment of the role of dynamic balance has been limited to static and/or low velocity tests. This study seeks to examine the reliability of dynamic stability measures of high impact landings in well-trained athletes.

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

Situation Awareness in Cycling

Project Number: ESS_28

Primary Supervisor: Dr David Broadbent **E-mail:** david.broadbent@deakin.edu.au **Phone:**

Co-Supervisor(s): Dr Lyndell Bruce;
Research Mentor(s):

Topic Area(s): Applied Sports Science
Project Location: Melbourne Burwood campus

Project Description: Cyclists are frequent casualties in road traffic collisions. Human error has been shown to be a contributor to these incidents – particularly road users' failure to “look properly”. A video-based hazard perception test forms part of attaining a driving license, however, very little attention has been given to understanding the situation awareness and hazard perception of cyclists. The current project is broadly focused on situation awareness in cycling, with the specific project aims and methods to be refined through discussion with the student. Potential projects could include (a) conducting interviews with experienced cyclists to explore the situation awareness requirements of cycling and contextual factors that impact this, (b) assessing the reliability and validity of a video-based hazard perception test for cyclists, or (c) examining the visual search behaviour of cyclists in different contexts using eye tracking technology and video simulations.

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

HONOURS PROJECTS 2024: SPORTS SCIENCES

Investigating the Challenge Point Framework in Sports Coaching

Project Number: ESS_29

Primary Supervisor: Dr David Broadbent **E-mail:** david.broadbent@deakin.edu.au **Phone:**

Co-Supervisor(s): Dr Lyndell Bruce;
Research Mentor(s):

Topic Area(s): Applied Sports Science; Sports coaching
Project Location: Melbourne Burwood campus

Project Description: The Challenge Point Framework (Guadagnoli Lee, 2004) suggests that optimising learning is related to the information available during practice, the difficulty of the task, and the skill level of the individual. This framework has recently been expanded to sports coaching with concepts such as motivation, task load, and representativeness included as factors to consider (Hodges Lohse, 2022). There are a number of unanswered questions from this framework that can be addressed in this project depending on the interest of the student. Potential projects could include (a) examining the relationship between the representativeness and perceived challenge of training sessions, (b) investigating the relationship between coach and player ratings of perceived challenge for training sessions, and (c) the relationship between the physical and mental demands of training sessions and the perceived challenge. This research will inform current practices in sports coaching and skill acquisition.

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; Quantitative analysis (statistics)

Sources of stress in youth athletes

Project Number: ESS_30

Primary Supervisor: Lyndell Bruce **E-mail:** lyndell.bruce@deakin.edu.au **Phone:** 03 9246 8967

Co-Supervisor(s): Luana Main;
Research Mentor(s):

Topic Area(s): Applied Sports Science
Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: Youth athletes have multiple sources of stress ranging from physical demands such as training and matches to cognitive demands and expectations around academic performance. Current literature has proposed methods to measure their response to stress, such as the short recovery stress scale. Many of the measures are related to understanding the physical stress which may be imposed from training loads. There is currently less empirical understanding around the various sources of stress that a youth athlete may be exposed to. Allostatic load is a term given to the cumulative effect that chronic stress has on mental and physical health. This project aims to investigate these sources of stress holistically and understand the impact on youth athlete's allostatic load.

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 projected related tasks

Skills Developed: Recruitment of participants; Primary data collection skills; Qualitative analysis

HONOURS PROJECTS 2024: SPORTS SCIENCES

Nutritional supplementation: effects on athletes' hydration status and buffering capacity

Project Number: ESS_31

Primary Supervisor: Dr Amelia Carr **E-mail:** amelia.carr@deakin.edu.au **Phone:** 03 9251 7309

Co-Supervisor(s): Dr Rhiannon Snipe; Dr Lee Hamilton
Research Mentor(s): Will Jardine

Topic Area(s): Sports nutrition; Exercise; sport science; Applied Sports Science; Exercise physiology
Project Location: Melbourne Burwood campus

Project Description: During exercise in hot weather conditions, sweat production increases, which can result in dehydration, leading to cardiovascular strain, impaired thermoregulation, and performance decrement of up to 13%. Interventions are therefore needed to support athletes when competing in hot environmental conditions. Nutritional supplementation is a cost-effective method to facilitate improved hydration status and performance benefits in hot conditions. Glycerol, an osmotic agent which previously featured on the World Anti-Doping Agency (WADA) list of prohibited substances, is now classified as safe and legal for unrestricted use in competition. Other osmotic agents, containing sodium (e.g., sodium bicarbonate, which can also improve performance via increased buffering capacity), can also facilitate an improved hydration status. Further investigation is required to identify optimal supplementation protocols for glycerol and sodium bicarbonate (e.g., in isolation and combined).

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)

Biomechanics in the real-world: A validation study of video-based methods

Project Number: ESS_32

Primary Supervisor: Dr Aaron Fox **E-mail:** aaron.f@deakin.edu.au **Phone:** 5247 9720

Co-Supervisor(s): Dr Jason Bonacci; Dr Simon Feros
Research Mentor(s):

Topic Area(s): Exercise; sport science; Applied Sports Science; Biomechanics
Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: Biomechanical analysis techniques have typically been limited to laboratory settings. Recent advances in image recognition algorithms has made the use of motion capture via video-based methods a viable option to understand biomechanical performance in real-world settings. OpenCap (https://www.opencap.ai/) is a recently developed web application which uses smart-phone cameras to estimate three-dimensional biomechanics from video, and has been validated against basic gait and jump-landing movements. To be truly useful in sporting and/or clinical settings, obtaining accurate joint kinematics during more functional movements is necessary. This project will validate biomechanical data obtained from OpenCap against gold-standard laboratory-based measures (i.e. motion capture, force plates). Depending on the students interest, the project can focus on sporting (e.g. cricket bowling) or clinically (e.g. upper limb rehabilitation) relevant movements.

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

HONOURS PROJECTS 2024: SPORTS SCIENCES

Developing an improved player rating system for elite netball

Project Number: ESS_33

Primary Supervisor: Dr Aaron Fox **E-mail:** aaron.f@deakin.edu.au **Phone:** 5247 9720

Co-Supervisor(s): Dr Lyndell Bruce;
Research Mentor(s):

Topic Area(s): Exercise; sport science; Applied Sports Science
Project Location: Either Burwood or Waurn Ponds Campuses

Project Description: Player rating systems based on match statistics have become a common feature of modern team sport. Australia's elite-level netball competition (Super Netball) uses a broad points-based system (NetPoints) as a rating of player performance – however the metric is heavily biased towards certain activities, which may therefore under- or over-estimate the performance and impact of certain players and/or positions. Advanced player rating systems have been developed in other team sports (e.g. Australian football) which better represent player and team performance. The aim of this project will be to explore options for developing an improved quantitative rating system for elite netball players and teams. The project will leverage both existing data (e.g. Super Netball Champion Data match centre) and data collected as part of the project (e.g. further video coding of match data).

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: Primary data collection skills; Image and/or video analysis; Quantitative analysis (statistics)

Nutrition strategies to augment recovery from exercise induced muscle damage

Project Number: ESS_34

Primary Supervisor: Lee Hamilton **E-mail:** lee.hamilton@deakin.edu.au **Phone:** +61 3 92445207

Co-Supervisor(s): Giselle Allsopp; Aaron Fox
Research Mentor(s): Elham Yaghoobi

Topic Area(s): Sports nutrition; Exercise; sport science
Project Location: Geelong Waurn Ponds campus

Project Description: Exercise induced muscle damage (EIMD) is a common occurrence in sport and physical activity. It can lead to time off training, further more serious injury and sometimes dropout from sport. Exploring strategies which may prevent or enhance the recovery from EIMD may improve the rate of return to sport/activity. There are a number of nutrition interventions which may support the recovery from EIMD and omega-3 supplementation has some supporting evidence. The aim of this project is test if krill oil supplementation may reduce muscle damage or enhance recovery from a single bout of EIMD.

Skills/Attributes Required: Knowledge and background in a nutrition related field; Knowledge and background in an exercise or sports science related field; Basic familiarisation with laboratory techniques; 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; Quantitative analysis (statistics)

HONOURS PROJECTS 2024: SPORTS SCIENCES

Testing the efficacy of a next-generation high-performance wearable sweat biosensor

Project Number: ESS_35

Primary Supervisor: A/Prof Luana Main **E-mail:** luana.main@deakin.edu.au **Phone:** 9244 5030

Co-Supervisor(s): Dr Jonathan Rawstorn;
Research Mentor(s):

Topic Area(s): Exercise; sport science; Applied Sports Science; Exercise physiology; Clinical exercise
Project Location: Melbourne Burwood campus

Project Description: The rapidly growing interest in wearable biosensors is understandable due to their potential to provide continuous, real-time physiological information via non-invasive measurements. Historically these have been limited to measures of activity, skin temperature, and heart rate. However recent advances are seeing the potential for flexible, fibre based "bio patches" to detect a range of markers including metabolites and hormones. These next-generation wearable biosensors will have a broad range of applications from high performance sport to healthcare. However before these can be manufactured commercially, we need to check that they are accurately measuring the biomarkers of interest. For this reason, validation studies of biosensor performance are needed. The aim of this project is to assess the validity of a Deakin developed next-generation biosensor to measure biomarkers in sweat. Students will develop a wide range of transferrable skills relevant to research with human participants.

Skills/Attributes Required: 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 work with blood and/or muscle biopsy samples; Laboratory techniques; Exercise prescription and monitoring; Quantitative analysis (statistics); Conducting exercise tests

Determinants of maximal fat oxidation in trained cyclists

Project Number: ESS_36

Primary Supervisor: Chris Shaw **E-mail:** chris.shaw@deakin.edu.au **Phone:** 03 5227 3394

Co-Supervisor(s): Kirsten Howlett; Eloise Tarry
Research Mentor(s):

Topic Area(s): Sports nutrition; Exercise; sport science; Exercise physiology
Project Location: Geelong Waurn Ponds campus

Project Description: Maximal fat oxidation rates can be determined from a short incremental exercise test and is highly variable between individuals. Maximal fat oxidation has been linked to performance in long distance events and has been suggested as a tool to guide personalized nutrition interventions. These projects will examine why certain individuals are characterized by a high fat 'burning' capacity and whether maximal fat oxidation rates translate to fuel use during prolonged exercise bouts in both the fasted and fed states. These projects will use a combination of exercise testing, indirect calorimetry to assess substrate utilization, blood sampling and dietary analysis to explore the determinants of maximal fat oxidation rates in well trained cyclists and triathletes.

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

Sex differences in exercise performance and physiological responses with a pre-cooling strategy

Project Number: ESS_37

Primary Supervisor: Rhiannon Snipe **E-mail:** r.snipe@deakin.edu.au **Phone:** (03) 9244 6737

Co-Supervisor(s): Amelia Carr;
Research Mentor(s): Lilia Convit

Topic Area(s): Sports nutrition; Exercise; sport science; Exercise physiology
Project Location: Melbourne Burwood campus

Project Description: Heat mitigation strategies such as pre-cooling with an ice vest and ice slurry are commonly used by athletes to improve exercise performance in the heat. However, research suggests that pre-cooling may provide a greater performance benefit to male athletes, with minimal or no performance benefit in female athletes, although research with direct comparisons between sexes are currently limited. Therefore, this research project aims to compare the effectiveness of combined pre-cooling with an ice vest and an ice slurry on physiological responses (e.g. core temperature, skin temperature, heart rate, thermal strain etc.) and 10 km running performance in male and female athletes (female data already collected). Findings from this research will inform the practical implementation of pre-cooling strategies by athletes competing in hot environments. This project will provide practical hands-on research experience and outputs that will be highly beneficial for career development.

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; Commitment to laboratory-based data collection

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); Fitness (VO2max) and exercise performance testing, sweat sample analysis, hydration analysis, practical application of pre-cooling strategies

Honours Supervisors for 2024

Clinton Bruce

Dr Bruce's research is focused on understanding the regulation of glucose metabolism in skeletal muscle and liver in health and disease. He is particularly interested in identifying mechanisms underlying the development of glucose intolerance and insulin resistance. He also has an interest in determining the role of lipids in regulating skeletal muscle function. His research involves using stable isotope methodology and GC-MS-based metabolomics to measure glucose and lipid fluxes, protein synthesis and mitochondrial biogenesis.

Kirsten Howlett

Dr Kirsten Howlett is a Senior Lecturer in the School of Exercise and Nutrition Sciences. Her research program is focused on understanding the physiological and metabolic responses that underpin the beneficial effects of exercise, and the detrimental impact of obesity or high fat diet in the development of metabolic diseases. By examining the underlying cellular mechanisms in skeletal muscle and the heart, this research aims to provide insight into how we can maintain good health, and prevent and treat diseases such as insulin resistance, type 2 diabetes and cardiovascular disease.

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

Steve Fraser

A/Prof Steve Fraser is an Accredited Exercise Physiologist and a Discipline Leader: Clinical Exercise, in the School of Exercise and Nutrition Sciences. He is Co-lead, Exercise and Nutrition for Cancer Research Group in the Institute for Physical Activity and Nutrition (IPAN). His publications can be found here The primary aim of his body of research is to provide the evidence base for the incorpororation of exercise to improve the usual care of individuals with cancer. This will likely improve their clinical status, fitness, function, and quality of life. He collaborates with treating centres across Melbourne and this study is linked with the BakerIDI. He has supervised 19 honours students with 3 receiving the Vice Chancellor's prize for best Honours thesis.

Shaun Mason

Dr Shaun Mason is a lecturer in Nutrition Science, and undertakes research in redox biology and proteomics 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-clinican (accredited exercise physiology) and 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 has supervised 11 honours students and currently supervises 2 local and 2 international PhD students. Dr Miller has a strong passion for mentoring enthusiastic students to become high achieving, independent researchers.

SUPERVISOR PROFILES

Niamh Mundell

Dr Niamh Mundell is a Senior Lecturer in Clinical Exercise Physiology within Deakin University's School of Exercise and Nutrition Sciences, practising accredited exercise physiologist and member of IPAN. Niamh also serves on the ESSA National Board and has contributed to numerous other ESSA projects. Her research primarily examines exercise physiology for optimising outcomes in pain, mental and cognitive health with a broader focus of improving the exercise physiology industry for clinicians and patients. Dr Mundell integrates her clinical exercise physiology skills and experience with best practice health-service delivery to support clinical outcomes and value-based care in clinical exercise physiology practice. https://sites.google.com/view/niamhmundell

Patrick J Owen

Dr Patrick J Owen is a Research Fellow at Deakin University. He is also a Statistical Consultant at Brigham Young University (USA), Associate Editor at BMJ Open Sport Exercise Medicine and Editorial Board Member at Sports Medicine. His research focuses on musculoskeletal health, with particular interests in low back pain, exercise physiology and research methods. He has supervised 13 Honours (mean grade: 86%), eight Masters (mean grade: 84%) and three Doctoral completions. Seven of his students have since commenced Doctoral degrees, two are now medical doctors and one is a post-doctoral research fellow. Under his supervision, his students have been awarded 20 awards/honours and presented at conferences on 42 occasions. For more information (including publications): www.patrickjowen.com

Chris Shaw

Chris Shaw is a Senior Lecturer in Exercise Physiology in the School of Exercise and Nutrition Sciences/IPAN. His research focuses on how fuel use is regulated during exercise and in response to feeding. He is interested in the mechanisms underlying metabolic and cardiovascular diseases and the metabolic benefits of exercise. He performs human studies using a combination of approaches to examine whole body fuel utilization and invasive techniques to study protein expression, signalling and metabolism in skeletal muscle.
https://www.deakin.edu.au/about-deakin/people/chris-shaw

Stuart Warmington

https://www.linkedin.com/in/swarmington/
https://www.deakin.edu.au/about-deakin/people/stuart-warmington
https://scholar.google.com/citations?hl=en=WUevJl8AAAAJ

Michael Wheeler

My research focuses on understanding how physical activity and sedentary behaviour affect cardiovascular, cognitive, and metabolic function. In addition to being an active researcher, I also teach science communication to undergraduate and masters students, and I am the co-founder and co-host of a science communication podcast called Let's Talk Scicomm. This experience has crossover benefits for my supervision style which emphasises collaborative learning of content knowledge and transferable skills – understanding and communicating the value and relevance of a piece of research – in addition to learning technical research skills. I am currently supervising one other PhD student. Click here for a link to my research profile. https://www.deakin.edu.au/about-deakin/people/michael-wheeler

Yuxin Zhang

Yuxin is an early career Research Fellow (digital health) at the Institute for Physical Activity and Nutrition (IPAN), Deakin University, researching wearable sensing and AI technology in digital healthcare. They have ten years of experience conducting innovative translational research projects in healthcare settings. Their research interests are in the area of smart sensing, mobile computing, and edge AI for out-of-hospital personalised chronic disease self-management. Yuxin has published 15 peer-reviewed papers and been granted four patents. (Researcher Profile: https://www.deakin.edu.au/about-deakin/people/yuxin-zhang)

Alison Booth

Dr Alison Booth is a Senior Lecturer and Registered Nutritionist and specialises in nutrition promotion. She co-leads the School Food Nutrition group in the Institute of Physical Activity and Nutrition (IPAN). Her current research focuses on food and nutrition education in schools (food literacy), school food environment including school lunches, teacher professional development and young adult food practices. She has supervised 8 Honours students, over 12 Masters students, and two PhD students to completion.

SUPERVISOR PROFILES

Andrew Costanzo

Dr Andrew Costanzo is a sensory nutrition researcher at the CASS Food Research Centre, and a Lecture in Food and Nutrition. He also has extensive experience in supervising Honours students. His research investigates the factors that influence how taste perceptions are modified and regulated to understand the interplay between taste, dietary intake, and metabolism. He has recently helped identify and categorise new tastes – termed 'alimentary tastes', which include fat taste, umami, and starchy. A summary of his research is outlined in his staff profile: https://www.deakin.edu.au/about-deakin/people/andrew-costanzo

Dan Dias

Dr Dan Dias is a Senior Lecturer in Analytical Biochemistry within the Centre for Advanced Sensory Science (CASS) and the newly established Australian Research Council – Industrial Transformation Training Centre (HyTECH), School of Exercise and Nutrition Sciences, Faculty of Health, Deakin University. He has over 15 years of experience in analytical biochemistry, metabolomics and natural product chemistry. His current research focuses on identifying bioactive natural products from endophytes; applying metabolomics to assess the impact of Polyphenol Rich Sugarcane Extracts on inflammatory cell signalling pathways and determining the flavour retention and changes of foods during storage. Dr Dan Dias Researchgate Profile - https://www.researchgate.net/profile/Daniel-Dias-13?ev=hdr_xprf

Snehal Jadhav

Dr Snehal Jadhav is working with the CASS Food Research Centre (https://www.cassfood.com.au/) in the School of Exercise and Nutrition Sciences. Her current research is industry-linked and focusses on developing solutions for maintenance of microbial food safety in food and food processing environments. She is currently leading the food safety research in an Australian Research Council training centre grant-HyTech at Deakin that is focused on providing research training to students (including honours students) to be industry ready. She has supervised 2 honours and 1 PhD student in the past and is currently supervising 2 honours and 4 PhD students at Deakin. Her research profile can be found here https://orcid.org/0000-0002-8331-275X

Gie Liem

Gie Liem is an associate professor in sensory and consumer science. His research focusses on the role of sensory perception in food choice behaviour, and aims to answer questions like: how can online food choices be influenced? What are drivers and barriers of the consumption of cell cultivated meats? How do immersive environments impact food choice? Gie has supervised over 10 honours students in the paste years. In addition to his teaching and research activities, Gie is also an executive editor of the journal Appetite, which is one of the leading journals in food choice behaviour research. See this link for more information: https://www.deakin.edu.au/about-deakin/people/gie-liem

Sze-Yen Tan

Dr Sze-Yen Tan is an Advanced Accredieted Practising Dietitian, and a Senior Lecturer in Nutriton Science. He is also an active researcher who conducts research projects to understand the health benefits of nuts and seeds, and how human taste function can influence our eating behaviours. His research focuses on obesity, metabolic disease and ageing. His research interests are summarised in his researcher profile: https://orcid.org/0000-0002-9607-202X. Dr Tan has extensive experience in supervising honours, masters, and PhD students.

Katie Lacy

Dr Katie Lacy holds the position of Senior Lecturer in Nutritional Sciences and is a member of the Institute for Physical Activity and Nutrition (IPAN). She teaches HSN101 Foundations of Food, Nutrition and Health, which introduces many students to issues around the sustainability of the food environment. Dr Lacy's research focuses on promoting evidence-based strategies for moderating energy intake and improving diet quality among young people, and she is particularly interested in dietary behaviours that are also more environmentally sustainable. Dr Lacy has supervised/co-supervised six Honours students, with most publishing their work in academic journals. For more information about Dr Lacy's research background, please visit: https://www.deakin.edu.au/about-deakin/people/katie-lacy.

Rebecca Leech

Dr Rebecca Leech is a Registered Nutritionist and Nutritional Epidemiologist, funded by a NHMRC Emerging Leadership Fellowship. Dr Leech's research applies novel analytic approaches to understand determinants of food intakes at meals and snacks and how different eating patterns influence diet quality and cardiometabolic health in adults. Her research aims to inform the development of dietary advice that is context-specific and tailored to reflect everyday eating situations. Between 2018 and 2021, Dr Leech was the Chair of the Student Mentoring for the Nutrition Society of Australia; she has a keen interest in supporting students to establish career pathways in nutrition science.

SUPERVISOR PROFILES

Janandani Nanayakkara

Dr Janandani Nanayakkara is a Lecturer in the School of Exercise and Nutrition Sciences. Her broad research interests include exploring ways of improving primary and secondary school food literacy education. Current research includes: primary school food environment and school lunches and food literacy education in primary and secondary schools. She has supervised 5 Masters students (2 as primary supervisor), 1 Honours student and 1 Graduate Certificate of Research practice student and currently supervises three PhD students (one is based in a Sri Lankan University) and 1 Masters student.

Georgie Russell

Dr Georgie Russell is a senior lecturer and researcher within the Institute for Physical Activity and Nutrition (IPAN) based at the Burwood campus. She leads a program of research aimed at understanding eating behaviours and appetite self-regulation across the lifespan. She has a particular interest in understanding how and why children learn to eat, and how children can learn to eat well in current food environments. Georgie teaches in the areas of healthy and sustainable food systems, and research methods. Georgie is an active and enthusiastic supervisor of undergraduate, Honours, Masters and PhD students. https://www.deakin.edu.au/about-deakin/people/georgie-russell.

Lauren Arundell

Dr Lauren Arundell is an Australian Research Council (ARC) DECRA Research Fellow at the Institute for Physical Activity and Nutrition within the School of Exercise and Nutrition Sciences. Her research investigates children's behaviours, including screen time and physical activity, and their impact on physical and psycho-social health wellbeing. Lauren works with families to understand their challenges and design intervention strategies to help manage and promote optimum screen time and physical activity levels in the home. Google Scholar www.scholar.google.com/citations?hl=en=xyMbJK4AAAAJ Deakin Profile: www.deakin.edu.au/about-deakin/people/lauren-arundell

Paddy Dempsey

Dr Dempsey's research interests are focused on the role of physical activity, sedentary behaviour and diet (including their interacting effects) in preventing and managing type 2 diabetes and cardiovascular disease. He investigates these questions using large epidemiological datasets, meta-research, and human intervention/clinical trials. He has mentored 11 PhD and honours students (all 1st class) both in Australia and the UK, and currently co-supervises two international PhD students. He is dedicated to supporting students through all research stages, from planning and writing/data analysis to dissemination of findings, career planning, and exploring graduate opportunities. For more information see: https://www.deakin.edu.au/about-deakin/people/paddy-dempsey.

David Dunstan

Professor David Dunstan is the head of the Baker-Deakin Department of Lifestyle and Diabetes within IPAN at Deakin University and the Baker Heart and Diabetes Research. He is a world leader in research on (i) sedentary behaviour as a significant and unique contributor to health risk, and (ii) simple solutions targeting reducing and breaking up sitting time are effective and feasible in workplace and school contexts. Over the past 10 years he has supervised 17 HDR students to completion, including PhD, Masters and Honours students. A more detailed description of his profile can be found in his Deakin profile: https://www.deakin.edu.au/about-deakin/people/david-dunstan and his Google Scholar profile: https://scholar.google.com.au/citations?user=7JhXeWgAAAAJ=en

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 three Honours students to completion in the role of primary supervisor and supported all students to prepare and publish findings from their Honours thesis into published peer-reviewed manuscripts. She has also supervised PhD students (1 primary, 4 co-supervisor) to completion. Further information about her research profile can be found here https://www.deakin.edu.au/about-deakin/people/carley-grimes

SUPERVISOR PROFILES

Shariful Islam

A/Prof Shariful Islam is Group Leader for the Global Health research group at the Institute for Physical Activity and Nutrition (IPAN). He is a physician with expertise in public health, digital health, and global health. Shariful's research focuses on using innovative information technologies for improving chronic health conditions. He has experience in the design and conduct of epidemiological studies and clinical trials. Shariful has supervised to completion of 7 Doctor of Medicine, 3 PhD and 12 Masters students, and currently supervises 3 PhD students.
Deakin: www.deakin.edu.au/about-deakin/people/shariful-islam
Google Scholar: https://scholar.google.com.au/citations?user=ntloj7UAAAAJ=en
ResearchGate: https://www.researchgate.net/profile/Sheikh-Mohammed-Shariful-Islam

Rebecca Lindberg

Dr Lindberg is a public health nutrition researcher with expertise in food insecurity, policy and not-for-profit projects. She has a substantial track record in qualitative research methodologies and working on applied projects with government and community sectors. She has an emerging research interest in quantitative methods including survey development, measuring diet quality and population nutrition surveillance. https://www.deakin.edu.au/about-deakin/people/rebecca-lindberg

Priscila Machado

Dr Priscila Machado is a Research Fellow at Deakin IPAN. She is leading a research program on ultra-processed foods and its impact on human and planetary health. Priscila has a total of 40 papers, >2,800 citations (Google Scholar), and has contributed to FAO, WHO and PAHO reports. Priscila has an emerging media profile, with contributions to The Conversation with >600,000 reads. Priscila has successfully supervised previous Masters and PhD students and is committed to a high standard of support and supervision.
Deakin profile: https://www.deakin.edu.au/about-deakin/people/priscila-pereira-machado
Google Scholar: https://scholar.google.com/citations?user=PG3ORpgAAAAJ

Helen Macpherson

Dr Macpherson has a background in cognitive neuroscience and leads the Exercise and Nutrition for Cognitive and Mental Health group at the Institute for Physical Activity and Nutrition (IPAN) and is a Senior Research Fellow. They conduct research into identifying risk factors for cognitive decline, understanding trajectories of cognitive decline, and reducing dementia risk via targeted lifestyle interventions. Dr Macpherson conducts and disseminates high quality evidence from randomised controlled trials and epidemiological studies. Their work is contributing to the important knowledge that dementia risk can be reduced by targeting health behaviours such as diet and physical activity.
Google scholar profile: https://scholar.google.com.au/citations?user=TFhxHjQAAAAJ=en=ao

Paige van der Pligt

I'm an Advanced Accredited Practising Dietitian with vast experience working across the public and private healthcare sectors. I'm a Senior Lecturer in Nutrition at Deakin University, and mid-career researcher in the Institute for Physical Activity and Nutrition (IPAN). My research targets the link between pregnancy nutrition and the impact on maternal and neonatal health and disease (gestational diabetes and cardiovascular disease). Further, my work explores how improved access to effective nutrition education and antenatal healthcare systems for women might be achieved.

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 (https://www.deakin.edu.au/about-deakin/people/judi-porter). This research will be undertaken jointly with co-supervisor Dr Paige van der Pligt and staff from Western Health.

Alison Spence

Dr Alison Spence is a Senior Lecturer in Population Nutrition, co-ordinator of community dietetics placements, and Advanced Accredited Practicing Dietitian (AdvAPD). Her research focusses on promoting nutrition and health for young children, including understanding and improving young children's diet quality, parental feeding practices, family meals, childcare meals, and recipes as a health promotion tool. In particular, her work emphasises practical nutrition promotion which considers the needs of parents and childcare workers. Profile: https://www.deakin.edu.au/about-deakin/people/alison-spence

SUPERVISOR PROFILES

Jordan Bakhsh

Dr Jordan Bakhsh is an Alfred Deakin Postdoctoral Research Fellow in the Department of Management in the Deakin Business School and is a member of the Centre for Sport Research. Jordan's research focuses on understanding how organisations reactively and proactively engage with mega events. His research takes a pragmatic approach to examine how organisations strategically leverage mega sport events and the social and sustainable impacts those strategies create for individuals, organisations, and society. His research has been published in leading sport management journals including Sport Management Review and European Sport Management Quarterly, and he is an Editorial Board Member for the leading event management journal Event Management.

Jonathan Robertson

Dr Jonathan Robertson is a Senior Lecturer in the Sports Management Program and Co-Director of the Master of Business (Sport Management) within the Deakin Business School. He teaches undergraduate and postgraduate courses in related to sports ethics, integrity, and social issues. His primary research interests are in the areas of social change, ethics and integrity, innovation, and organisational theory.

Zoe Avner

Zoe studies sport coaching from a socio-cultural perspective with a specific focus on athlete and coach learning, ethical athlete development practices, and inclusive and equitable sport and physical cultures. https://www.deakin.edu.au/about-deakin/people/zoe-avner

Liz 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 sports performance and injury mechanisms. Liz and is an ESSA Accredited Sport Scientist (Level 2) and a Life Member/Fellow of the International Society of Biomechanics in Sport.
Google Scholar: https://scholar.google.com/citations?user=BWYVBxAAAAAJ=en
ResearchGate: https://www.researchgate.net/profile/Elizabeth-Bradshaw-2
ORCID: https://orcid.org/0000-0003-2271-2351

David Broadbent

The broad focus of Dr David Broadbent's research is expertise and skill acquisition with a particular interest in the perceptual-cognitive skills underpinning performance in a range of domains, such as sport and road users (e.g., cyclists). Dr Broadbent uses a variety of measures and techniques as part of his research, such as eye-tracking, video and immersive simulations, questionnaires, interviews, focus groups, performance analysis, neuroscientific measures, and behavioural responses. Click here to view Dr Broadbent's profile on ResearchGate: https://www.researchgate.net/profile/David-Broadbent

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.

Amelia Carr

Dr Amelia Carr is a Senior Lecturer with the Centre for Sport Research and School of Exercise and Nutrition Sciences at Deakin University in Melbourne. Amelia's research focuses on adaptations to nutritional interventions and training strategies, and the effects on athletes' performance. Amelia completed her undergraduate degree at the University of Western Australia (UWA), and her PhD through UWA at the Australian Institute of Sport in Canberra. Amelia worked with the Australian Defence Force as a Performance Scientist before commencing her current role. Amelia's current projects include research programs which focus on buffering, hyperhydration and heat acclimation training for athletes. Amelia's Deakin and Google Scholar profiles provide further details about her research.

SUPERVISOR PROFILES

Aaron Fox

Dr Aaron Fox is a lecturer and researcher in the School of Exercise and Nutrition Sciences 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, force plates, electromyography) and analytical techniques to identify optimal strategies for improving human performance and reducing injury risk. Google Scholar Profile: https://scholar.google.com.au/citations?user=p0QjWTQAAAAJ=en

Lee Hamilton

Dr Lee Hamilton is a lecturer in exercise physiology across the lifespan. He is based in the School of Exercise and Nutrition Sciences at the Geelong Waurn Ponds campus. 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.

Luana Main

Dr. Main is internationally recognised for her research monitoring the impact of multi-stressor environments on well-being and performance. She draws on a range of different wearable devices, circulating biomarkers and brain-behaviour interrelationships to identify early warning signs of excessive stress exposure to minimise risk of injury and compromised long-term health. Ultimately applying these concepts in the contexts of high-performance sport, the defence force and emergency services. To date, she has supervised twelve honours students. Four have gone onto PhDs with scholarship, one into Masters of Clinical Exercise Physiology, and the others went to industry positions. She has also supervised 8 PhD students to completion and is currently supervising a further 3 PhD students.

Rhiannon Snipe

Rhiannon is an advanced sports dietitian and lecturer in sports nutrition. Her research aspires to enhance the health, well-being and performance of female athletes. Specifically, Rhiannon's research focuses on sports nutrition and exercise physiology for female athletes, including effects of the menstrual cycle and hormonal contraceptives on nutrition requirements and performance. Rhiannon has experience supervising PhD, Master's and Honours students and conducting and publishing research in female and male athletes, including heat stress. See google scholar link for a list of publications: https://scholar.google.com.au/citations?user=MvepHoQAAAAJ=en=ao