Bachelor of Food and Nutrition Sciences (Honours) H418

Bachelor of Exercise and Nutrition Science (Honours) H442
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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 Type A Honours degrees:

Bachelor of Food Science and Nutrition (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 trimesters within a single year  full time (8 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

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

GISELLA MAZZARINO
Bachelor of Food and Nutrition Science (Honours) graduated 2015
Current role/position: Undertaking PhD in Molecular Physiology at Deakin University

“My honours project investigated: The role of miRNA in Physiological Cardiac Hypertrophy”

“Completing my honours degree was a challenging yet entirely rewarding experience. Over the course of the year, I acquired a number of important skills and techniques necessary for a career in scientific research and academia. Honours marks the transition between undergraduate coursework and research, and was, for me, a year of great personal growth. I was provided with mentoring in problem solving, analytical writing, and working independently in research and laboratory environments, which are skills that are applicable to a variety of career paths. I was also able to be part of real-world research, which I highly recommend for the experience, but also for the wonderful satisfaction and sense of accomplishment that awaits at the end.

My honours project investigated antioxidant supplementation in reactive oxygen species production during exercise and their possible influence on response to exercise training due to their role as metabolic messengers.”
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 to be employed 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.
What types of Honours projects can I do in SENS?

Food science and nutrition

Topic areas in food science and nutrition include:

- nutrition choices and eating patterns;
- salt, appetite control and blood pressure regulation;
- fatty acids, inflammation, cognition and blood pressure regulation;
- proteins, sport performance and muscle gain;
- nutrition and ageing;
- health effects of phytochemicals and minerals;
- nutrition and gut bacteria;
- food choice and perceptions;
- food policy and safety;
- early childhood influences on eating.

Exercise and sport science

SEAN BULMER
Bachelor of Exercise and Sport Science (Honours) completed in 2015
graduated 2016
Current role/position: Human Performance Science, Research Assistant at Defence Science and Technology

“Undertaking the honours program at Deakin was the most educational, challenging and fun year of my education so far. I had a great time meeting with and learning from my supervisors. The content of the honours course has translated extremely well to application in a professional setting. I use the processes and writing skills I learned last year every day in my current role, and would not be where I am without them.”

“My honours project investigated: The utility of subjective measures to monitor firefighters’ stress and fatigue during a simulated deployment. This involved development of a questionnaire."
Topic areas in exercise and sport science include:

- 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.

**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?**

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 three projects on your preference sheet. 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 basic research training.
What happens in the Honours year?

This intense year means that you need to be able to commit 35 hours a week to your honours qualification. Your honours degree is mostly assessed on research but there is also a coursework component. Both parts count towards your final mark and both are therefore important. The coursework is directed towards giving you the necessary research skills to complete your research project, and provides you with research training. There is an emphasis both on writing and presenting your research. There are two units in trimester 1, Research Methods (unit code HBS400) and Developing Research Skills (HSE401). They have lectures and assignments to complete that incorporate aspects of your project. The remainder of your research is conducted in trimester 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.

Course work

Research methods (HBS400)

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, qualitative or lab-based stream. This unit is designed to help you develop the methods for your research project.

Literature review and research proposal (HSE401)

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

Research project
Data collection and analysis
After you have planned your research and received ethics approval (if required), you are ready to collect your data.

Thesis (HSE402/HSN414)
The final step is to 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.

What are the admission requirements?
Students must have completed a Bachelor degree, have a mid-credit average (Weighted Average Mark (WAM) of 65) calculated in all the units taken in their degree and to have also completed a major in the discipline involved. 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. Choose a project
You should carefully examine the list of honours research projects that the School is offering in 2018 (listed from page 17). For those projects in which you are interested, it is very important that you personally contact the named supervisor (contact details are provided with each project) to discuss the proposed project. 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.

2. Complete the preference form
You must complete and submit the online preference form by **Friday 24 November 2017**. If you have any queries about the admission process please contact ens-enquire@deakin.edu.au or phone 9244 5436

- Applicants are required to contact the Supervisors of the projects you nominated below before submitting this form.

For any applications after this date, please contact ens-enquire@deakin.edu.au

3. Submit an online application

To apply for honours you will need to apply via the [Deakin applicant portal](https://applicants.deakin.edu.au). The closing date for timely applications is **24 November 2017**. When applying online you will be required to upload all supporting documents at the last step of the application process. If you are unable to upload your documents, please email the certified documents to ens-enquire@deakin.edu.au. Note: Only students with degrees from institutions other than Deakin need to attach a copy of their academic transcripts.

**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 acquire 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 Faculty of Health 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?**

The closing date for timely applications is **24 November 2017**. It is anticipated that successful candidates will be advised of their offer mid-December 2017
Additional Information

Timelines

February to October: 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.

Call for information

The honours supervisors are happy to discuss any aspect of honours with you. Their contact details can be found under the relevant honours project at the end of this handbook.

You can also contact the Honours Coordinators on the contact details provided below

Dr Lukar Thornton
(Honours Coordinator)
Ph.: (03) 9244 5029
Email: lukar.thornton@deakin.edu.au

Dr Jason Bonacci
(Deputy Honours Coordinator)
Ph.: (03) 5227 2634
Email: jason.bonacci@deakin.edu.au

Dr Anne Turner
(Deputy Honours Coordinator)
Ph.: (03) 9244 6950
Email: ann.turner@deakin.edu.au
DEAKIN GRADUATE LEARNING OUTCOMES

Deakin's courses are designed to ensure students develop systematic knowledge of the disciplines they study. We do this by creating courses that are highly personal, engaging and relevant. Our graduate learning outcomes describe the knowledge and capabilities graduates have acquired and can demonstrate at the completion of their course.

The eight key learning outcomes are:

- DISCIPLINE-SPECIFIC KNOWLEDGE AND CAPABILITIES
- COMMUNICATION
- DIGITAL LITERACY
- CRITICAL THINKING
- PROBLEM SOLVING
- SELF-MANAGEMENT
- TEAMWORK
- GLOBAL CITIZENSHIP
Food science and nutrition projects 2018

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1. PROJECT TITLE: MELBOURNE TASTE & DIET COHORT

Principal supervisor: Dr Sara Cicerale

Contact details: sara.cicerale@deakin.edu.au
(03) 9251 7282

Co-supervisors: Prof Russell Keast, Dr Gie Liem

**Supervisor’s area of expertise:** Dr Sara Cicerale is a lecturer within the School of Exercise and Nutrition Sciences and a member of the Centre for Advanced Sensory Science (CASS). Dr Cicerale conducts research in the area of consumer perception and preference of food and has a keen interest in taste function and food liking and its influence on diet. Professor Russell Keast leads the Centre for Advanced Sensory Science (CASS) and is an active researcher in sensory science, with particular emphasis on how individual differences in our chemical senses (taste, smell, chemical irritation) may influence health. Dr Gie Liem has worked in the food industry and research institutes in the Netherlands and the USA. His research focus is the food choices of children and cross-cultural research.

**Project description:** Taste is intimately tied to nutrition, as it plays a central role in determining the flavour, palatability, acceptance and consumption of foods. Therefore, natural variation in taste function has the potential to alter dietary behaviours, choices and patterns of consumption. The objective of the Melbourne Taste and Diet Cohort (MTDC) is to measure natural variations in taste function along with food liking, dietary behaviour, intake, and markers of diet-related disease.

This study will involve the use of previously collected laboratory-based data (i.e. height, weight, blood pressure, taste function, food liking) and questionnaire data (i.e. Food Frequency Questionnaire, Food Behaviour Questionnaire, Food Liking Questionnaire). Secondary analysis of this previously collected data via SPSS will be performed. Data collection for this project is ongoing and so there may also be the opportunity to engage in the data collection process.

**Skills required by the student:** Literature searching experience, excellent time management skills, ability to work independently and as part of a team, and an interest in sensory science and its relation to dietary choice and intake.
Additional skills the student will develop as part of the project: SPSS statistical analysis knowledge and skills, further refine the following skills: literature searching and critical appraisal, time management, ability to work independently and as part of a team, written and oral communication and presentations.

Project is based at: Burwood

Units that this project most closely aligns to: HSN101, HSN313
2. PROJECT TITLE: RELATIONSHIP BETWEEN FOOD LIKING, DIET QUALITY AND BMI

Principal supervisor:  Dr Sara Cicerale

Contact details:  sara.cicerale@deakin.edu.au
                 92517282

Co-supervisors:  Dr Katherine Livingstone; Dr Alison Booth; A/Prof Lynn Riddell

Supervisor’s area of expertise:  Dr Sara Cicerale is a lecturer within the School of Exercise and Nutrition Sciences and a member of the Centre for Advanced Sensory Science (CASS). Dr Cicerale conducts research in the area of consumer perception and preference of food and has a keen interest in taste function and food liking and its influence on diet.

Project description:  This project will investigate the relationship between food liking, diet quality and BMI in a sample of young adults attending university.

Data required for this project have already been collected. Using a cross-sectional study design, young adults studying food and nutrition have completed a food frequency questionnaire, a food habits survey and a questionnaire asking about like and dislike of food items. Demographic data such as age, gender, height, weight and cultural identity were also collected. Data collected from March 2015 to May 2018 will be available for analysis, which will include approximately 1,500 participants.

This project will involve:

• Investigating the relationships between the liking of certain foods/food groups, diet quality and BMI and;
• Exploring the relationships between liking of certain foods, limiting intake of certain foods and BMI.
• Demographic characteristics associated with food liking will also be explored.

Skills required by the student:  Attention to detail and good organisational skills. Knowledge and background in nutrition. Data analysis skills required for completing this project (e.g. use of SPSS) will be developed throughout the program, as required.

Additional skills the student will develop as part of the project:  Skills in analyzing, presenting and interpreting nutrition-related data. Skills in critical analysis of nutrition evidence, academic writing and time management.
Project is based at: Burwood

Units that this project most closely aligns to: HSN305 Assessing Food Intake and Activity; HSN210 Nutrition and Food Promotion; HSN308 Food, Nutrition and Society; HSN313 Sensory Evaluation of Foods.
3. PROJECT TITLE: TOPICS IN SENSORY NUTRITION

Principal supervisor: Professor Russell Keast

Contact details: russell.keast@deakin.edu.au
924 46944

Co-supervisors: Drs Gie Liem, Sara Cicerale, Megan Thornton, Shirani Gamlath

Supervisor's area of expertise: The majority of Professor Keast's published research has focused on the relationship between taste and diet with a specific focus on problem nutrients, fat, salt and sugar. His research group are leaders in discovery of a taste responsive to fat and have identified an association between fat taste and diet. The link between taste, diet and obesity is also a research area within his research program utilizing satiety protocols.

Project description: There are multiple projects on link between novel tastes (carbohydrate and fat) and liking and consumption. You will be involved in the organization and management of a lab based sensory/nutrition study, from data collection through to analysis and interpretation. You will be part of the CASS team that includes multiple PhD students and researchers.

Skills required by the student: Understand basic concepts of sensory testing, along with food and nutritional knowledge. Must have excellent work ethic and time management skills.

Additional skills the student will develop as part of the project: Team work, critical thinking, communication, self-management, problem solving.

Project is based at: Burwood

Units that this project most closely aligns to: HSN313 Sensory Evaluation of Foods
4. PROJECT TITLE: ARE HEALTH CLAIMS AND FOOD FORTIFICATION PROMOTING A HEALTHY FOOD SUPPLY OR THE MARKETING OF JUNK FOOD?

Principal supervisor:  Professor Mark Lawrence

Contact details:  lawrence@deakin.edu.au
                          92443789

Co-supervisor:  Dr Julie Woods

Supervisor’s area of expertise: Mark has 33 years’ experience working in food policy and public health at local, state, national and international levels. He is an advisor to the World Health Organization, Chair of the Advisory Board for the Cochrane Nutrition Field, a member of the NHMRC’s evidence committee as well as the Health Department’s Nutrient Reference Values review committee, and in late 2017 was appointed by the Assistant Minister of Health to be a member of the FSANZ Board.

Project description: Many food products are fortified with a number of nutrients and/or make nutrition and health claims. But is the fortification and the use of claims motivated by public health or marketing objectives? This project will involve extracting data from an extensive and up-to-date database (the Mintel global database) of thousands of food products to analyse the profile of food products that display nutrition and health claims and/or are fortified against recommendations of the Australian Guide to Healthy Eating.

The project has 2 research questions:
   i) Is there an association between food group classification (five food group foods versus discretionary foods) and use of fortification/claims over time?
   ii) Is there a trend in use of fortification/claims over time with change in food standards?

The methodological approach for this project will involve monitoring the use of nutrition and health claims on food products as well as monitoring the food product fortification. Data collection will involve interrogation of and then data extraction from the Mintel database of food products.

Data analysis will involve analysing the use of claims and fortification on food products and profiling such products in accordance with Australian Guide to Healthy Eating recommendations. It is intended that the findings from this project will be written up and published as a peer-reviewed paper.

Skills required by the student: A good understanding of public health nutrition, food policy and regulation. Basic competency in Microsoft Excel and data handling and analysis skills Knowledge of statistical and graphing software (e.g. Stata) is desirable.
but not essential Strong writing and communication skills and knowledge of Endnote use is desirable

**Additional skills the student will develop as part of the project:** Quantitative analysis and descriptive statistics. Advanced knowledge and expertise in public health nutrition, food policy and regulation

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSN302 (Population nutrition) and HSN309 (Food policy and regulation)
5. PROJECT TITLE: THE HEALTH STAR RATING SYSTEM: 5 STARS FOR PROMOTING HEALTH OR 0.5 STARS FOR UNDERMINING HEALTH?

Principal supervisor: Professor Mark Lawrence

Contact details: lawrence@deakin.edu.au 92443789

Co-supervisor: Dr Phil Baker

Supervisor’s area of expertise: Professor Lawrence has 33 years’ experience working in food policy and public health at local, state, national and international levels. He is an advisor to the World Health Organization, Chair of the Advisory Board for the Cochrane Nutrition Field, a member of the NHMRC’s evidence committee as well as the Health Department’s Nutrient Reference Values review committee, and in late 2017 was appointed by the Assistant Minister of Health to be a member of the FSANZ Board.

Project description: In 2014 the Health Star Rating (HSR) system was launched as a voluntary food and nutrition intervention to promote healthy eating. The HSR uses an algorithm to calculate the number of stars that can be displayed on food products in Australia and New Zealand. However, the HSR is a controversial intervention. Concerns have been expressed about:

- its governance, e.g. the involvement of conflicted interests;
- technical aspects of the algorithm, e.g. whether the presence of added sugar in a food product is sufficiently penalised; and
- whether it is undermining Australian Dietary Guideline recommendation directly as a consequence of the above concerns or indirectly as a consequence of the opportunity cost of shifting attention and investment away from a national nutrition policy.

This project seeks to critically analyse how and why the HSR was formulated, how it is being implemented and managed, and what changes might be needed to protect and promote public health into the future. The research will involve collecting and analysing data on:

- people and organisations involved with the HSR using a ‘network analysis’ method;
- the worldviews (values, beliefs and interests) of people and organisations towards food and nutrition using an innovative framework developed by professor Lawrence; and
- key events and contexts associated with the HSR.
Data are available from the HSR website and in particular as a result of several consultation activities in which many stakeholders have submitted their views on the HSR in the lead up to its planned evaluation and review in 2019. This project will contribute to that review. It is intended that the findings from this project will be written up and published as a peer-reviewed paper.

**Skills required by the student:** A good understanding of public health nutrition, food policy and regulation. Skills in reading, analysing and handling qualitative data and references and in particular ability to use Microsoft Excel and Endnote would be desirable. Skills in identifying and summarising key messages and themes are desirable. Strong writing and communication skills.

**Additional skills the student will develop as part of the project:** Qualitative research methods including use of qualitative analysis software. Advanced skills in public health nutrition, food policy and regulation.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSN302 (Population nutrition) and HSN309 (Food policy and regulation)
6. PROJECT TITLE: HOW HIGH CAN YOU FLY? THE AERIAL STUDY – A 12-MONTH PROSPECTIVE STUDY EVALUATING AERIAL SKI INJURIES IN FEMALE ELITE ATHLETES

Principal supervisor: Dr Dominique Condo

Contact details: dominique.condo@deakin.edu.au
9244 5487

Co-supervisor: Dr Rachel Duckham

Supervisor’s area of expertise: Dr Dominique Condo is a lecturer in sports nutrition. She is an Accredited Practicing Dietitian and Accredited Sports Dietitian, consulting at Geelong Football Club and the WNBL Deakin Melbourne Boomers. Dominique is passionate about nutrition in the athletic population and optimising overall health and wellbeing as well as performance, with a specific interest in female athletes. Her current interests include assessing the dietary intake of athletes and the association with injury and health outcomes.

Dr Rachel Duckham is a post-doctoral research fellow within SENS her expertise is within the area of childhood growth and development and the influence of exercise and nutrition on bone health. Her PhD focused on bone health and stress fracture risk in female elite endurance athletes. She also has extensive previous experience working as a sport scientist within a number of elite sporting organizations which include but not limited to USA bobsled and skeleton federation through the USOC, UK athletics, English institute of sport and UK cricket.

Project description: This is an exciting opportunity to be a part of a study being conducted in collaboration with the Victorian Institute of Sport to investigate the seasonal variations in biometric characteristics or dietary intake of female aerial skiers associated with an increased incident in specific injuries such as stress fractures? This study will provide increased knowledge of the implications for musculoskeletal health and injury risk in female elite Aerial Skiers within Victoria.

Why AERIAL Skiing? Aerial skiing is a unique team of athletes to monitor. The sport itself is a physically demanding, high impact loading sport requiring a high degree of agility and gymnastic performance. When an athlete is successfully recruited into an aerial skiing program the training demand is intense. In Australia, this will begin with the athlete learning how to ski during the domestic season (July-September). Once the athlete is competent, they progress to steeper slopes and increased speeds resulting in greater impact on the lower extremities and spine during landing. Australian aerial skiers will then have a second training block through the northern hemisphere winter (December-February), further building their skiing and jumping
skills. In between these training blocks, athletes continue with strength and conditioning development as well as training on water ramps to practice jumping and landing techniques. Training continues to advance as athletes progress through the program to include double and triple black flips with twists on snow and into water pools. The training demand of the sport often leads to a high incidence of overuse musculoskeletal injuries such as stress fractures. Given the known risk of stress fractures in female athletes and the highly demanding training schedules, investigating the risk of injury in aerial skiers and assessing nutritional intake in this population group is warranted.

**Skills required by the student:** Although no prior skills are required the prospective student should have a strong desire to work with elite level female athletes in the area of musculoskeletal injury prevention, monitoring and dietary assessment. The student should be self-motivated, with the ability to work independently and have good attention to detail.

**Additional skills the student will develop as part of the project:** This project will give the student a unique opportunity to recruit, collect and analyse data. Furthermore the student will gain skills in the assessment of dietary intake through 24 hour online recalls with athletes as well as bone and body composition analysis using DEXA the gold standard technique for bone density and body composition assessment. Students will also gain skills in pQCT analysis of bone parameters. Moreover, the student will gain skills in elite athlete monitoring and industry engagement, all important skills for students wanting to gain a career working with elite athletes and engaging in research.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSN307, Sports Nutrition: Theory and Practice and HSE304 – Physiology of Sport Performance
7. PROJECT TITLE: BARRIERS TO HEALTHY EATING IN THE CITY OF GREATER BENDIGO

Principal supervisor: Dr Katherine Livingstone

Contact details: k.livingstone@deakin.edu.au
                    92445416

Co-supervisor: Associate Professor Sarah McNaughton

Supervisor’s area of expertise: Dr Katherine Livingstone is a researcher at the Institute for Physical Activity and Nutrition (IPAN) and is unit chair for HSN305. Her research interests focus on the predictors of healthy diets, diet quality and obesity. She has extensive expertise in the analysis of dietary intakes in large populations, including the nationally representative Australian Health Survey. She has experience supervising students working in the area of barriers to healthy eating, including meal skipping and food literacy among young Australian adults.

Project description: Poor diet is a leading cause of obesity and chronic disease in adults. Common reasons why individuals find it difficult to eat healthily include the cost of fresh foods and limited time to prepare healthy home cooked meals. Barriers to healthy eating are likely to vary by different population groups. Rural and regional areas are known to have poorer health outcomes and health behaviours, however our understanding of what the key barriers to healthy eating are in regional areas is limited. This study will focus on addressing this gap by examining barriers to healthy eating in the Greater Bendigo area and this project will be important for designing locally relevant strategies to improve diets across the region.

This project will examine barriers to fruit and vegetable intake for key population groups in the City of Greater Bendigo. This project involves secondary data analysis of the existing 2014 Active Living Census of 17,437 residents from the City of Greater Bendigo. For this project, you will explore barriers to healthy eating among adults. Responses to questions on fruit and vegetable intake and perceived barriers to fruit and vegetable intake will be examined and analysed according to different population groups (e.g. by age, type of households, socioeconomic status by residential postcode). Qualitative software for application in large population samples will be used for the analyses.

Skills required by the student: Attention to detail and good organisational skills. Knowledge and background in nutrition. Some experience in the analysis of data using SPSS or STATA is desirable or a willingness and interest in acquiring these skills. Further training and support will be provided.
Additional skills the student will develop as part of the project:
Experience with real-world population data from the City of Greater Bendigo. Skills in analyzing, presenting and interpreting nutrition-related data including qualitative and quantitative data. Skills in critical analysis of public health nutrition evidence, academic writing and time management. There may also be an opportunity to assist in development of an infographic and/or report for communication and dissemination of the research findings.

Project is based at: Burwood

Units that this project most closely aligns to: HSN305 Assessing Food Intake and Activity; HSN302 Population Nutrition; HSN210 Nutrition and Food Promotion; HSN308 Food, Nutrition and Society
8. PROJECT TITLE: SENSORY MARKETING: INFLUENCING LIKING AND CONSUMPTION (PROJECT A)

Principal supervisor: Dr Gie Liem

Contact details: gliem@deakin.edu
9244 6039

Co-supervisor: Professor Russell Keast

Supervisor’s area of expertise: Sensory marketing, sensory science, consumer science

Project description: We offer a range of projects in the field of sensory marketing and consumer/sensory science. Please contact Gie for more information about these projects.
We use a range of methods including sensory tasting, and online sensory consumer research.

Skills required by the student: Students who completed HSN313 will be preferred.

Additional skills the student will develop as part of the project: Team work. Statistical analyses. Communication skills.

Project is based at: Burwood

Units that this project most closely aligns to: HSN103, HSN313
9. PROJECT TITLE: SENSORY MARKETING: INFLUENCING LIKING AND CONSUMPTION (PROJECT B)

Principal supervisor: Dr Gie Liem

Contact details: gliem@deakin.edu
9244 6039

Co-supervisor: Professor Russell Keast

Supervisor’s area of expertise: Sensory marketing, sensory science, consumer science

Project description: We offer a range of projects in the field of sensory marketing and consumer/sensory science. Please contact Gie for more information about these projects. We use a range of methods including sensory tasting, and online sensory consumer research.

Skills required by the student: Students who completed HSN313 will be preferred.

Additional skills the student will develop as part of the project: Team work. Statistical analyses. Communication skills.

Project is based at: Burwood

Units that this project most closely aligns to: HSN103, HSN313
10. PROJECT TITLE: A LONGITUDINAL STUDY OF FAMILY MEALS AND OPPORTUNITIES FOR NUTRITION PROMOTION

Principal supervisor: Dr Alison Spence

Contact details: a.spence@deakin.edu.au
924 45481

Co-supervisor: Dr Rachel Laws

Supervisor’s area of expertise: Alison is a dietitian and Lecturer in Nutrition and Population Health, with a passion for promoting the nutrition and health of young children and their families. She teaches into both undergraduate and postgraduate nutrition courses. Her research focusses on understanding children’s dietary behaviours, and investigating practical strategies to promote and improve young children’s diet quality, maternal modelling and feeding practices, and family meals.

Project description: Early childhood is a vital time for developing eating patterns and behaviours which are likely to influence health throughout life. Promotion of family meals is a practical strategy to engage parents to improve child nutrition, but there have been no previous longitudinal studies examining characteristics of family meals with young children. This project aims to fill this research gap by describing changes in family meal behaviours over two years, in order to understand opportunities for nutrition promotion.

This project will involve secondary analysis using data collected in the Family Meals with Kids Online Study. An online study of 1000 parents, with 0-5 year old children, was conducted in 2014. Of these, 400 completed the survey again two years later. The analysis will focus on assessing differences and changes in characteristics of family meals over the two year period. Depending on the student’s interests, analyses may look at differences between population groups, such as differences by socioeconomic position, residential location or child age.

Skills required by the student: This project is suited to a student interested in childhood nutrition. Applicants should have high-level skills in writing, organisation, initiative, and attention to detail, as well as confidence with programs like excel. Applicants should understand the basic concepts of quantitative research and critical analysis of literature, be keen to learn about data analysis, and ideally would have completed at least one unit related to public health nutrition, e.g. HSN302 (Population Nutrition) or HSN210 (Nutrition Promotion).
Additional skills the student will develop as part of the project:
Skills in analysing and interpreting longitudinal data, and presenting this in a way which informs health professionals and researchers. Skills in critical analysis of nutrition promotion literature. In depth knowledge of child mealtime behaviours and strategies to promote family meals and child nutrition, which will be useful for any future health promotion work related to this topic. The student will also be supported to prepare their work for publication in a relevant journal.

Project is based at: Burwood

Units that this project most closely aligns to: HSN302 (Population Nutrition) or HSN210 (Nutrition Promotion)
11. PROJECT TITLE: ASSESSING WHETHER YOUNG CHILDREN EAT DIFFERENTLY ON WEEKENDS COMPARED TO WEEKDAYS - INFORMING NUTRITION PROMOTION

Principal supervisor: Dr Alison Spence

Contact details: a.spence@deakin.edu.au
924 45481

Co-supervisor: Dr Katie Lacy

Supervisor area of expertise:
Alison is a Lecturer in Nutrition and Population Health, with a passion for promoting the nutrition and health of young children and their families. She teaches into both undergraduate and postgraduate nutrition courses. Her research focusses on understanding children’s dietary behaviours, and investigating practical strategies to promote and improve young children’s diet quality, maternal modelling and feeding practices, and family meals.

Project description:
As diets of young children are likely to influence their intakes and health throughout life, research into the eating habits of young children is vital. Understanding whether children eat less healthily on the weekends may help to inform nutrition messages for parents, and public health approaches to improve young children’s nutrition. This project will examine whether the diets of young children differ between weekdays and weekend days.

This project will involve secondary analysis using data from the Melbourne InFANT Program (2008-2013). This was a novel health promotion trial involving young children, which was then implemented across Victoria as part of the Healthy Together program in 2013-2015. This is the only contemporary Australian study with multiple 24-hour dietary recalls available for children under two years of age – the data has been used by FSANZ as well as for multiple publications.

Dietary data has been collected via multiple 24-hour dietary recalls for 300-500 children at ages 9 months, 1.5 years, 3.5 years and 5 years. Data from one or more of these age groups will be analysed to determine whether children’s dietary intakes differ between weekdays and weekend days at each age. The analysis will focus on intakes of energy, discretionary foods, and the five food groups. Depending on the student’s interests, analyses may also assess whether any differences are associated with factors such as socioeconomic position.
**Skills required by the student:**
This project is suited to a student interested in childhood nutrition. Applicants should have high-level skills in writing, organisation, initiative, and attention to detail, as well as confidence with programs like Excel. Applicants should understand the basic concepts of quantitative research and critical analysis of literature, be keen to learn about data analysis, and ideally would have completed at least one unit related to public health nutrition, e.g. HSN302 (Population Nutrition) or HSN210 (Nutrition Promotion).

**Additional skills the student will develop as part of the project:**
This project will provide the opportunity to develop in-depth knowledge of early childhood nutrition and nutrition promotion for this age group, which will be useful for any future health promotion work related to this topic, skills in critical analysis of public health nutrition evidence, skills in analysing and interpreting dietary intake data, and presenting this in a way which informs health professionals and researchers, skills in scientific writing, including the potential opportunity to publish research findings in a peer-reviewed scientific journal.

**Project is based at:** Burwood or Geelong (negotiable)

**Units that this project most closely aligns to:** HSN302 (Population Nutrition) or HSN210 (Nutrition Promotion)
12. PROJECT TITLE: PERSONALITY AND DIET IN OLDER PEOPLE

Principal supervisor: Dr Helen Macpherson

Contact details: helen.macpherson@deakin.edu.au
92445317

Co-supervisor: Dr Katherine Livingstone

Supervisor’s area of expertise: Dr Helen Macpherson completed undergraduate studies in Psychology and Psychophysiology. She conducts research on healthy brain ageing, with a focus on dementia prevention. Dr Macpherson is currently leading a randomised controlled trial examining the effects of dietary supplementation combined with physical activity on brain health and cognitive function in older people at risk of dementia. Dr Macpherson has conducted numerous randomised controlled trials to investigate the cognitive and mood effects of nutritional interventions including multivitamins, glucose and whole diet change. Her research investigates mechanisms of action including cardiovascular changes and direct effects on brain function using a range of neuroimaging modalities including EEG and MRI. Dr Livingstone has extensive experience in evaluating dietary intakes of adults. She has a particular interest in overall diet quality scores.

Project description: The Five-Factor Model (FFM) is a widely used taxonomy of personality traits which have a significant genetic basis. Personality traits have been linked to a range of health outcomes including cardiovascular disease and longevity. The association between personality traits and diet is a relatively understudied area, although there is evidence that personality characteristics can predict food preferences and consumption of healthy and unhealthy diets. Personality may be an important consideration when understanding underreporting of dietary intake. Furthermore, understanding individual differences may help to tailor interventions designed to modify unhealthy dietary habits.

Potential research questions:
Are certain Five Factor personality traits associated with diet quality in older people?
Does personality play a role in misreporting of dietary intake?

Methodology: This study will make use of baseline data collected from participants aged 60 -85 years who are taking part in the Protein Vitamin D and Omega 3 Research (PONDER) study. Participants will undergo personality assessment, body composition measures using a DEXA scan and complete a 24 hour food recall diary. The dietary
recall will be used to estimate nutrient and food intakes and overall diet quality based on adherence to the Australian Dietary Guidelines.

**Skills required by the student:** Good interpersonal and communication skills.

**Additional skills the student will develop as part of the project:** This project will provide experience assessing health, diet and psychosocial function in older people. The student will gain experience assessing diet quality from 24-hour dietary recalls.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSN202 Lifespan Nutrition
13. PROJECT TITLE: SERVES – SUPPORTING HEALTHY FOOD PROVISION IN VICTORIAN LONG DAY CARE SERVICES

Principal supervisor: Dr Penny Love

Contact details: penny.love@deakin.edu.au

5227 8484

Co-supervisor: Prof Karen Campbell

Supervisor’s area of expertise: Dr Penny Love is a postdoctoral research fellow in IPAN conducting translational research within the Early Prevention of Obesity in Childhood, Centre for Research Excellence (EPOCH-CRE). The focus of her research is identifying and addressing research-practice gaps for the implementation of childhood obesity prevention interventions at scale. Prof Karen Campbell is Deputy Director of the CRE, with a well-developed profile nationally and internationally for her work in the area of childhood obesity prevention.

Project description: This project will explore menu compliance of Victorian long day care services (LDCs) with the national Get Up & Grow guidelines. This project forms part of a larger study investigating appropriate support strategies to assist Victorian LDCs in embedding the onsite provision of healthy food as routine practice.

This project will involve the analysis of 1-week menus and relevant recipes provided by LDCs, using the recently developed Victorian online menu review tool (FoodChecker). LDCs will be provided with individualised, automated reports with relevant recommendations. Analysis of menu compliance data will explore associations between socio-economic position, and urban, regional and rural geographic location. Analysis will also provide a baseline for the larger study to monitor changes to practice over time.

Skills required by the student: Basic Excel skills; literature searching experience; organisational and time management; ability to work independently; an interest in childhood nutrition.

Additional skills the student will develop as part of the project: An understanding of translational research and implementation science; basic statistical modelling; opportunity to publish the findings in a peer-reviewed journal and/or to present the findings at a local conference.
Project is based at: Waurn Ponds

Units that this project most closely aligns to: HSN 302 Population health nutrition, HSN 705: Public health nutrition, HSN 734 Obesity prevention, HSN 708 Nutrition promotion
14. PROJECT TITLE: ANALYSIS OF FOOD AROMA BY GC-O

Principal supervisor: Dr Megan Thornton

Contact details: megrant@deakin.edu.au
92517261

Co-supervisor: Professor Russell Keast

Supervisor’s area of expertise: Dr Thornton is a Lecturer in the area of Food Chemistry and Food Analysis in the School of Exercise and Nutrition Sciences. She teaches at an undergraduate level, and is a member of the Centre for Advanced Sensory Science (CASS). Her research involves the analysis and identification of the chemical compounds which make up the aroma of foods, and how these can differ between varieties and over time. This research is strongly related to sensory science and consumer acceptability of foods.

Project description: What makes up the smell and taste of a food? Why does smell and taste change over time, especially in the production of off-flavours? This project seeks to answer just that. You will analyse the aroma of a particular food or beverage (yet to be decided due to our links with industry collaborators), to identify compounds which contribute to the smell of that product, as well as any differences that occur over time. Analysis will be conducted using Gas Chromatography-Olfactometry, and results will be linked with sensory analysis being conducted by a current PhD student. This project will develop your skills in the use of GC instrumentation and Olfactometry, as well as your understanding of the link between sensory science and analytical chemistry. This project is ideal for anyone looking for a future in food research or analytical chemistry, sensory science, or in an analytical flavour laboratory.

Skills required by the student: A basic understanding of Gas Chromatography.

Additional skills the student will develop as part of the project: Gas chromatographic analysis, sensory analysis, chemical identification, scientific writing.

Project is based at: Burwood

Units that this project most closely aligns to: HSN206 Food Analysis and Quality Assurance, HSN313 Sensory Evaluation of Foods.
15. PROJECT TITLE: ASSOCIATIONS BETWEEN A HEALTHY LIFESTYLE SCORE AND DEPRESSIVE SYMPTOMS IN ADULTS

Principal supervisor: Dr Susan Torres

Contact details: storres@deakin.edu.au
9244 6189

Co-supervisors: Dr Catherine Milte and Dr Helen Macpherson

Supervisor's area of expertise: Dr Susan Torres is an accredited practicing dietitian and senior lecturer in Nutrition in the School of Exercise and Nutrition Sciences. Her current research assesses the relationship between indicators of mental health and dietary intake. She has conducted intervention studies assessing the impact of dietary modifications and weight loss on mood, anxiety and blood pressure responses to stress. Recently, Dr Torres has been investigating the effect of dietary and physical activity interventions on quality of life in older adults and the relationship between diet and depressive symptoms in new mothers.

Project description: The aim of this study is to examine the influence of a lifestyle score on measures of depressive symptoms over a 12 year period. Using data from a large longitudinal study in the Australian adult population, the Australian Diabetes, Obesity and Lifestyle Study (AusDiab), we will examine the association between health related behaviours by calculating a lifestyle score and depressive symptoms over a 12 year period in a sample of adults. The AusDiab included 11247 adults (5049 men and 6198 women) aged ≥25 years randomly selected from areas in Australia recruited in 1999-2000. Five year follow up was conducted in 2004-2005 and 12 year follow up was conducted in 2011-2012. A lifestyle score comprised of four modifiable lifestyle factors (smoking, anthropometry, nutrition, and physical activity) will be derived based on the protocol described by Spencer et al (Preventive Medicine 2005; 712-717). Depressive symptoms will be determined using the Centre for Epidemiology Studies Short Depression Scale.

Skills required by the student: Good communication and organisational skills.

Additional skills the student will develop as part of the project: Student will become knowledgeable in how to work with large data sets and use both SPSS and Stata statistical software.

Project is based at: Burwood Campus (but could be completed by distance e.g. student located at the Waurn Ponds campus).

Units that this project most closely aligns to: HSN202 Lifespan Nutrition
16. PROJECT TITLE: IS FRUIT AND VEGETABLE INTAKE ASSOCIATED WITH PHYSICAL AND MENTAL HEALTH IN OLDER AGE?

Principal supervisor: Dr Catherine Milte

Contact details: catherine.milte@deakin.edu.au
9246 8280

Co-supervisor: Dr Karen Lamb

Supervisor’s area of expertise: Dr Catherine Milte is a Lecturer in Nutritional Sciences, and teaches into both undergraduate and postgraduate nutrition courses. Her research focuses on understanding dietary patterns, and investigating how consuming a healthy diet can protect against chronic disease, mental illness and dementia in older age. Dr Karen Lamb is a biostatistician and researcher in nutrition and physical activity research. Her primary area of research focuses on place-based influences on health and behaviour.

Project description: Worldwide we have an ageing population and this will have significant economic and social impacts, particularly for low and middle income countries. The maintenance of health in older age is an important focus for public health interventions. There is some evidence that consumption of a healthy diet may reduce the risk of poor health and chronic disease in older age. However, large-scale studies of diet and lifestyle risk in low and middle-income countries are rare.

This project involves secondary analysis of data collected from the World Health Organisation Study of Global Ageing (WHO SAGE). WHO SAGE is a longitudinal cohort study of 28785 participants aged 50 years and over from six low and middle-income countries (China, Ghana, India, Mexico, Russia and South Africa). Data on fruit and vegetable intake (serves per day), physical activity, anthropometry and health status including BMI, cardiovascular and metabolic health, depression and cognitive function were collected. Analysis approach will be determined depending on the project and student’s interests. The potential project can be determined depending on the student’s interest, some example topics include:

- Examining associations between fruit and vegetable intake and physical and mental health
- Do associations between and vegetable intake and physical and mental health differ by socioeconomic status?
- Does cardiovascular health mediate the links between fruit and vegetable intake and mental health?
**Skills required by the student:** This project is suited to someone with a background in nutrition, attention to detail and good organisational skills. Some experience in the analysis of data is desirable or a willingness and interest in acquiring these skills. Further training and support will be provided.

**Additional skills the student will develop as part of the project:** After completing this project, the student will have developed
- In-depth knowledge and understanding of nutrition and health concerns in the ageing population
- Skills in analysing, presenting and interpreting population-based health data
- Skills in use of statistical analysis software
- An understanding of epidemiological research

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSN202, HSN301
17. PROJECT TITLE: COMPARISON OF CANCER MALNUTRITION PREVALENCE AND ASSOCIATION WITH CLINICAL OUTCOMES USING TWO DIAGNOSTIC CRITERIA

Principal supervisor: Dr Nicole Kiss

Contact details: nicole.kiss@deakin.edu.au
9246 8858

Co-supervisors: Associate Professor Sarah McNaughton, Belinda Steer, Peter MacCallum Cancer Centre

Supervisor’s area of expertise: Dr Nicole Kiss is an Advanced Accredited Practicing Dietitian and senior lecturer in the School of Exercise and Nutrition Sciences. Nicole’s research investigates interventions to optimise nutritional and functional outcomes during cancer treatment, improving the recognition and management of cancer malnutrition and the evaluation of novel models of health care delivery.

Associate Professor Sarah McNaughton is an Advanced Accredited Practicing Dietitian and nutritional epidemiologist in the School of Exercise and Nutrition Sciences. Belinda Steer is an Accredited Practicing Dietitian and Clinical Lead Dietitian at Peter MacCallum Cancer Centre. Belinda was the project lead for the 2016 Malnutrition in Victorian Cancer Services state-wide point prevalence study.

Project description: Malnutrition in cancer patients is associated with reduced survival, poorer tolerance to treatment, increased hospital admissions and poorer quality of life. Early identification and treatment of malnutrition is important to prevent poor patient outcomes. At an international level, consensus regarding a definition and diagnostic criteria for malnutrition has not yet been reached. However, a number of definitions have been proposed by various international organisations. The aim of this project is to compare malnutrition prevalence and associations with clinical outcomes in a cancer population using two international definitions.

This project involves the analysis of data on 1200 patients from the 2016 cancer malnutrition point prevalence study conducted across 12 Victorian health services. Data collected enables the classification of patients as malnourished according to definitions proposed by the European Society for Parenteral and Enteral Nutrition (ESPEN) and the International Statistical Classification of Diseases 10th revision (ICD-10). For this project you will compare the impact of the different definitions on malnutrition prevalence and association with clinical outcomes including 30-day hospital admission/ readmission and mortality.
Skills required by the student: This project is suited to a student interested in malnutrition and/or cancer. It will require good organisational skills and attention to detail. Some experience in the analysis of data is desirable or willingness to acquire these skills. Students will be required to attend the Nutrition and Speech Pathology Department at Peter MacCallum Cancer Centre to conduct this research.

Additional skills the student will develop as part of the project: An understanding of the pathophysiology and assessment of malnutrition in the cancer setting. Analysing, interpreting and presenting data. Use of statistical analysis software. An understanding of the consequences of malnutrition for people with cancer.

Project is based at: Burwood and Peter MacCallum Cancer Centre, Melbourne

Units that this project most closely aligns to: HSN301 Diet and Disease, HSN211 Nutritional Physiology, HSN305 Assessing Food Intake and Activity
18. PROJECT TITLE: THE PREVALENCE AND PREDICTORS OF MALNUTRITION IN PATIENTS WITH A HAEMATOLOGICAL MALIGNANCY

Principal supervisor: Dr Nicole Kiss

Contact details: nicole.kiss@deakin.edu.au
9246 8858

Co-supervisors: Associate Professor Sarah McNaughton, Belinda Steer, Peter MacCallum Cancer Centre

Supervisor’s area of expertise: Dr Nicole Kiss is an Advanced Accredited Practicing Dietitian and senior lecturer in the School of Exercise and Nutrition Sciences. Nicole’s research investigates interventions to optimise nutritional and functional outcomes during cancer treatment, improving the recognition and management of cancer malnutrition and the evaluation of novel models of health care delivery. Associate Professor Sarah McNaughton is an Advanced Accredited Practicing Dietitian and nutritional epidemiologist in the School of Exercise and Nutrition Sciences. Belinda Steer is an Accredited Practicing Dietitian and Clinical Lead Dietitian at Peter MacCallum Cancer Centre. Belinda was the project lead for the 2016 Malnutrition in Victorian Cancer Services state-wide point prevalence study.

Project description: Haematological malignancies are cancers of the blood, including leukaemias, lymphomas and multiple myeloma. Patients with a haematological malignancy can develop malnutrition due to the side effects of their treatment which may take the form of chemotherapy, radiotherapy or surgery, or any combination of these. Limited information is available on the clinical or demographic characteristics that place these patients at higher risk of malnutrition. Understanding which characteristics are associated with increased risk allows clinicians to identify these patients early and provide nutrition intervention to prevent the onset of malnutrition. The aim of this project is to determine the prevalence and predictors of malnutrition in patients with a haematological malignancy.

This project involves the analysis of data from the 2016 cancer malnutrition point prevalence study conducted across 12 Victorian health services. The study included 250 patients with a haematological malignancy and collected data on demographics (age, gender), social factors (location of usual residence, social supports, and cultural background) and clinical factors (type of treatment, presence of metastatic disease, weight loss, reduced food intake and type of nutrition support). For this project you will investigate which of these factors are associated with a greater likelihood of having malnutrition.
Skills required by the student: This project is suited to a student interested in malnutrition and/or cancer. It will require good organisational skills and attention to detail. Some experience in the analysis of data is desirable or willingness to acquire these skills. Students will be required to attend the Nutrition and Speech Pathology Department at Peter MacCallum Cancer Centre to conduct this research.

Additional skills the student will develop as part of the project: An understanding of the pathophysiology and assessment of malnutrition in the cancer setting. Analysing, interpreting and presenting data. Use of statistical analysis software. An understanding of the consequences of malnutrition for people with

Project is based at: Burwood and Peter MacCallum Cancer Centre, Melbourne.

Units that this project most closely aligns to: HSN301 Diet and Disease, HSN211 Nutritional Physiology, HSN305 Assessing Food Intake and Activity
19. PROJECT TITLE: DOES A MATERNAL HIGH-FAT DIET INFLUENCE OFFSPRING’S MUSCLE REGENERATION CAPACITY LATER IN LIFE?

Principal supervisor: Dr Severine Lamon

Contact details: severine.lamon@deakin.edu.au
9244 5571

Co-supervisors: A/Prof. Glenn Wadley and Dr Jackson Fyfe

Supervisor’s area of expertise: Dr Severine Lamon is a Senior Lecturer with expertise in skeletal muscle physiology, molecular biology and biochemistry. Her main research interest is to understand the physiological and cellular mechanisms underlying skeletal muscle health and disease.

A key focus of A/Prof Wadley’s research program is investigating the molecular mechanisms regulating skeletal and cardiac muscle adaptations following exercise. 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 15 Honours students to completion and most of his previous Honours students have been successful in obtaining entry to competitive postgraduate programs including PhD, Medicine and Master of Dietetics.

Dr Jackson Fyfe’s main research interests include the cellular basis for skeletal muscle adaptations to exercise and disease, and practical strategies to optimise adaptations to exercise interventions, with relevance to improvements in both health and performance.

Project description: Skeletal muscle is the largest tissue of the body. On the top of allowing the body to maintain posture and perform movements, it plays a major role in energy metabolism and nutrient storage. When skeletal muscle is not functioning optimally, metabolic dysfunctions, such as diabetes, occur. Research shows that skeletal muscle development and function in not only influenced by our own health, but also by the intrauterine environment determined by the maternal diet. For example, a high-fat maternal diet can attenuate the muscle development process in the offspring, as skeletal muscle takes low priority of essential nutrients for its development when compared to other organs such as the brain. A high-fat maternal diet can also impair the capacity of the muscle to repair later in life. Inflammation is important part of the regeneration process as it positively assists in the removal of necrotic tissue and facilitates the expression of genes and proteins that orchestrate
the regenerative phase. However, weight and fat gained through the maternal diet may alter the inflammation process within the offspring, thus preventing the muscle to repair properly.

The aim of this project is to investigate how a high-fat maternal diet influences the expression of inflammatory markers in the offspring muscle following an injury. We have developed a mouse model that will allow us to assess how lifestyle choices influence the inflammation process in adult life.

**Skills required by the student:** The student should have an interest in the areas nutritional physiology and/or biochemistry and/or skeletal muscle. Coursework in biochemistry and/or molecular biology is an advantage but not necessary. Some analytical laboratory skills are also desired by not essential, as all techniques will be taught as part of honours training. Strong organisational skills and attention to detail in writing, data analysis are required.

**Additional skills the student will develop as part of the project:** By completing this project, the student will become proficient in standard molecular cell biology techniques. They will also develop their data analysis, basic statistics and writing skills.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSN301 - Diet and Disease

HSN107 - Physiology of Human Growth and Development
20. PROJECT TITLE: IS SUGARY DRINK CONSUMPTION RELATED TO BLOOD PRESSURE IN AUSTRALIAN CHILDREN?

Principal supervisor: Dr Carley Grimes

Contact details: carley.grimes@deakin.edu.au
9244 6223

Co-supervisors: Prof Caryl Nowson

Supervisor’s area of expertise: Dr Grimes is a Postdoctoral Research Fellow within the Institute for Physical Activity and Nutrition (IPAN). She is an Accredited Practising Dietitian and is particularly interested in monitoring and improving children’s diets to ensure they have the best start at life. Much of her work focuses on the assessment of dietary salt intake within the population and how this relates to cardiovascular health.

Project description: Emerging evidence, in both adults and children suggests that the consumption of sugar-sweetened beverages (SSBs) is related to adverse cardiovascular outcomes, including raised blood pressure. For example within a national sample of US adolescents it was shown that systolic blood pressure was significantly higher among those who fell within the highest category of SSB consumption compared to those who fell within the lowest category of SSB consumption. It is well known that blood pressure tracks across the lifecourse from childhood into adulthood, as such identifying dietary factors which are associated with the development of raised blood pressure early in life is important to help inform preventative health initiatives. Recent data from the 2011-13 Australian Health Survey indicates that about half of all children aged 9-18 years consumed a SSB on the day prior to interview and that SSB consumption accounted for approximately one quarter of total sugar intake. Reported consumption of SSBs is higher among Aboriginal and Torres Strait Islander people, with about 60% of children aged 9-18 years reporting consumption of these beverages on the day prior to the interview. It is unknown if the relatively high consumption of SSBs within the Australian paediatric population is influencing blood pressure levels. This research project seeks to understand the relationship between SSB consumption and blood pressure among a nationally representative sample of Australian children.

This project will utilise data from the recent 2011/12 National Nutrition and Physical Activity Survey (NNPAS) and the 2012-13 National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey (NATSINPAS). These are the most recent national nutrition surveys to be conducted within the Australian paediatric population. Each survey used 24-hour dietary recalls to assess dietary intake and
measured blood pressure in those aged 5 years and over. Work will involve secondary data analysis within the sub-sample of children aged 5-17 years (n~2200) with available data. Other measures, such as age, gender and body weight will also be considered in the analysis.

**Skills required by the student:**

Strong written and verbal communication skills are required as is an interest in paediatric nutrition. Basic knowledge of statistics is desirable, however skills in statistical analysis will be developed. Attention to detail, organisation and a desire to work with large datasets is

**Additional skills the student will develop as part of the project:** The student will develop skills within the area of national epidemiology. This will include advanced statistical analysis and data management skills. The student will gain a thorough understanding of sampling and data collection procedures utilized within national nutrition monitoring systems.

**Project is based at:** Burwood

**Units that this project most closely aligns to**

- HSN202 Lifespan Nutrition
- HSN302 Population Nutrition
- HSN305 Assessing Food Intake and Activity
21. PROJECT TITLE: HEALTHY SNACKS WITH LEGUMES AND HERBS: LOW FAT, HIGH FIBRE AND HIGH PROTEIN

Primary supervisor: Dr Shirani Gamlath

Contact details shirani.gamlath@deakin.edu.au
92517267

Co-supervisor/s: Dr Megan Thornton

Supervisor area of expertise: Dr Shirani Gamlath has actively established a research program on use of novel functional/healthful ingredients in product development and application of novel processing technologies such as extrusion technology and high Pressure processing to retain nutritional and bioactive components in foods. This field encompasses knowledge and expertise in a number of areas including product development, novel process technologies and product evaluation. Shirani has experience in product development with cereals, legumes and fruits and also product evaluation based on nutritional, physicochemical and sensory analysis.

Project description: In recent years there has been an increased focus on new food structures with reduced fat, salt, sugar and sodium contents. The snack food market continues to grow as it accommodates for the current food trends however, the majority of snack foods mainly consists of unhealthy and energy dense food products. Previous studies indicated that legumes can be used to replace starchy cereals and potato flour that have been mostly used in existing snack products. Legumes contain both macronutrients and micronutrients and are one of the plant sources of high protein and essential amino acids. Legumes are also good source of dietary fibre and resistant starch. Herbs are an important food group which contains essential oils, vitamins, antioxidants and many other plants derived nutrient substances. This project focuses on developing functional/health promoting legume and herbs based snack products and understanding the product characteristics based on physical and nutritional composition.

Methodological Approach

- Formulation of a snack product using different combination of legumes and herbs.
- Determine the best processing condition to process the product.
- Evaluate products based on physical (colour, texture, water solubility) characteristics and consumer acceptability.
- Screen products based on physical and consumer acceptability for nutritional analysis.
Skills required by the student

The student will need laboratory skills in food safety and basic food analysis. All training will be undertaken by supervisors but a basic knowledge of product development, laboratory skills and statistical analysis would be useful.

Additional skills the student will develop as part of the project:

Product formulation, physical, sensory and nutritional analysis of products. The skills gain from this project will also enhance student’s job opportunities in the food industry.

Project is based at: Burwood

Units that this project most closely aligns to: HSN106, HSN315, HSN320
22. PROJECT TITLE: HEALTHY SNACKS: APPROACH TO SUGAR REDUCTION

Primary supervisor: Dr Shirani Gamlath

Contact details: shirani.gamlath@deakin.edu.au
92517267

Co-supervisor/s: Prof Russell Keast

Supervisor area of expertise: Dr Shirani Gamlath has actively established a research program on use of novel functional/healthful ingredients in product development and application of novel processing technologies such as extrusion technology and high Pressure processing to retain nutritional and bioactive components in foods. This field encompasses knowledge and expertise in a number of areas including product development, novel process technologies and product evaluation. Shirani has experience in product development with cereals, legumes and fruits and also product evaluation based on nutritional, physicochemical and sensory analysis.

Project description: The snack food market continues to grow as it accommodates for the current food trends however, the majority of snack foods mainly consists of unhealthy and energy dense food products. In recent years there has been an increased focus on reformulation of existing products for healthier versions. The British government, recently set out a plan for action to reduce the prevalence of childhood obesity. An approach in the plan was for the food industry to reduce overall sugar across a range of products that contribute most to children’s sugar intakes by at least 20% by 2020 (Public Health England, 2017). As sugar plays an important role in providing a range of other technological functions other than sweetening, it is challenging to reformulate products with less sugar with similar technological functions. In line with this approach, the project focuses on sugar replacement using alternative ingredients in a snack/dessert type of product and understanding the technological and sensory changes in the food when reducing sugar levels.

Methodological Approach
- Reformulation of products using different sugar replacers.
- Evaluate the physical and sensory changes.
- Identify possible sugar replacers and levels in designing healthier snack products to meet 20% sugar reduction targets.

Skills required by the student: The student will need laboratory skills in food safety and basic food analysis. All training will be undertaken by supervisors but a basic
knowledge of product development, laboratory skills and statistical analysis would be useful.

**Additional skills the student will develop as part of the project:**
Product formulation, physical and sensory evaluation of products. The skills gain from this project will also enhance student’s job opportunities in the food industry.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSN106, HSN315, HSN309, HSN320
23. PROJECT TITLE: THE CONTRIBUTION OF ULTRAPROCESSED FOODS TO SUGAR, SALT AND FAT IN THE GLOBAL FOOD SUPPLY: A PROJECT TO INFORM FUTURE NUTRITION POLICY RESPONSES

Primary supervisor: Dr Phillip Baker

Contact details: phil.baker@deakin.edu.au
924 68870

Co-supervisor: Dr Julie Woods

Supervisor area of expertise: Dr Baker’s research focuses on the politics of food and nutrition, food systems and population-level dietary change, and policies to prevent undernutrition, overweight and obesity, and diet-related diseases in Australia and internationally. He has published in world-leading journals on these topics. Phillip recently prepared a working paper on the role of processed foods in future global, regional and national food supplies for the Global Panel on Agriculture and Food Systems for Nutrition. He is currently a fellow of the Lancet Commission on Obesity.

Project description: Economic growth, urbanization and the transnationalisation of food and beverage corporations are driving unprecedented food system changes in many developing countries and globally. In turn, this is driving a shift towards diets higher in ultraprocessed foods and beverages – known risk factors for overweight, obesity and diet-related noncommunicable diseases.

Using food supply and market sales data this project will quantify trends and patterns in ultraprocessed food and beverage markets at global, regional and national levels. It will further determine the contribution of specific product types to per capita sugar, salt and fat volumes in global, regional and national food supplies. This will identify which product types are potentially most harmful to population nutrition, thereby helping to inform policy responses at each level. The project will utilize a method already developed by Dr Baker in previous analyses and use available datasets. It is intended for the analysis to be published as a peer-reviewed journal article. For examples of this work see;

**Skills required by the student:** A good understanding of public health nutrition. Knowledge of Microsoft Excel and data handling and analysis skills are essential. Further knowledge of statistical and graphing software (e.g. Stata) is desirable although not necessary. Strong writing and communication skills.

**Additional skills the student will develop as part of the project:** Knowledge and expertise in global food systems change, processed foods and the nutrition transition. Expertise in data handling, quantitative analysis and descriptive statistics. Introduction to databases of key international organizations.

**Project is based at:** Burwood.

**Course code:** H418 Bachelor of Food and Nutrition Sciences (Honours)

**Units that this project most closely aligns to:** HSN302 (Population nutrition) and HSN309 (Food policy and regulation)
24. PROJECT TITLE: WHAT CAUSES OBESITY? WHO’S RESPONSIBLE? WHAT SHOULD BE DONE? A QUALITATIVE ANALYSIS OF AUSTRALIAN POLITICAL DEBATES TO INFORM STRATEGIC ADVOCACY COMMUNICATIONS

Primary supervisor: Dr Phillip Baker

Contact details: phil.baker@deakin.edu.au
924 68870

Co-supervisor: Professor Mark Lawrence (TBC)

Supervisor area of expertise: Dr Baker’s research focuses on the politics of food and nutrition, food systems and population-level dietary change, and policies to prevent undernutrition, overweight and obesity, and diet-related diseases in Australia and internationally. He has published in world-leading journals on these topics. Phillip is currently leading a project for the World Health Organization (WHO) examining the political barriers to accelerating action on nutrition in the context of the United Nations Decade of Action on Nutrition. He is also a fellow of the Lancet Commission on Obesity.

Project description: Much like climate change, obesity is the topic of heated political debate in Australia, with wide ranging views about the nature of the problem and what should be done to address it. As a result, and despite it’s importance as a leading contributor to the burden of disease in this country, policy responses have been weak. Is it a matter of ‘individual responsibility’ alone? Or are ‘obesogenic environments’ and ‘junk food’ companies to blame? How should we respond to the problem – through clinical, educational and lifestyle-change approaches alone? Or is there also a role for more upstream intervention, including the regulation of the marketing, labelling and pricing of energy-dense foods and beverages?

This project will focus on the politics of obesity and involve a qualitative analysis of Australian policy debates about the problem. Using framing theory and thematic analysis it will determine how different actors (e.g. politicians, the food industry, health and consumer advocates) portray the causes of obesity, who or what is to blame for causing the problem, who should be responsible for addressing it, and what the optimal solutions should be. This project will likely generate new insights into how political priority for obesity might be generated in future, with the results used to inform strategic communication by public health advocates. The intention is to publish this analysis as a peer-reviewed journal article.

For an example of this work see;

**Skills required by the student:** Good knowledge about public health nutrition and food policy is desirable. As is some knowledge of qualitative research methods (although training will be provided). Strong writing and communication skills.

**Additional skills the student will develop as part of the project:** Framing and related political science theories; qualitative framing analysis; use of qualitative analysis software; knowledge about food and nutrition politics.

**Project is based at:** Burwood.

**Units that this project most closely aligns to:** HSN302 (Population nutrition) and HSN309 (Food policy and regulation)
25. PROJECT TITLE: WHAT DRIVES POLITICAL ATTENTION TO PUBLIC HEALTH NUTRITION ISSUES IN AUSTRALIA? A MIXED METHOD ANALYSIS TO INFORM STRATEGIC ADVOCACY

Primary supervisor: Dr Phillip Baker

Contact details: phil.baker@deakin.edu.au
924 68870

Co-supervisor: Professor Mark Lawrence (TBC)

Supervisor area of expertise: Dr Baker’s research focuses on the politics of food and nutrition, food systems and population-level dietary change, and policies to prevent undernutrition, overweight and obesity, and diet-related diseases in Australia and internationally. He has published in world-leading journals on these topics. Phillip is currently leading a project for the World Health Organization (WHO) examining the political barriers to accelerating action on nutrition in the context of the United Nations Decade of Action on Nutrition. He is also a fellow of the Lancet Commission on Obesity.

Project description: This research project focuses on the topic of agenda-setting, the phase of the policy process when some issues come to be considered as a government priority whereas others are ignored or neglected all together. Key questions asked in agenda-setting research are: How do issues come to the attention of those in power? Why do some issues receive significant levels of political attention, whereas other comparable issues (e.g. in terms of their contribution to the disease burden) do not? And, if we can understand answers to these questions, how might we generate political attention to neglected issues in the future?

Unhealthy diets, obesity and diet-related noncommunicable diseases are leading contributors to the burden of disease in Australia. Although anecdotal reports suggest these issues receive significantly less political attention when compared to other high-burden issues (e.g. tobacco, HIV/AIDS), this has not been demonstrated empirically. Additionally, little is known about what drives and sustains political attention to public health nutrition issues in Australia.

This project will involve two steps. First, using word frequency counts of speeches made by politicians in the Australian Federal Parliament, it will quantify the rise and fall of political attention to public health nutrition issues in Australia since 1990. Second, using qualitative thematic analysis it will identify what key events or related issues have triggered high-levels of attention at certain time-points. The project will help to inform a broader understanding of what drives the rise and fall of public health issues onto the Australian Government’s policy agenda. Understanding this may help to inform more strategic advocacy efforts by public health groups.
For an example of this work see;


**Skills required by the student:** Good knowledge about public health nutrition and food policy is desirable. As is some knowledge of qualitative research methods (although training will be provided). Strong writing and communication skills.

**Additional skills the student will develop as part of the project:** Qualitative analysis; use of qualitative analysis software; knowledge about food and nutrition politics and agenda-setting.

**Project is based at:** Burwood.

**Units that this project most closely aligns to:** HSN302 (Population nutrition) and HSN309 (Food policy and regulation)
26. PROJECT TITLE: 1000 BARISTA AND CAFÉ STUDY

Principal supervisor: Dr Ramon Hall

Contact details: ramon.hall@deakin.edu.au
                   9246 8777

Co-supervisor: Dr Gie Liem

Supervisor’s area of expertise: Dr Ramon Hall: Dairy and Food Industry Research Experience; Infant Formula Research and Development; Health Claim and Food Labelling; Interface between Sensory Sciences and Nutrition; Food Safety and Toxicology; Nutrition and Dietary Intervention Studies; Nutritional Product Development and Nutritional Innovation.

Project description: To investigate the intricacies of the science behind the art of making a perfect coffee.

To understand the rationale of decision making of Barista’s in picking particular beans/bean blends; milk; extraction techniques; equipment; grind size; water quality and to assess these in relation to the current scientific knowledge in relation to coffee products.

To understand how Barista’s rank different factors and the degree of flexibility they have in relation to different factors.

To understand how the level of training of the Barista’s impact on their decision making.

This study will start with an online screening component with questionnaires and a random selection of café’s will be chosen for an in-depth analysis involving a visit and sample collection and purveying. The student undertaking this honours project will be required to undertake a Barista Course (paid for by the research team).

The information collected in this study will provide useful guidance to Barista’s; Café Owners; Roasting Houses and Food Manufacturers using Coffee in New Product Developments.

Skills required by the student: Drink coffee. Understanding of coffee and sensory sciences. Some knowledge of statistics and research design. Appreciation of food manufacturing and product design
Additional skills the student will develop as part of the project: In depth understanding of coffee and sensory sciences. Improved knowledge of statistics and research design. In depth understanding of food manufacturing and product design.

Project is based at: Burwood

Units that this project most closely aligns to: HSN313; HSN204; HSN320
27. PROJECT TITLE: HEALTH CLAIMS AND THE HEALTH STAR RATING SYSTEM

Principal supervisor: Dr Ramon Hall

Contact details: ramon.hall@deakin.edu.au
9246 8777

Co-supervisor: Dr. Julie Woods

Supervisor's area of expertise: Dr. Ramon Hall: Dairy and Food Industry Research Experience; Infant Formula Research and Development; Health Claim and Food Labelling; Interface between Sensory Sciences and Nutrition; Food Safety and Toxicology; Nutrition and Dietary Intervention Studies; Nutritional Product Development and Nutritional Innovation.

Project description: This project will investigate food compliance with the Health Claims (FSANZ, Food Standard Code – Standard 1.2.7) and the Health Star Rating System (healthstarrating.gov.au) within a selected area of the Eastern Suburbs of Melbourne.
A secondary part of this project will be to assess the degree of alignment between the foods purported to be healthful and those using health messaging. This study will also investigate the interaction between the Health Star Rating System and the Health Claims used on foods.
This project will be of great interest to the food industry, Government Departments and Food and Nutritional Practitioners.
The project will use information from products collected in supermarkets and will utilise Governmental and related regulatory materials

Skills required by the student: -Understanding of FSANZ and other regulatory standards. Understanding Health Star Rating System. Some knowledge of statistics and research design. Appreciation of food manufacturing and product design.

Additional skills the student will develop as part of the project: In depth understanding of FSANZ and other regulatory standards. In depth understanding of the Health Star Rating System. Improved knowledge of statistics and research design. In depth understanding food manufacturing and product design

Project is based at: Burwood

Units that this project most closely aligns to: HSN309; HSN311; HSN209
28. PROJECT TITLE: FACTORS AFFECTING INFANT FORMULA NUTRITION AND AFFORDABILITY IN AUSTRALASIA

Principal supervisor: Dr Ramon Hall

Contact details: ramon.hall@deakin.edu.au
9246 8777

Co-supervisor: Dr. Gie Liem

Supervisor’s area of expertise: Dr Ramon Hall: Dairy and Food Industry Research Experience; Infant Formula Research and Development; Health Claim and Food Labelling; Interface between Sensory Sciences and Nutrition; Food Safety and Toxicology; Nutrition and Dietary Intervention Studies; Nutritional Product Development and Nutritional Innovation.

Project description: This project will investigate the factors that determine the price, nutritional composition and relative affordability of infant formula products sold throughout Australasia. A secondary part of this project will be to assess the compliance of products (including claims and statements) with various regulatory standards and voluntary codes of practice. This project will be of great interest to the food industry producing infant formula products, as well as consumers/consumer groups who may be confused with the large price differential between various products ($15.00/900g to almost $36.00/900g). The project will use information collected from products collected in supermarkets, as well as information sourced from the Mintel Database on new product launches.

Skills required by the student: -Understanding of infant nutritional requirements. Understanding of FSANZ and other regulatory standards. Some knowledge of statistics and research design. Appreciation of food manufacturing and product design

Additional skills the student will develop as part of the project: In depth understanding of infant nutritional requirements. In depth understanding of FSANZ and other regulatory standards. Improved knowledge of statistics and research design. In depth understanding food manufacturing and product design.

Project is based at: Burwood

Units that this project most closely aligns to: HSN202; HSN309 and HSN211
29. PROJECT TITLE: SPRINT INTERVAL TRAINING PLUS KETOGENIC DIET- ARE THERE ADDITIONAL METABOLIC BENEFITS?

Principal supervisor: Dr Clint Miller

Contact details: c.miller@deakin.edu.au
9244 6605

Co-supervisors: Dr Clinton Bruce, Dr Greg Kowalski

Supervisor's area of expertise: Dr Clint Miller has been an Accredited Exercise Physiologist in private practice for over 10 years and has worked predominately with musculoskeletal injury and disease. His research is focussed on the use of clinical exercise for improvements in physical function, performance, body composition, and work productivity in adults with musculoskeletal and cardiometabolic disease. He is interested in the relationship between lifestyle related factors, exercise participation and its influence on measures of physical function and performance with a particular emphasis on ADL's including those related to occupational demands.
Dr Clinton 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.

Dr Greg Kowalski’s research interests lie broadly in the areas of metabolic biochemistry, integrative physiology, endocrinology and analytical chemistry. A specific focus of his research lies in understanding the regulation of whole body and cell specific insulin action, metabolic tissue crosstalk (liver, muscle, adipose tissue and pancreatic β-cell) and cell metabolism both in context of normal health and pathological states such as diabetes, insulin resistance and dyslipidaemia.

Project description: Research in low carbohydrate ketogenic diets show that they are at least as effective for weight loss for people with overweight and obesity as traditional low fat energy restricted diets. We know that there are important health and fitness-related benefits to exercise training in adults with metabolic diseases such as obesity, but there are few exercise training studies in adults following a low carbohydrate ketogenic diet. Sprint interval training (SIT) is similar to high intensity interval training (HIIT) but benefits like reduced visceral adipose tissue and improved metabolic function can be achieved in less time than HIIT. This makes SIT an appealing exercise choice for many individuals. It is not known whether SIT is a feasible exercise approach in a diet which is very low in carbohydrates.
The purpose of this project is to investigate whether SIT when added to a ketogenic diet provides additional metabolic improvements for overweight adults when compared to a ketogenic diet alone.

**Skills required by the student:** Upskilling will be performed on the job. A keen interest in nutrition and exercise science research is required.

**Additional skills the student will develop as part of the project:** Applied application of nutritional support for low carbohydrate ketogenic diets for weight loss. Basic biochemistry applications for the measurement of hormones (insulin) and substrates (glucose, free fatty acids, triglycerides) in blood samples obtained from participants.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSN301 Diet and Disease
HSN305 Assessing food intake and Activity
30. PROJECT TITLE: DOES NUTRITIONAL STATUS OR POST-OPERATIVE NUTRITIONAL MANAGEMENT IMPACT ON CLINICAL OUTCOMES FOLLOWING GI SURGERY?

Principal supervisor: Dr Claire Margerison/ Dr Paige van der Pligt / Dr Nicole Kiss

Contact details: Claire.margerison@deakin.edu.au
92517293

Co-supervisors: Belinda Johnston & Brooke Chapman Senior Clinician-Dietitians, Austin Health

Supervisor's area of expertise: Dr Claire Margerison is an Accredited Practising Dietitian and Senior Lecturer in Dietetics. She teaches into the Master of Dietetics (principles of dietetics and clinical dietetics) and supervises honours and PhD students. Being unit chair for the unit HSN747 Clinical Dietetic Practice, Claire has a strong interest in clinical dietetics and the use of research to answer clinical nutrition questions and the use of evidence based guidelines in clinical practice.

Dr Paige van der Pligt is an Accredited Practising Dietitian and Lecturer in Dietetics. She teaches across multiple Dietetics units and has several years’ experience working as a clinical dietitian and in her own private practice prior to her research career. Paige supervises honours students and has a strong interest in clinical dietetics and embedding research into clinical practice.

Dr Nicole Kiss is an Advanced Accredited Practicing Dietitian and senior lecturer in the School of Exercise and Nutrition Sciences. Nicole’s research investigates interventions to optimise nutritional and functional outcomes during medical treatment, improving the recognition and management of malnutrition and the evaluation of novel models of health care delivery.

Belinda Johnson is a clinical dietitian, very experienced in acute clinical dietetics, with her primary role in upper GI surgery, bariatric surgery, colorectal surgery and head and neck surgery. She has completed a clinical Honours project herself, and also leads the quality portfolio within the Nutrition and Dietetics Department.

Brook Chapman is a clinical dietitian with expertise in acute clinical dietetics, particularly liver transplant, intestinal failure and gastrointestinal surgery. Brooke has previous experience supervising two Deakin honours students. As team leader of gastro-surgical stream within Nutrition and Dietetic Department her non-clinical role is to oversee all quality and research projects in this area.
**Project description:** Patients undergoing gastro-intestinal surgery are at high risk of malnutrition and often require nutritional support in the pre-, peri- and post-operative phases. The underlying disease process frequently contributes to a compromised nutritional status in these individuals, and then surgery itself leads to inflammation and a metabolic stress response. To achieve suitable healing and functional recovery, the nutritional needs of the patient must be met; however this is challenging when the patient is malnourished, undergoes periods of prolonged fasting, or when the stress/inflammatory response is prolonged. The influence of nutritional status on postoperative morbidity and mortality has been well documented, with studies consistently reporting malnutrition as an independent risk factor for the incidence of complications, as well as increased mortality, length of hospital stay, and costs.

Austin Health is a major provider of tertiary health services in Victoria and comprises a large surgical unit encompassing upper GI, colorectal and hepatopancreatobiliary surgery. Nutrition management guidelines are in place to direct the nutritional care of patients following GI surgery, however variations in fasting protocols, feeding tube placement and post-operative management means that not all patients are managed according to best practice; and data is not routinely collected on nutrition and clinical outcomes.

This is a prospective, observational study of patients admitted to Austin Health undergoing upper and lower GI surgery over the data collection period. Patients will be assessed with regards to their nutritional status (SGA), functional muscle strength (handgrip strength), and nutritional management (period of fasting, diet code, percentage of nutritional requirements met, nutritional route utilised). Biochemistry (nutritional and inflammatory markers) and clinical outcome data (wound complications, length of stay, hospital costs) will also be collected during their acute hospital admission.

The aim of the study is to determine if the patients' nutritional status or their post-operative nutritional management impacts on clinical outcomes following GI surgery.

**Skills required by the student:** Understanding of the role of nutrition in disease, undertaking SGA and grip strength assessment in enrolled patients, IT skills, statistical analysis, and the ability to work in the hospital environment as part of a medical research team.

**Additional skills the student will develop as part of the project:** Understanding the role of nutrition in patients undergoing gastrointestinal surgery, and enhanced knowledge of local food service systems, enteral and parenteral nutrition

**Project is based at:** Nutrition and Dietetics Department, Austin Health

**Units that this project most closely aligns to:**
31. PROJECT TITLE: NUTRITIONAL ADEQUACY IN MULTITRAUMA CRITICALLY ILL PATIENTS AND RELATIONSHIPS WITH HOSPITAL ACQUIRED MALNUTRITION AND FUNCTIONAL OUTCOMES

Principal supervisor: Dr Claire Margerison/ Dr Paige van der Pligt / Dr Nicole Kiss

Contact details: Claire.margerison@deakin.edu.au
92517293

Co-supervisors: Kate Fetterplace, Senior Dietitian, Melbourne Health
Kym Wittzholz, Dietitian, Melbourne Health

Supervisor's area of expertise: Dr Claire Margerison is an Accredited Practising Dietitian and Senior Lecturer in Dietetics. She teaches into the Master of Dietetics (principles of dietetics and clinical dietetics) and supervises honours and PhD students. Being unit chair for the unit HSN747 Clinical Dietetic Practice, Claire has a strong interest in clinical dietetics and the use of research to answer clinical nutrition questions and the use of evidence based guidelines in clinical practice.

Dr Paige van der Pligt is an Accredited Practising Dietitian and Lecturer in Dietetics. She teaches across multiple Dietetics units and has several years’ experience working as a clinical dietitian and in her own private practice prior to her research career. Paige supervises honours students and has a strong interest in clinical dietetics and embedding research into clinical practice.

Dr Nicole Kiss is an Advanced Accredited Practicing Dietitian and senior lecturer in the School of Exercise and Nutrition Sciences. Nicole’s research investigates interventions to optimise nutritional and functional outcomes during medical treatment, improving the recognition and management of malnutrition and the evaluation of novel models of health care delivery.

Kate Fetterplace is a Senior Grade 4 Dietitian at Royal Melbourne Hospital with over 10 years clinical experience. Kate is a PhD Candidate and is completing a program of research investigating energy and protein provision in critically ill patients. She has recently completed a randomised control trial in the ICU titled ‘Targeted Full energy and Protein Delivery in Critically ill Patients’. Her areas of expertise are in critical care nutrition, parenteral nutrition protein provision, muscle mass and functional outcome for critically ill patients.
Project description: Royal Melbourne Hospital is one of two major Victorian tertiary hospitals specialising in the care of patients following traumatic accidents. Nutritional deficits and decreased function are common in critical illness due to the significant stress response and difficulties in delivering adequate nutrition in the intensive care unit (ICU). Many studies have focus on nutritional adequacy in the ICU and outcome such as mortality, however little is known about the nutritional adequacy following the ICU admission and the associated poorer functional outcomes.

The primary aim of this study is to assess the nutritional adequacy of multi-trauma patients both in the ICU and on the trauma ward at RMH. The secondary aims are to assess the prevalence of hospital acquired malnutrition at hospital discharge and investigate the relationships with poorer muscle strength and lower health related quality of life. This is a prospective observational study which will involve 3 months of data collection in the ICU and on the trauma ward at RMH.

This project is part of a larger program of research looking a nutritional adequacy and functional outcomes in the ICU population and investigating potential interventions which may minimise loss of muscle mass, strength and physical function.

Skills required by the student: Understanding of the consequences of malnutrition. Able to analyse and interpret food record charts. Highly developed inter-personal skills in order to perform the patient assessments which will be required.

Additional skills the student will develop as part of the project: Performing malnutrition assessments using a validated tool. Performing outcome assessments such as hand-grip strength, body composition analysis and other anthropometry. Administer quality of life questionnaires. Quantitative and qualitative data analysis

Project is based at: Royal Melbourne Hospital

Units that this project most closely aligns to:
32. PROJECT TITLE: SPORTS NUTRITION RESEARCH AT GEELONG CATS FOOTBALL CLUB

Principal supervisor: Dr Dominique Condo

Contact details: dominique.condo@deakin.edu.au 9244 5487

Co-supervisors:
Supervisor area of expertise: Dr Dominique Condo is a lecturer in sports nutrition. She is an Accredited Practicing Dietitian and Accredited Sports Dietitian, consulting at Geelong Football Club and the WNBL Deakin Melbourne Boomers. Dr Condo is passionate about nutrition in the athletic population and optimising overall health and wellbeing as well as performance, with a specific interest in team sports. Her current interests include understanding the factors that influence food choice and dietary habits in athletes as well as their beliefs, perceptions and usage of supplementation.

Project description: A range of research projects will be offered on sports nutrition topics, in conjunction with the Geelong Cats Football Club. Areas of interest include:
- Nutritional strategies for supporting training adaptations
- Nutrition and sleep
- Development and validation of practical tools for nutritional assessment
- Body composition, bone health, and injury risk in female Australian football players

Students who would like to know more about these projects are welcome to contact Dr Dominique Condo (email above). Please specify which topics you are most interested in and why.

Skills required by the student: A keen interest in sports nutrition. Good attention to detail, self-management, and communication skills are essential.

Additional skills the student will develop as part of the project: The skills developed will be dependent on each student’s specific research topic, but could include skills in some of the following: nutritional assessment, sleep physiology, body composition assessment techniques, sports nutrition strategies for female athletes, survey / questionnaire design, understanding of measurement issues in scientific research, understanding of nutritional supplementation approaches for enhancing adaptations to training.

Project is based at: Burwood (regular travel to Geelong will be required)

Course code: H418 Bachelor of Food and Nutrition Sciences (Honours)
Units that this project most closely aligns to: HSN305 Assessing Food Intake and Activity, HSN307 Sports Nutrition: Theory and Practice
33. PROJECT TITLE: HOW DOES CENTRAL FATIGUE AFFECT NEUROMUSCULAR CONTROL IN PEOPLE WITH PARKINSON’S DISEASE?

Principal supervisor:  Dr Wei-Peng Teo

Contact details:  weipeng.teo@deakin.edu.au
9244 5229

Co-supervisors:  Drs Christopher Latella and Ashlee Hendy

Supervisor's area of expertise: Dr Wei-Peng Teo is an exercise neurophysiologist with a keen research focus on motor control and learning. In particular, Dr Teo’s is keen on understanding how the brain controls gait and balance, and more importantly, to develop neuro-rehabilitation strategies to improve motor control in people with Parkinson’s disease (PD) and Stroke. Over the last 8 years, Dr Teo specialises in a range of neuroimaging and neurophysiological techniques, which includes functional near-infrared spectroscopy (fNIRS), electroencephalography (EEG), and transcranial magnetic stimulation (TMS). In particular, Dr Teo’s PhD was one of the first to investigate central fatigue in people with PD and its implications for motor control. As part of this honours project, the honours candidate will gain first-hand experience in learning how to use non-invasive brain stimulation techniques such as TMS to measure brain excitability and inhibition people with in PD. In addition, the candidate will gain an in depth understanding of the mechanisms that are implicated in motor control.

Dr Christopher Latella has recently completed his PhD in the area of exercise neuroscience. Over the last four years Dr Latella has conducted several studies examining neural responses and adaptations following exercise in healthy populations. This includes detailed examinations of central fatigue and recovery in response to strength and hypertrophy training in the lower limb using TMS. Dr Latella also has extensive experience working with a diverse range of healthy, athletic and elderly populations incorporating safe and sound exercise to improve function and performance. As part of this project Dr Latella will supervise and instruct the candidate on how to deliver TMS and interpret the data.

Dr Ashlee Hendy is a Lecturer in Strength and Conditioning Sciences with a research background in exercise neurophysiology. Her previous research has investigated the effects of both resistance and aerobic training modalities on neuroplastic adaptations.
of the brain and motor pathway. In this project, Dr Hendy will provide support and training in neurophysiological testing procedures, and will contribute to study design, data analysis and interpretation, and feedback on the student’s literature review and thesis drafts.

**Project description:** Parkinson’s disease (PD) is the second most common neurological disorder that is characterised by motor symptoms such as resting tremors, muscle rigidity, postural instability and gait impairments. While there is currently no cure for the disease, the main treatment for PD is with the use of medications to manage its motor symptoms. However despite the use of PD medications to manage motor symptoms of PD, neuromuscular fatigue (that is the inability to optimally produce force and power) is commonly reported by people with PD. It is suggested that neuromuscular fatigue affects up to 70% of people with PD which hinders daily activities such as the ability to get off a chair, walking or climbing up a flight of stairs. However to date, the physiological underpinnings of neuromuscular fatigue in PD remains unclear.

In this honours project, we aim to use a newly-developed non-invasive brain stimulation paradigm to directly measure brain activation and efficiency during an exercise task in people with PD. This technique will involve a combination of muscle nerve stimulation and TMS to determine the origins and mechanisms of fatigue associated with PD. In addition, we aim to further determine how PD medication influences brain excitability and inhibition, and how it may help to alleviate neuromuscular fatigue. This study will provide a comprehensive understanding of how neuromuscular fatigue is developed at the level of the muscle and the brain of people with PD.

**Skills required by the student:** The honours candidate must possess a good understanding of Anatomy and Physiology and Motor Learning & Control. As the project will involve interacting with clinical populations, students should be first aid and CPR certified, or be willing to be certified prior to project commencement. While an in-depth knowledge of neuroscience and neuropathology is not required, students should demonstrate a keen interest in those areas.

**Additional skills the student will develop as part of the project:** As part of this project, the Honours candidate will learn how to interact with people with PD and acquire an in depth understanding the neurophysiological mechanisms that underpin neuromuscular fatigue. The candidate will be taught gold-standard assessments of quantifying brain and muscle nerve excitability. This project provides a great opportunity for potential candidates to acquire first-hand experience in exploring how neurophysiology influences the ability to generate and maintain muscle function and how neurological disorders such as PD hinders the ability to produce muscle force.
Project is based at: Burwood

Units that this project most closely aligns to: HBS109 Human Structure and Function, HSE204 Motor Learning and Development
34. PROJECT TITLE: UNDERSTANDING MECHANISMS OF BALANCE IMPAIRMENTS IN PEOPLE WITH PARKINSON’S DISEASE

Principal supervisor: Dr Wei-Peng Teo

Contact details: weipeng.teo@deakin.edu.au
9244 5229

Co-supervisors: Dr Christopher Latella and Mr Dale Harris

Supervisor's area of expertise: Dr Wei-Peng Teo is an exercise neurophysiologist with a keen research focus on motor control and learning. In particular, Dr Teo’s is keen on understanding how the brain controls gait and balance, and more importantly, to develop neuro-rehabilitation strategies to improve motor control in people with Parkinson’s disease (PD) and Stroke. Over the last 8 years, Dr Teo specialises in a range of neuroimaging and neurophysiological techniques, which includes functional near-infrared spectroscopy (fNIRS), electroencephalography (EEG), and transcranial magnetic stimulation (TMS). As part of this honours project, the honours candidate will gain first-hand experience in learning how to use fNIRS to measure cerebral blood flow responses during several balance tasks designed to measure static and dynamic balance in PD. The candidate will further gain skills in measuring and identifying different components of balance that are used in gold-standard clinical tests for neuro-rehabilitation.

Dr Christopher Latella has recently completed his PhD in the area of exercise neuroscience. Over the last four years Dr Latella has conducted several studies examining neural responses and adaptations following exercise in healthy populations. This includes detailed examinations of the neurophysiological responses to strength and hypertrophy training in the lower limb using TMS. Dr Latella also has extensive experience working with a diverse range of healthy, athletic and elderly populations incorporating safe and sound exercise to improve function and performance. As part of this project Dr Latella will supervise and instruct the candidate on how to deliver TMS and interpret the data.

Mr Dale Harris is a current PhD candidate in the area of exercise neurophysiology. In 2011 Dale completed an Honours in neurophysiology where he and his team explored the mechanisms underpinning the cross education phenomenon using TMS, electromyography, ultrasonography and peripheral nerve stimulation devices. Currently, Dale’s PhD project aims to investigate balance and neurophysiological outcomes following training for people with PD. His project has incorporated various outcome measures including postural balance tests, fNIRS as well as gold-standard clinical assessments of the lower limb (e.g. mini Balance Evaluation Systems Test, times up and go, and 10 metre walk test). As such, Mr Harris will work with the student
to hone their skills in measuring balance related outcomes, as well as motor, neurophysiological and lower limb function

**Project description:** Parkinson’s disease (PD) is the second most common neurological disorder that is characterised by motor symptoms such as resting tremors, muscle rigidity, postural instability and gait impairments. While there is currently no cure for the disease, the main treatment for PD is with the use of medications to manage its motor symptoms. However despite the use of PD medications to manage motor symptoms (i.e. gait impairments and tremors) of PD, postural instability and poor balance remains a significant problem that affects activities of daily living. As a result, people with PD have the highest risk of falls and rate of falls compared to any other neurological condition. While there is evidence to show that poor balance is a major issue in people with PD, little is known about how the Parkinsonian brain controls static and dynamic balance. Furthermore, due to the inherent limitation of gold-standard neuroimaging systems such as functional magnetic resonance imaging (fMRI), where participants have to lie very still in a horizontal position, researchers have not been able to directly measure brain responses during a balance task in people with PD.

More recently, developments in optical neuroimaging have provided a means to measure, very precisely, cerebral blood flow responses to different parts of the brain using near-infrared light. Functional near-infrared spectroscopy, commonly known as fNIRS, uses a combination of light emitters and detectors placed non-invasively over the scalp to detect small changes in cerebral blood oxygenation and deoxygenation (also known as cerebral haemodynamic response). The cerebral haemodynamic response detected using fNIRS is highly correlated and comparable to signals acquired using fMRI, which makes fNIRS an ideal tool to measure brain activity during an upright balance task. Therefore the primary aim of this project is to determine the cerebral haemodynamic responses during a static and dynamic balance task in people with Parkinson’s disease. A secondary aim of this project is to further determine if PD medication alters cerebral haemodynamic responses during the balance tasks. The information gather from this study will be important to locate the region(s) of brain dysfunction and identify the potential mechanisms that affects balance in PD.

**Skills required by the student:** The honours candidate must possess a good understanding of Anatomy and Physiology and Motor Learning & Control. As the project will involve interacting with clinical populations, students should be first aid and CPR certified, or be willing to be certified prior to project commencement. While an in depth knowledge of neuroscience and neuropathology is not required, students should demonstrate a keen interest in those areas.
Additional skills the student will develop as part of the project: As part of this project, the Honours candidate will learn how to interact with people with PD and acquire an in depth understanding of how the disease affects postural balance. The candidate will be taught gold-standard clinical tests for postural balance and also be exposed to neuroimaging techniques such as functional near-infrared spectroscopy (fNIRS) to measure cerebral haemodynamic responses during balance activities. This project provides a great opportunity for potential candidates to acquire first-hand experience in exploring how the brain processes information and controls the body to produce movement.

Project is based at: Burwood or Waurn Ponds

Units that this project most closely aligns to: HBS109 Human Structure and Function. HSE204 Motor Learning and Development
35. PROJECT TITLE: WHAT IS A BETTER TREATMENT FOR BACK PAIN: MOTOR CONTROL EXERCISE OR TRUNK CONDITIONING?

Principal supervisor: Associate Professor Daniel Belavy

Contact details: d.belavy@deakin.edu.au
92446606

Co-supervisor: Dr Clint Miller

Supervisor's area of expertise: A/Prof Daniel Belavy has been at Deakin since 2014. His work at Deakin focusses on exercise and the spine. In his work prior to coming to Deakin (at the Charité University Medical School in Berlin, Germany) he conducted projects on the topics of muscle, bone, neuromuscular function in disuse (spaceflight simulation) and exercise.

Dr Clint Miller has been an Accredited Exercise Physiologist in private practice for over 10 years and has worked predominately with musculoskeletal injury and disease. His research is focussed on the use of clinical exercise for improvements in physical function, performance, body composition, and work productivity in adults with musculoskeletal and cardiometabolic disease. He is interested in the relationship between lifestyle related factors, exercise participation and its influence on measures of physical function and performance with a particular emphasis on ADL’s including those related to occupational demands.

Project description: This honours project is part of a larger study investigating the impact of an exercise physiologist led approach versus physiotherapy treatment for low back pain. In this study, patients will be treated for 6 months and adaptations in a series of body systems such as muscle and disc changes (via magnetic resonance imaging), muscle strength, performance and endurance, spine bone density, body composition, and muscle activation will be investigated. For this honours project, you will analyse data from MRI examining spine structures (e.g. discs, bone and bone marrow), muscle size and quality and examine functional outcomes.

Skills required by the student: Upskilling will be performed on the job. A keen interest in exercise science research is required.

Additional skills the student will develop as part of the project: In depth skills in musculoskeletal rehabilitation, data and image analysis

Project is based at: Burwood

Units that this project most closely aligns to: SE202 Biomechanics, HSE323 Clinical & Sports Biomechanics, HSE301 Exercise Prescription for Fitness and Health
36. PROJECT TITLE: ARE ELITE AND SUB-ELITE SWIMMING, BASKETBALL, RUNNING, BASEBALL, SOCCER AND KENDO GOOD FOR THE SPINE?

Principal supervisor: Associate Professor Daniel Belavy

Contact details: d.belavy@deakin.edu.au
92446606

Co-supervisor: Dr Timo Rantalainen

Supervisor’s area of expertise: A/Prof Daniel Belavy: A/Prof Daniel Belavy has been at Deakin since 2014. His work at Deakin focusses on exercise and the spine. In his work prior to coming to Deakin (at the Charité University Medical School in Berlin, Germany) he conducted projects on the topics of muscle, bone, neuromuscular function in disuse (spaceflight simulation) and exercise.

Dr Timo Rantalainen joined Deakin in August 2013 as a lecturer in biomechanics from the Department of Health Sciences, University of Jyväskylä, Finland. He completed his PhD (2010) at The University of Jyväskylä, Finland. His work has been mainly on estimating lower body skeletal loading with methods varying from examining cross-sectional associations to flexible multibody dynamics full-body modelling. During his PhD, and post-doctoral research he has acquired skills in implementing numerical analyses, which will be utilised in the proposed Honour’s project.

Project description: Athletes constitute a unique population to study the effect of loading and exercise on the body. At the spine, it is unclear what kinds of exercise are best. In recent work, we discovered that running exercise “strengthened” the intervertebral discs in the spine. The aim of this work is to consider a wider population of different athletics groups. Collaborators in Japan (Dr Mika Hangai from the Japan Institute of Sports Sciences & Prof. Koji Kaneoka from Faculty of Sport Sciences Waseda University) collected data on sub-elite and elite university athletes in swimming, basketball, running, baseball, soccer and kendo as well as people who were not physically active. Using these MRI and athlete data, you will perform quantitative analyses of the MR images of the spines to measure the properties of the discs and vertebrae and so provide precise data on the impact of each sport on the spine.

Skills required by the student: Upskilling will be performed on the job. A keen interest in exercise science research is required.

Additional skills the student will develop as part of the project: Image analysis, analysing data from athletes, numerical analysis.
Project is based at: Burwood

Units that this project most closely aligns to: HSE202 Biomechanics, HSE323 Clinical & Sports Biomechanics, HSE301 Exercise Prescription for Fitness and Health
37. PROJECT TITLE: EVALUATING KARATE WORKLOAD WITH 3D MOTION CAPTURE AND INERTIAL MEASUREMENT UNIT NETWORK, MACHINE LEARNING TO DETECT KICKS AND PUNCHES.

Principal supervisor: Dr Timo Rantalainen

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9251 7256

Co-supervisor: Associate Professor Daniel Belavy

Supervisor's area of expertise: Dr Timo Rantalainen joined Deakin in August 2013 as a lecturer in biomechanics from the Department of Health Sciences, University of Jyväskylä, Finland. His work has been mainly on estimating lower body skeletal loading with methods varying from examining cross-sectional associations to flexible multibody dynamics full-body modelling. During his PhD, and post-doctoral research he has acquired skills in implementing numerical analyses, which will be utilised in the proposed Honours project. Area of expertise: Biomechanics.

Co-supervisor: A/Prof Daniel Belavy: A/Prof Daniel Belavy has been at Deakin since 2014. His work at Deakin focuses on exercise and the spine. In his work prior to coming to Deakin (at the Charité University Medical School in Berlin, Germany) he conducted projects on the topics of muscle, bone, neuromuscular function in disuse (spaceflight simulation) and exercise. Area of expertise: Sports medicine, rehabilitation science.

Project description: Wearable sensors, and machine learning are methods of tomorrow but arguably the exciting potential has been underwhelmingly applied in the sporting field to date. One of the many potential applications includes sophisticated athlete load monitoring. In the proposed project machine learning approaches will be applied on wearable sensor recordings to classify segments of the recording into specific activities that is to detect kicks and punches. The project includes recording data from Karate athletes in the laboratory with inertial measurement unit network, and 3D motion capture. The aim of the project is to develop activity recognition algorithms to advance the state of art in athlete load monitoring.

Skills required by the student: No specific skills, you will be upskilled. A keen interest in biomechanics will be required.

Additional skills the student will develop as part of the project: Motion capture, working with inertial measurement units, numerical analysis with Matlab.
Project is based at: Burwood

Units that this project most closely aligns to: HSE202 Biomechanics, HSE323 Clinical & Sports Biomechanic
38. PROJECT TITLE: DEVELOPING AND VALIDATING INERTIAL MEASUREMENT UNIT-BASED MOTION CAPTURE FOR LOWER LIMB GAIT KINEMATICS.

Principal supervisor: Dr Timo Rantalainen

Contact details: t.rantalainen@deakin.edu.au
                9251 7256

Co-supervisor: Associate Professor Daniel Belavy

Supervisor’s area of expertise: Dr Timo Rantalainen joined Deakin in August 2013 as a lecturer in biomechanics from the Department of Health Sciences, University of Jyväskylä, Finland. His work has been mainly on estimating lower body skeletal loading with methods varying from examining cross-sectional associations to flexible multibody dynamics full-body modelling. During his PhD, and post-doctoral research he has acquired skills in implementing numerical analyses, which will be utilised in the proposed Honours project. Area of expertise: Biomechanics.

Co-supervisor
A/Prof Daniel Belavy: A/Prof Daniel Belavy has been at Deakin since 2014. His work at Deakin focusses on exercise and the spine. In his work prior to coming to Deakin (at the Charité University Medical School in Berlin, Germany) he conducted projects on the topics of muscle, bone, neuromuscular function in disuse (spaceflight simulation) and exercise. Area of expertise: Sports medicine, rehabilitation science.

Project description: Wearable sensors, inertial measurement units in particular, are measurement devices of the future but arguably the exciting potential has been underwhelmingly utilised to date. One of the many potential applications includes 3-dimensional motion capture for joint kinematics. In the proposed project numerical analysis will be applied on wearable sensor recordings to calculate 3-dimensional lower limb joint kinematics. The project includes recording data from healthy volunteers in the laboratory with inertial measurement unit network, and 3D motion capture. The aim of the project is to develop and validate inertial measurement unit network-based method for assessing 3-dimensional lower limb joint kinematics. The applications of this work are really only limited to imagination. One of the applications this project works towards is being able to capture joint kinematics in recordings of daily activities over several days. It is well-established that behaviours in a laboratory differ from those in the habitual environment, and creating capacity to record kinematics during habitual activities would constitute a major step forward by enabling more detailed assessments of human behaviour in the everyday environment.

Skills required by the student: No specific skills, you will be upskilled. A keen interest in biomechanics will be required.
Additional skills the student will develop as part of the project: Motion capture, working with inertial measurement units, numerical analysis with Matlab.

Project is based at: Burwood

Units that this project most closely aligns to: HSE202 Biomechanics, HSE323 Clinical & Sports Biomechanics
39. PROJECT TITLE: IS SITTING ASSOCIATED WITH INCREASED RISK OF OVERWEIGHT/OBESITY IN EARLY CHILDHOOD?

Principal supervisor: Associate Professor Kylie Hesketh

Contact details: kylie.hesketh@deakin.edu.au
                          92446812

Co-supervisors: Dr Jill Hnatiuk, Katherine Downing

Supervisor’s area of expertise: A/Prof Kylie Hesketh is a senior researcher in the Institute for Physical Activity and Nutrition (IPAN). Her research centres on public health approaches to the promotion of children’s physical activity, reduced sedentary behaviours, and prevention of obesity. She has a particular focus on providing children with a healthy start to life through the promotion of obesity-preventive behaviours during early childhood and the development of programs with ‘real world’ public health utility. Kylie has supervised many Honours, masters and PhD students to successful completion.

Dr Jill Hnatiuk is a Lecturer in Physical Activity and Health. Her research interests focus on understanding and promoting physical activity in young children (predominantly aged 0-5 years) and their families. In particular, Jill is interested in examining the patterns of physical activity observed in young children as well as investigating the role of the family, community and early learning settings in shaping these behaviours.

Katherine Downing is a researcher in IPAN. Her research centres on sedentary behaviour in early childhood, with a particular focus on how we can best educate and support parents to reduce their children’s sedentary behaviour.

Project description: You may have seen the headline “Sitting is the new smoking” in recent years. This is because there is increasing evidence that spending extended periods of time sitting can have detrimental health outcomes (e.g. increased risk of overweight/obesity, cardiovasucular disease) in adults. However, little is known about the health consequences of sitting time in early childhood. This project aims to investigate the association between objectively assessed sitting time and overweight/obesity in 3 year old children. Data have been collected from around 250 children. ActivPAL™ accelerometers were used to measure sitting time and children’s height and weight were measured by researchers to determine body mass index (BMI). These data will be analysed using appropriate techniques to determine whether sitting time is associated with overweight/obesity. There is some scope to tailor the project to the student’s interests.
Skills required by the student: This project will suit students with an interest in childhood obesity prevention, sitting time, or public health. The student should have exceptional interpersonal and communication skills. They should also be self-motivated, with the ability to work independently and have good attention to detail.

Additional skills the student will develop as part of the project: Data analysis skills will be developed with support from supervisors

Project is based at: Burwood

Units that this project most closely aligns to: HSE203, HSE212, HES313, HSE316
40. PROJECT TITLE: WHAT DO PARENTS OF YOUNG CHILDREN THINK ABOUT SCREEN TIME? A QUALITATIVE EXPLORATION OF PARENTS’ VIEWS.

Principal supervisor: Associate Professor Kylie Hesketh

Contact details: kylie.hesketh@deakin.edu.au
                92446812

Co-supervisors: Dr Jill Hnatiuk, Katherine Downing

Supervisor’s area of expertise: A/Prof Kylie Hesketh is a senior researcher in the Institute for Physical Activity and Nutrition (IPAN). Her research centres on public health approaches to the promotion of children’s physical activity, reduced sedentary behaviours, and prevention of obesity. She has a particular focus on providing children with a healthy start to life through the promotion of obesity-preventive behaviours during early childhood and the development of programs with ‘real world’ public health utility. Kylie has supervised many Honours, masters and PhD students to successful completion.

Dr Jill Hnatiuk is a Lecturer in Physical Activity and Health. Her research interests focus on understanding and promoting physical activity in young children (predominantly aged 0-5 years) and their families. In particular, Jill is interested in examining the patterns of physical activity observed in young children as well as investigating the role of the family, community and early learning settings in shaping these behaviours.

Katherine Downing is a researcher in IPAN. Her research centres on sedentary behaviour in early childhood, with a particular focus on how we can best educate and support parents to reduce their children’s sedentary behaviour.

Project description: This project aims to explore the perceptions around screen time of parents of young children (under the age of 2 years). Screens are now ubiquitous in our lives and many devices and Apps are marketed as being educational or beneficial for young children’s development. However, there is currently no evidence that there are any benefits of screen time in early childhood; current guidelines in Australia suggest that children under the age of 2 years should not be exposed to any screen time. There are subsequently conflicting and confusing messages for parents. This study will utilise qualitative research methods to gain an understanding of parents’ perceptions around screen time. The student will be involved in the recruitment of parents and will undertake qualitative interviews or focus groups. This project will give the student a unique opportunity to recruit participants and collect and analyse qualitative data. There is some scope to tailor the project to the student’s interests.
**Skills required by the student:** The student should have exceptional interpersonal and communication skills. They should also be self-motivated, with the ability to work independently and have good attention to detail.

**Additional skills the student will develop as part of the project:** Recruitment of participants, collecting and analysing qualitative data (using NVivo software).

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE203, HSE212, HSE313, HSE316
41. PROJECT TITLE: HEALTH-RELATED RISK FACTORS FOR COGNITIVE IMPAIRMENT IN THE ELDERLY

Principal supervisor: Dr Helen Macpherson

Contact details: helen.macpherson@deakin.edu.au
92445317

Co-supervisor: Dr Rachel Duckham

Supervisor’s area of expertise: Dr Helen Macpherson completed undergraduate studies in Psychology and Psychophysiology. She conducts research on healthy brain ageing, with a focus on dementia prevention. Dr Macpherson is currently leading a randomised controlled trial examining the effects of dietary supplementation combined with physical activity on brain health and cognitive function in older people at risk of dementia. Dr Macpherson has conducted numerous randomised controlled trials to investigate the cognitive and mood effects of nutritional interventions including multivitamins, glucose and whole diet change. Her research investigates mechanisms of action including cardiovascular changes and direct effects on brain function using a range of neuroimaging modalities including EEG and MRI. Dr Rachel Duckham is highly experienced at conducting and analysing DEXA scans and assessing health and physical activity across people of all age ranges.

Project description: Low physical activity is recognised as a risk factor for cognitive decline and dementia. Recent work has indicated that in individuals over the age of 60, those with the lowest participation in physical activity had increased 10 year risk of dementia compared to those with higher physical activity. There is also growing evidence that low physical activity is associated with poorer cognition, even in those without dementia. However, the underlying mechanisms responsible for these associations are uncertain. The aim of this study is to investigate the relationship between cognition and health parameters relevant to a sedentary lifestyle, such as cardiovascular health and body composition. Participants in this study will be older people with subjective memory complaints, which can serve as an early marker of cognitive impairment. The findings from this study will be used to inform the development of targeted interventions designed to benefit brain health in older people.

Methodology: This will be a cross-sectional analysis of baseline data from a larger study examining the effects of exercise training and nutrition on cognitive function in older adults. 150 older adults aged 60-85 year with subjective memory complaints, who regularly participate in less than 150 minutes of exercise per week will be
recruited. Each participant will attend a testing session at Deakin where they will complete a battery of computerised cognitive tests, undergo tests of muscle strength and physical function, along with measures of body composition. Cardiovascular health will also be assessed using a device designed to measure arterial stiffness. The successful student will assist the team in participant recruitment and data collection.

**Skills required by the student:** Excellent communication skills, an interest in promoting healthy ageing, excellent attention to detail and the ability to work as part of a team.

**Additional skills the student will develop as part of the project:** This project will provide experience assessing cognitive and physical function in older people

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE111
42. PROJECT TITLE: I WANT TO GET BACK INTO PHYSICAL ACTIVITY AFTER HAVING A BABY, BUT MY BODY IS JUST NQR.

Principal supervisor: Dr Natalie Saunders

Contact details: natalie.saunders@deakin.edu.au
92468284

Co-supervisors: Dr Luana Main Dr Jason Bonacci

Supervisor’s area of expertise: Natalie Saunders is a lecturer in Clinical Exercise Physiology and is currently also working as an Accredited Exercise Physiologist. Her research interests include neuromuscular control and biomechanics in a functional context, in particular understanding the various loads on the human body that results in injury, prevents injury or is related to the rehabilitation of various structures.

Project description: Returning to physical activity after childbirth is an important for both the health of the mother and baby. This projects aims to understand what physical factors exist that influence a women returning to exercise after childbirth.

Skills required by the student: None

Additional skills the student will develop as part of the project: The data for this study stems from a larger project that is examining the biopsychosocial determinants of women returning to physical activity and exercise after childbirth. This project relies on qualitative data stemming from interviews conducted with post-natal women to identify common themes in the physical capacity for women to return to exercise. The student will be expected to analyse the relevant interview data, conduct analyses and interpret findings of results.

Project is based at: Burwood

Units that this project most closely aligns to: HSE301 Exercise Prescription, HSE323 Clinical Biomechanics, HSE111 Physical Activity for Health
43. PROJECT TITLE: REGULATION AND ROLE OF EXOSOMES IN RESPONSE TO ACUTE EXERCISE

Principal supervisor: A/Prof Glenn Wadley

Contact details: glenn.wadley@deakin.edu.au
92446018

Co-supervisors: Dr Severine Lamon (Deakin), A/Prof Julie McMullen (Baker Institute)

Supervisor’s area of expertise: This project forms one aspect of a larger collaborative project that is being established by the supervisory team. A key focus of A/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 15 Honours students to completion and most of his previous Honours students have been successful in obtaining entry to competitive postgraduate programs including PhD, Medicine and Master of Dietetics. A/Prof Julie McMullen heads the Cardiac Hypertrophy Laboratory at the Baker Heart and Diabetes Institute. Her work is focused on better understanding heart enlargement following exercise or in disease states. Dr Severine Lamon is a world expert in the regulation of muscle adaptations and function by small RNA species.

Project description: This project will provide important insights into the mechanisms that stimulate muscle and other organs such as the heart to adapt to endurance exercise training. The skills students would develop from this Honours project are ideally suited to students wishing to pursue postgraduate study in biomedical or exercise physiology research (such as a PhD) or even medicine.

Mounting evidence suggests that during exercise tissues such as skeletal muscle release factors into the circulation that are bundled up in “exosomes”, which contain nucleic acids and peptides. The release of the exosomes into the circulation is then able to stimulate adaptations to exercise to other organs in the body, especially the heart, and are thus potentially cardio protective.

Healthy active participants will be recruited and first complete a VO2max test. On a separate day they will complete a bout of endurance exercise with blood samples
taken before and after exercise. The exosomes will be isolated from the blood samples and the levels of some of the factors within the exosomes will be measured.

**Skills required by the student:** Course work in exercise physiology/metabolism is required. Coursework in biochemistry and/or molecular biology is an advantage but not necessary. All laboratory techniques will be taught to the student as part of the honours training.

**Additional skills the student will develop as part of the project:** Exercise screening and VO2max testing of healthy volunteers. Laboratory techniques include RNA extraction and real-time PCR analysis. All these techniques will be taught as part of the Honours training.

**Project is based at:** Burwood, with some analysis completed at the Baker Research Institute in Prahran.

**Units that this project most closely aligns to:** HSE201
44. PROJECT TITLE: HOW DOES MUSCLE ADAPT TO ENDURANCE TRAINING?

Principal supervisor: A/Prof Glenn Wadley

Contact details: glenn.wadley@deakin.edu.au
92446018

Co-supervisor: Dr Severine Lamon

Supervisor’s area of expertise: A key focus of A/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 15 Honours students to completion and most of his previous Honours students have been successful in obtaining entry to competitive postgraduate programs including PhD, Medicine and Master of Dietetics. Dr Severine Lamon is a world expert in the regulation of muscle adaptations and function by small RNA species.

Project description: This project will provide important insights into the mechanisms that stimulate muscle to adapt to endurance exercise training. The skills students would develop from this Honours project are ideally suited to students wishing to pursue postgraduate study in biomedical or exercise physiology research (such as a PhD) or even medicine.

Some of the major health benefits of endurance training are increased mitochondrial content (synthesis), antioxidant defences and insulin sensitivity and reduced oxidative stress in skeletal muscle. microRNA are small non-coding ribosomal nucleic acid (RNA) molecules that are expressed in skeletal muscle and are involved in regulating these adaptive responses of muscle to endurance training. Furthermore, we have shown that the expression levels of many microRNA’s are increased following exercise in skeletal muscle of humans. There is now evidence in cell culture that microRNA move (translocate) from the cytosol of the cell to the mitochondria to help stimulate mitochondrial synthesis. Therefore, studies are now required to examine if microRNA’s translocate to the mitochondria in human skeletal muscle following endurance exercise. Healthy active participants will be recruited and first complete a VO2max test. On a separate day they will complete a bout of endurance exercise with muscle biopsies taken before and after exercise. The nuclear, cytosolic and mitochondria fractions of the muscle will be isolated and the microRNA levels measured.
**Skills required by the student:** Course work in exercise physiology/metabolism is required. Coursework in biochemistry and/or molecular biology is an advantage but not necessary. All laboratory techniques will be taught to the student as part of the honours training.

**Additional skills the student will develop as part of the project:** Exercise screening and VO2max testing of healthy volunteers. Laboratory techniques include protein extraction, real-time PCR analysis, western blotting and enzymatic assays. All these techniques will be taught as part of the Honours training.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE210
45. PROJECT TITLE: REGULATION OF GLUCOSE METABOLISM IN RESPONSE TO EXERCISE TRAINING

Principal supervisor: Dr Kirsten Howlett
Contact details: kirsten.howlett@deakin.edu.au 5227 2563
Co-supervisor: Dr Chris Shaw

Supervisor’s area of expertise: 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 to exercise with the aim of providing insight into the role of exercise in the maintenance of good health, and prevention and treatment of disease, in particular insulin resistance and type 2 diabetes.

Dr Chris Shaw is a Senior Lecturer in the School of Exercise and Nutrition Sciences. His research focuses on the physiological and metabolic adaptations to exercise which underpin improvements in sports performance and the health benefits of exercise. He is particularly interested in how acute and chronic exercise influence fat and glucose metabolism in skeletal muscle.

Dr Howlett and Dr Shaw have complementary research interests and skills and have successfully collaborated previously on Honours research projects.

Project description: Exercise training results in adaptations that improve whole body glucose metabolism and physiological processes that underpin the maintenance of health, and prevention and treatment of chronic disease, including insulin resistance and type 2 diabetes.

The extracellular matrix (ECM) is known to provide structural support for tissues, although recent research highlights that enzymatic remodelling of the ECM may be an important adaptation following exercise training that influences metabolic and physiological processes. The aim of this study will be to determine if improvements in whole body glucose metabolism and skeletal muscle adaptations induced by exercise training are regulated by ADAMTS5, an ECM remodelling enzyme. Elucidating the role that ADAMTS5 plays in response to aerobic exercise training could reveal potential benefits for targeting this enzyme for the prevention and treatment of metabolic disease.

Skills required by the student: An interest in the area of exercise physiology, metabolism and/or biochemistry is required. Some experience with analytical
laboratory skills are desirable but not essential. All techniques and skills will be taught as part of honours training.

**Additional skills the student will develop as part of the project:** Aerobic exercise training intervention. Skeletal muscle and blood collection techniques. Laboratory analytical skills and techniques used for measures of whole body glucose metabolism, blood and skeletal muscle energy substrates.

**Project is based at:** Waurn Ponds

**Units that this project most closely aligns to:** HSE320 Exercise in Health and Disease, HSE201 Exercise Physiology, HSE303 Exercise Metabolism
46. PROJECT TITLE: SKELETAL MUSCLE LIPID ACCUMULATION AND INSULIN SENSITIVITY

Principal supervisor: Dr Chris Shaw

Contact details: chris.shaw@deakin.edu.au
5227 3394

Co-supervisor: Dr Kirsten Howlett

Supervisor’s area of expertise: Dr Chris Shaw is a Senior Lecturer in the School of Exercise and Nutrition Sciences. His research focuses on the physiological and metabolic adaptations to exercise which underpin improvements in sports performance and the health benefits of exercise. He is particularly interested in how acute and chronic exercise influence fat and glucose metabolism in skeletal muscle. 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 to exercise with the aim of providing insight into the role of exercise in the maintenance of good health, and prevention and treatment of disease, in particular insulin resistance and type 2 diabetes. Dr Howlett and Dr Shaw have complementary research interests and skills and have successfully collaborated previously on Honours research projects.

Project description: It has long been thought that lipid accumulation in skeletal muscle contributes to the development of insulin resistance. However, in those who are physically active, lipid accumulation in muscle is a training adaptation that actually helps to promote insulin sensitivity. While these paradoxical findings have not been explained, the location of these lipid stores and their interaction with other organelles (e.g. mitochondria) may be more relevant determinants of insulin action than total lipid content.

This project will examine the link between lipid accumulation in skeletal muscle and insulin resistance. Insulin action and aerobic capacity will be assessed and muscle biopsies will be collected from insulin sensitive and insulin resistant individuals. We will then use a combination of high resolution imaging and molecular biology techniques to investigate the content, structure and location of lipid stores, mitochondria and related proteins.

Skills required by the student: An interest in the area of exercise physiology, muscle metabolism and/or biochemistry is required. Some experience with human...
exercise testing and/or analytical laboratory skills are desirable but not essential. All techniques will be taught as part of honours training.

**Additional skills the student will develop as part of the project:** Skeletal muscle biopsies and blood collection techniques. Laboratory skills and techniques used to measure whole body metabolism at rest and during exercise. Laboratory skills and techniques used to visualise skeletal muscle structure and assess protein and gene expression.

**Project is based at:** Waurn Ponds

**Units that this project most closely aligns to:** HSE201 Exercise Physiology, HSE303 Exercise Metabolism, HSE304 Physiology of Sports Performance, HSE320 Exercise Health and Disease
47. PROJECT TITLE: THE ROLE OF PREPARATORY MECHANICS IN MODULATING ANTERIOR CRUCIATE LIGAMENT INJURY RISK DURING LANDING

Principal supervisor: Dr Aaron Fox

Contact details: aaron.f@deakin.edu.au
5227 8777

Co-supervisor: Dr Natalie Saunders

Supervisor’s area of expertise: Dr Aaron Fox is a lecturer in Applied Sports Science and has research 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 two-dimensional ultrasound) and analytical techniques to identify optimal neuromuscular and biomechanical strategies for improving performance and reducing injury risk in sporting movements.

Dr Natalie Saunders is a lecturer in Clinical Exercise Physiology with research expertise in neuromuscular control and biomechanics in a functional context, in particular understanding the various loads on the human body that result in injury.

Project description: Anterior cruciate ligament (ACL) ruptures are one of the most severe sporting injuries an athlete can sustain. The biomechanical strategy an athlete uses to perform high-risk tasks (such as landing and side-step cutting) are inherently linked to their risk of sustaining an ACL injury. Recent work examining side-step cutting has extended this link to the biomechanical strategies used in preparation of the movement. In particular, the positioning of the trunk prior to the cutting movement has been shown to impact the knee loads experienced during the movement. This notion of preparatory mechanics modulating ACL injury risk has yet to be examined during high-risk landing movements, and will hence be the focus of this project. A pre-collected biomechanical dataset of multiple landing tasks will be used to meet the aims of this project.

Skills required by the student: No specific pre-existing skills are required to undertake this project. It is expected the student undertaking this project will have an interest in the role of biomechanics in sports injury prevention.

Additional skills the student will develop as part of the project: In completing this project the student will gain knowledge/skills in the areas of: anterior cruciate
ligament injury in sport; the role of biomechanics in reducing injury risk; and the analytical and statistical techniques used to examine biomechanical data.

**Project is based at:** Waurn Ponds campus, however can be conduct at the Burwood campus.

**Units that this project most closely aligns to:** HSE202 Biomechanics; HSE323 Clinical and Sport Biomechanics; HSE104 Research Methods and Statistics in Exercise and Sport
48. PROJECT TITLE: THE EFFECT OF AEROBIC EXERCISE INTENSITY ON BRAIN PLASTICITY.

Principal supervisor: Dr Ashlee Hendy

Contact details: a.hendy@deakin.edu.au 9244 6221

Co-supervisor: Dr Wei-Peng Teo

Supervisor’s area of expertise: Dr. Ashlee Hendy is a Lecturer in Strength and Conditioning, with a particular interest in the effects of exercise on the brain and nervous system. She conducts research in the field of Exercise Science and Neuroscience, investigating changes in the brain (neuroplasticity) that occur following exercise programs. She uses a variety of non-invasive brain stimulation techniques to influence strength gains, motor performance, cognition and mood. Ashlee specialises in a training-rehabilitation technique known as ‘cross-education’, whereby resistance training of a single limb produces strength gains in the opposite (untrained) muscle group.

Dr Wei-Peng Teo is an exercise neurophysiologist with a keen research focus on motor control and learning. In particular, Dr Teo’s is keen on understanding how the brain controls gait and balance, and more importantly, to develop neuro-rehabilitation strategies to improve motor control in people with Parkinson’s disease (PD) and stroke. Over the last 8 years, Dr Teo specialises in a range of neuroimaging and neurophysiological techniques, which includes functional near-infrared spectroscopy (fNIRS), electroencephalography (EEG), and transcranial magnetic stimulation (TMS). Together, both Drs Hendy and Teo will support the student in the design of the study and with data collection and analysis of TMS results.

Project description: It is well established that resistance training produces adaptive changes in the central nervous system that facilitate performance gains following short-term training programs. Recent evidence has shown that a single bout of aerobic exercise can also produce acute changes in brain excitability and inhibition of the motor cortex, which can be measured directly using non-invasive brain stimulation. These changes create an enhanced environment for neuroplasticity, and have been shown to improve learning of novel fine motor tasks in healthy individuals, as well as in stroke rehabilitation settings. At present, there is no indication as to the optimal intensity to prescribe aerobic exercise in order to facilitate brain plasticity.

This project will involve a randomised, counterbalanced cross-over study to compare the effects of high and low intensity aerobic exercise on plasticity of the motor cortex. The honours student will be responsible for supervising exercise sessions, and
delivering transcranial magnetic stimulation (TMS) to assess function of the central nervous system before and after training.

**Skills required by the student:** This project is suited to a student with skills and knowledge in exercise prescription and motor control

**Additional skills the student will develop as part of the project:** The student will develop skills in the delivery of non-invasive brain and nerve stimulation. Training will include analysis and interpretation of data reflecting neuroplastic changes in the brain. In addition, research skills such as critical analysis of literature, project management, statistical analysis and academic writing will be developed

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE301 Exercise Prescription, HSE204 Motor learning and development
49. PROJECT TITLE: THE ROLE OF INTENDED MOVEMENT VELOCITY IN NEUROMUSCULAR ACTIVATION, POWER AND PERFORMANCE.

Principal supervisor: Dr Ashlee Hendy

Contact details: a.hendy@deakin.edu.au
92446221

Co-supervisors: Dr Eric Drinkwater, Jacob Tober (external supervisor – Core Advantage)

Supervisor’s area of expertise: Dr. Ashlee Hendy is a Lecturer in Strength and Conditioning, with a particular interest in the effects of exercise on the brain and nervous system. She conducts research in the field of Exercise Science and Neuroscience, investigating changes in the brain (neuroplasticity) that occur following exercise programs. She uses a variety of non-invasive brain stimulation techniques to influence strength gains, motor performance, cognition and mood. Ashlee specialises in a training-rehabilitation technique known as ‘cross-education’, whereby resistance training of a single limb produces strength gains in the opposite (untrained) muscle group.

Dr Eric Drinkwater is a senior lecturer of Sports Science and course director for the Master of Applied Sport Science at Deakin University. He completed a PhD at Victoria University (2006) as a research scholar at the Australian Institute of Sport (AIS, 2001 - 05). His research focuses on strength and conditioning of athletes for improved performance and he has published over 50 articles in peer reviewed journals in this area. Professionally, he is an accredited coach with the Australian Strength and Conditioning Association (ASCA), a Certified Strength & Conditioning Specialist (CSCS) with the National Strength and Conditioning Association (NSCA), and a Registered Exercise Professional (REP) through Fitness Australia.

Jacob Tober is a strength and conditioning coach at Core Advantage Athletic Development. Jacob’s primary focus is staff and intern education via ongoing translation of research to practice in strength and conditioning. Core Advantage is a private company specialising in training athletes aged 12 and up from all sports to improve their overall athleticism, movement skill, and durability. Jacob is especially interested in motor learning and skill acquisition (particularly related to agility, and sprinting) along with innovative power and strength training methodologies.
**Project description:** The movement velocity employed during resistance training is known to influence the outcomes of a training program. To maximise the development of muscular power, high movement velocities are prescribed in order to achieve velocity-specific performance gains. To enable higher movement velocity, the load or resistance used for each repetition is often reduced significantly, which may act inhibit optimal physiological adaptations. There is some evidence to indicate that the **intended**, rather than actual movement velocity, may influence gains in muscular strength and power. It has been suggested that high intended movement velocity increases recruitment of motor units and neuromuscular drive, however direct evidence to support this is limited.

This research project will involve a randomised controlled trial, comparing traditional heavy-load training methods, with a high intended movement velocity program. Participants with recreational strength training experience will be recruited to complete the 4 week resistance training intervention, to be managed and supervised by the honours student. Outcome measures will include muscular strength, power and functional performance measures, as well as neuromuscular adaptations assessed with non-invasive brain and nerve stimulation.

**Skills required by the student:** This project is suited to a student with skills and knowledge in strength and conditioning, exercise prescription and motor control.

**Additional skills the student will develop as part of the project:** The student will develop skills in the delivery of non-invasive brain and nerve stimulation, testing for muscular power and performance, as well as interpretation of this data. In addition, research skills such as critical analysis of literature, project management, statistical analysis and academic writing will be developed.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE302 Exercise Programming, HSE204 Motor learning and development
50. PROJECT TITLE: IS THE MAGNITUDE OF THE CORTISOL RESPONSE TO PSYCHOSOCIAL STRESS INFLUENCED BY A POLYMORPHISM IN THE CYP17 GENE?

Principal supervisor: Dr Anne Turner

Contact details: anne.turner@deakin.edu.au
92446950

Co-supervisor: Dr Craig Wright

Supervisor’s area of expertise: Dr Anne Turner’s research investigates the physiology and endocrinology of stress and its impact on human health. In particular, she is interested in factors (such as diet and exercise) that influence cortisol, adrenaline, noradrenaline, heart rate and blood pressure responses to psychological stress and the consequences for human health.

Project description: We have collected data on the cortisol response to psychological stress in women (n=35) aged 30-50 years. Furthermore, we have recently completed genetic analysis for a polymorphism of the CYP17 gene which is responsible for coding an enzyme in the pathway of synthesis of cortisol. In this project, the student will review the existing literature around the influence of genetic polymorphisms on the cortisol stress response. They will then use our existing data to test the hypothesis that a genetic polymorphism in the CYP17 gene influences the cortisol stress response. This project will involve a substantial component of statistical analysis of quantitative data. We intend to publish this study in an international peer-reviewed scientific journal and the honours student undertaking this project will likely be offered a lead authorship role towards publishing the paper.

Skills required by the student: This project would suit a student who is well organised and has an interest in research. A basic level of skills in searching the literature, managing data, data analysis and scientific writing is sufficient.

Additional skills the student will develop as part of the project: This project would suit a student who is well organised and has an interest in research. A basic level of skills in searching the literature, managing data, data analysis and scientific writing is sufficient.

Project is based at: Burwood

Units that this project most closely aligns to: HBS109 - Human Structure and Function, HSE208 - Integrated Human Physiology.
PROJECT TITLE: LEADERSHIP PATHWAYS IN SPORT: THE FEMALE YOUTH EXPERIENCE (COACHING AND OFFICIATING).

Principal supervisor: Dr Julia Walsh

Contact details: julia.walsh@deakin.edu.au
92468729

Co-supervisor: Dr. Fraser Carson

Supervisor’s area of expertise: Dr Julia Walsh
Julia is a senior lecturer in sport coaching on the Burwood campus. Her expertise is in coach expertise, education, communication, and mentoring. She is a member of the Deakin Women in Sport and Exercise (WISE) hub with a research interest in female leadership in sport. She has been instrumental in shaping coach education macro structures in the UK. Current research includes understanding issues of health and wellbeing in a sport coaching population, and coach education signature pedagogies.

Dr Fraser Carson
Fraser is a lecturer in sport coaching, with over fifteen years delivering coach education and psychological skills training to high performance athletes and coaches. He has previously been employed as performance psychologist, providing mental skills training, with a number of professional teams, coaches and athletes. He has a strong research background with a number of publications in performance psychology, mental toughness, wellbeing, stress and coping, and coach education.

Project description: “If I can't see me in the role, I can't see me”
In the last decade women’s participation in sport has attracted government and media attention. Funding and visibility have influenced community awareness and consciousness about the right for women of all ages and abilities to participate in sport. The recent increase and recognition of women’s sport participation has not been matched by women’s leadership positions in coaching and officiating. In the 2012 London Olympics Australia sent a contingent of 84 coaches of which 12 were women, no improvement was observed in the 2014 Commonwealth games with 84 coaches 9 of which were women and none in swimming and hockey, the figures were similar for team managers, no figures were available for officials (Norman, 2014). Well-intentioned efforts to address this problem have largely focused on developing the qualifications and skills of women entering the coaching profession. Yet, although the number of coaching positions and the number of women qualified to fill them is higher than ever, women are still locked out of the coaching profession (Kane, 2016), particularly in positions of power. Fox (1999) highlights the importance of role models,
if there is no visibility of women in sport leadership roles, or they are a novelty, it is difficult for other women to see or navigate a pathway. This research investigates how female youth in leadership roles (coaching and officiating) perceive their experiences (barriers and enablers) and visualise and navigate future roles. A mixed methodology will be used to investigate the phenomena which involves coaches and officials completing a survey and participation in an interview. This research fills a gap in the leadership literature that is yet to explore female youth, leadership roles, and pathway navigation in sport.


**Skills required by the student:** Some knowledge of analysing quantitative survey tools would be useful but not essential

**Additional skills the student will develop as part of the project:** Qualitative data analysis, Interview skills

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE 205, HSE 305
52. PROJECT TITLE: MENTAL TOUGHNESS, SELF-EFFICACY AND MOTIVATION IN COMPETITIVE TRIATHLETES

Principal supervisor: Dr Fraser Carson

Contact details: f.carson@deakin.edu.au 52272388

Co-supervisor: Dr Peter Kremer

Supervisor’s area of expertise: Dr Fraser Carson
Fraser is a lecturer in sport coaching, with over fifteen years delivering coach education and psychological skills training to high performance athletes and coaches. He currently provides psychological support for the Deakin Melbourne Boomers. He has previously been employed as performance psychologist, providing mental skills training, with a number of professional teams, coaches and athletes. He has a strong research background with a number of publications in performance psychology, mental toughness, wellbeing, stress and coping, and coach education.

Dr Peter Kremer
Peter is a senior lecturer in sport and exercise behavior with the School of Exercise and Nutrition Sciences based at the Waurn Ponds Campus. He has extensive research experience, broad knowledge and skills in academic and applied sport and exercise psychology and expert knowledge of both quantitative and qualitative research methods.

Project description: Mental toughness refers to an individual’s resilience and inner drive to succeed – especially in challenging situations. It is a collection of values, attitudes, behaviours and emotions that enable a performer to persevere and overcome obstacles, adversity or pressure (Nicholls et al., 2015). Further it is the ability to maintain concentration, focus and motivation when things are going well to consistently achieve goals (Gucciardi & Gordon, 2011). There are some key characteristics of mentally tough individuals (Clough et al. 2002): a) the capacity to remain calm and relaxed; b) to regulate lower anxiety levels; c) higher levels of self-belief; d) an inner confidence that they will be successful; and e) a capacity to remain unaffected by competition or adversity.

There are over 12,000 individual members of Triathlon Australia and over 185 triathlon clubs affiliated with the organisation. There are also over 120 sanctioned triathlon events in Victoria each year, with participation numbers rapidly increasing each year. However, there is little evidence about the factors that motivate and drive people to participate in triathlon racing. The purpose of this study is to explore elite junior and competitive senior triathletes’ mental toughness, the belief in their ability and levels of intrinsic and extrinsic motivation. Participants will be recruited with the assistance of Triathlon Victoria. All participants will complete an online survey that includes three
standardised questionnaires in order to assess their mental toughness, self-efficacy and motivation. Mental toughness will be assessed using the 48-item Mental toughness Questionnaire (MTQ48). The 10-item General Self-Efficacy Scale (GSE) will be used to assess self-efficacy and the Sport Motivation Scale-6 (SMS-6) will be used to assess sport motivation in the present study. Descriptive analysis will be conducted on these responses, followed by a regression analysis to establish relationships among variables.

**Skills required by the student:** Some knowledge of analysing quantitative survey tools would be useful but not essential

**Additional skills the student will develop as part of the project:** Understanding of quantitative methodology and statistical analysis

**Project is based at:** Waurn Ponds

**Units that this project most closely aligns to:** HSE309 Behavioural Aspects of Sport and Exercise
53. PROJECT TITLE: DISCOURSE ANALYSIS OF COACH EDUCATION IN INDIVIDUAL SPORTS

Principal supervisor: Dr Fraser Carson

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52272388

Co-supervisor: Dr Julia Walsh

Supervisor’s area of expertise: Dr Fraser Carson
Fraser is a lecturer in sport coaching, with over fifteen years delivering coach education and psychological skills training to high performance athletes and coaches. He currently provides psychological support for the Deakin Melbourne Boomers. He has previously been employed as performance psychologist, providing mental skills training, with a number of professional teams, coaches and athletes. He has a strong research background with a number of publications in performance psychology, mental toughness, wellbeing, stress and coping, and coach education.

Dr Julia Walsh
Julia is a senior lecturer in sport coaching on the Burwood campus. Her expertise is in coach expertise, education, communication, and mentoring. She is a member of the Deakin Women in Sport and Exercise (WISE) with a research interest in female leadership in sport. She has been instrumental in shaping coach education macro structures in the UK. Current research includes understanding issues of health and wellbeing in a sport coaching population, and coach education signature pedagogies

Project description: The purpose of this research is identify what “knowledges” currently reflect effective coaching in key coach education resources across three individual sports (Tennis; Swimming; Gymnastics). Utilising a critical discourse analysis, the research will focus on assumptions about what it is to be an effective coach and what choices coaches have to know about being an effective coach within their sport. Coach education is critical to the provision of high-quality athlete outcomes. Despite research noting the limitations to formal learning experiences, coach education programs have had little development across the years. Therefore, this research is essential to identify which knowledges are privileged by sports both implicitly and explicitly and how that impacts on the [re]production of what it is to be an effective coach.

Discourse is the social and cognitive process of putting the world into words, of transforming our perceptions, experiences, emotions, understandings, and desires into a common medium for expression and communication, through language and other semiotic resources (Strauss & Feiz, 2013). In this project we are interested in
examining what constitutes effective coaching as reflected in the material provided to attendants of these coaching qualifications. We are focusing on understanding what key knowledges are currently shaping coach education programs

**Skills required by the student:** Some knowledge of formal coach development processes would be beneficial

**Additional skills the student will develop as part of the project:** Critical thinking and interpretation. Understanding of the influence of language on pedagogy

**Project is based at:** Waurn Ponds

**Units that this project most closely aligns to:** HSE309 Behavioural Aspects of Sport and Exercise, HSE305 Issues in Sport Coaching
54. PROJECT TITLE: SPORT OFFICIALS MENTAL HEALTH AND WELLBEING

Principal supervisor: Dr Fraser Carson

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52272388

Co-supervisor: Dr Julia Walsh

Supervisor’s area of expertise: Dr Fraser Carson
Fraser is a lecturer in sport coaching, with over fifteen years delivering coach education and psychological skills training to high performance athletes and coaches. He currently provides psychological support for the Deakin Melbourne Boomers. He has previously been employed as performance psychologist, providing mental skills training, with a number of professional teams, coaches and athletes. He has a strong research background with a number of publications in performance psychology, mental toughness, wellbeing, stress and coping, and coach education.

Dr Julia Walsh
Julia is a senior lecturer in sport coaching on the Burwood campus. Her expertise is in coach development, communication, female leadership in sport and mentoring. She has been instrumental in shaping coach education macro structures in the UK. Current research includes understanding issues of health and wellbeing in a sport coaching population, and coach education signature pedagogies.

Project description: Despite the increase in resources within sport designed to focus on mental health and wellbeing, sports officials as a population have been relatively overlooked. There is an expectation for officials to continuously perform at a high level and make correct and quick decisions, while under intense pressure and fatigue. Currently no provision is made for them to manage their own mental health and wellbeing. Further little support is made from the sporting organizations to ensure they are able to continually perform at their peak. The official’s role is generally highly stressful and under constant scrutiny from a wide range of sources (athletes; coaches; spectators; media). In order to allow for officials to constantly perform at their best we need to provide opportunity for them to 1) manage their own mental health and wellbeing; and 2) be supported by their organisation in promoting positive mental health initiatives. The focus of this project is to provide the first stage of this assessment and to obtain an understanding of the psychological and social factors that impact officials’ mental health and wellbeing.
Participants will complete an online survey questionnaire that will include a number of validated scales. An overall measure of wellbeing will be measured using the Warwick-Edinburgh Mental Wellbeing Scale (WEMWS); Ryff's Psychological Well-Being Scale (PWB) will be used to measure social and psychological measures of health related behaviours; and engagement and burnout will be measured using the Areas of Work Life Scale (AWLS). Initially a descriptive analysis will be conducted to examine the main findings in relation to psychological and social factors that impact sport officials’ mental health and wellbeing, followed by a subgroup analysis to identify differences between sports, experience, and level of performance.

**Skills required by the student:** Some knowledge of analysing quantitative survey tools would be useful but not essential

**Additional skills the student will develop as part of the project:** Understanding of quantitative methodology and statistical analysis

**Project is based at:** Waurn Ponds

**Units that this project most closely aligns to:** HSE309 Behavioural Aspects of Sport and Exercise, HSE305 Issues in Sport Coaching
55. PROJECT TITLE: THE ACUTE EFFECTS OF CLUSTER TRAINING ON MUSCULAR POWER AND ACTIVATION.

Principal supervisor: Dr Simon Feros

Contact details: simon.feros@deakin.edu.au
5247 9723

Co-supervisor: Dr. Eric Drinkwater

Supervisor's area of expertise: Dr Simon Feros completed his PhD on “The determinants and development of fast bowling performance in cricket”. This involved assessment of physical capacities, biomechanics, and fast bowling performance, but also a training intervention and a warm-up study exploiting the post-activation potentiation phenomenon. Simon’s primary research interest area is the acute and chronic enhancement of strength, power, and speed to enhance sports performance, particularly in cricket fast bowlers.

Dr Eric Drinkwater is a senior lecturer of Sports Science and course director for the Master of Applied Sport Science at Deakin University. He completed a PhD at Victoria University (2006) as a research scholar at the Australian Institute of Sport (AIS, 2001 - 05). His research focuses on strength and conditioning of athletes for improved performance and he has published over 50 articles in peer reviewed journals in this area. Professionally, he is an accredited coach with the Australian Strength and Conditioning Association (ASCA), a Certified Strength & Conditioning Specialist (CSCS) with the National Strength and Conditioning Association (NSCA), and a Registered Exercise Professional (REP) through Fitness Australia.

Project description: To maximise athletes’ adaptation to strength / power training, the training stimulus should be maximised too. This project will involve an exploration into cluster training protocols and their effectiveness in maximising muscular power within an acute training session. While cluster sets have previously been demonstrated to elicit superior force and power output than traditionally designed sets, optimising cluster design has not been specifically explored. Participants will complete 4 sessions in a randomised order, with each session involving a standardised warm-up, followed by a training protocol (3 cluster training protocols, 1 control protocol). Movement kinetics will be assessed during each training protocol via GymAware and force plate while muscle activation will be assessed using EMG

Skills required by the student: No mandatory skills required.
**Additional skills the student will develop as part of the project:** Exercise prescription and delivery
EMG set-up and data analysis
GymAware and force plate set-up and data analysis
Magnitude-based statistics and interpretation of smallest worthwhile change data

**Project is based at:** Waurn Ponds

**Units that this project most closely aligns to:** HSE302 – Exercise Programming
HSE304 – Physiology of Sports Performance
56. PROJECT TITLE: CAN LOWER-BODY WARM-UP ACTIVITIES POTENTIATE FAST BOWLING PERFORMANCE?

Principal supervisor: Dr Simon Feros

Contact details: simon.feros@deakin.edu.au  
5247 9723

Co-supervisor: Dr. Jackson Fyfe

Supervisor’s area of expertise: Dr Simon Feros completed his PhD on “The determinants and development of fast bowling performance in cricket”. This involved assessment of physical capacities, biomechanics, and fast bowling performance, but also a training intervention and a warm-up study exploiting the post-activation potentiation phenomenon. Simon’s primary research interest area is the acute and chronic enhancement of strength, power, and speed to enhance sports performance, particularly in cricket fast bowlers. His latest research is exploring the acute effects of heavy- and light-ball bowling on fast bowling performance.

Dr. Jackson Fyfe completed his PhD investigating strategies to maximise strength gain and muscle growth during combined strength and endurance training. He has a general interest in practical strategies to maximise adaptations to exercise training, and understanding the molecular bases for training adaptation in skeletal muscle. He also has an interest in the efficacy of exploiting postactivation potentiation for improving training and competition performance.

Project description: This project is investigating the efficacy of lower-body warm-up exercises on fast bowling performance. Fast bowlers will complete 3-4 sessions, with each session involving a warm-up and a fast bowling test. A specific component of the warm-up will be manipulated in the study; being the lower-body “conditioning activity” that is designed to elicit post-activation potentiation. Run-up velocity and bowling-arm shoulder acceleration will also be measured during performance assessment as two basic kinematic variables to partially explain changes in acute fast bowling performance with different warm-up strategies.

Skills required by the student: No mandatory skills required.

Additional skills the student will develop as part of the project: Exercise prescription, testing, and delivery  
Radar gun operation and data analysis  
Accelerometer operation and data analysis  
Video analysis and measurement of fast bowling performance  
Magnitude-based statistics and interpretation of smallest worthwhile change data
Project is based at: Waurn Ponds

Units that this project most closely aligns to: HSE304 – Physiology of Sports Performance
57. PROJECT TITLE: INVESTIGATION INTO CHILDREN’S AND PARENT’S HOME-BASED SEDENTARY BEHAVIORS

Principal supervisor: Alfred Deakin Professor Anna Timperio

Contact details: anna.timperio@deakin.edu.au
925 17244

Co-supervisors: Dr Lauren Arundell and Dr Harriet Koorts

Supervisor’s area of expertise: Professor Anna Timperio is an Alfred Deakin Professor and National Heart Foundation Future Leader Fellow within the Institute for Physical Activity and Nutrition (IPAN). Her PhD was in behavioural epidemiology and she has 20 years of experience within this field. Prof Timperio’s research expertise centres on examining the contextual (individual, social and environmental) influences on children’s and adult’s health behaviours, and evaluation of behaviour change interventions in a variety of settings (e.g. schools, homes, workplaces etc). Prof Timperio has won numerous awards for her contributions to research, including excellence awards and an international engagement award. She is a Thomson Reuters Highly Cited Researcher, highlighting the influence her research has had on the field. Prof Timperio has extensive experience supervising honours and PhD students over the last 15 years.

Dr Lauren Arundell is a Postdoctoral Research Fellow within IPAN. Her research focusses on the measurement of physical activity and sedentary behaviours and developing and evaluating interventions that promote health enhancing behaviours.

Dr Harriet Koorts is a Postdoctoral Research Fellow within IPAN. Her research focuses on the implementation and evaluation of physical activity and sedentary behaviour interventions at a population level.

Project description: Across the lifespan, most people spent too much time being sedentary (sitting). Excessive time spent sitting has been linked to a range of poor health outcomes. The home setting is an important but under-studied environment in which sedentary behaviours take place. Both parents and adults spend considerable time at home, and while much of this time may be spent sedentary, the actual behaviours performed (i.e. TV viewing, internet use, reading) and factors that promote or discourage them are not well understood. Interventions to date have typically been delivered through schools and have had limited success in changing behaviours within the home-setting, partly due to this poor understanding.

This project will involve secondary data analysis from The SIT Study, an online survey of home-based sedentary behaviours among children and their parents. Approximately 500 parents of children aged 8-16 years and 100 children aged 13-16 years will complete an online survey in 2017. Within this survey, participants will
provide information about the sedentary behaviours they perform at home, the correlates (i.e. enablers/barriers) of these behaviours and information about how they may change their behaviour within this setting. The rich data provide a unique opportunity to examine the behaviours and correlates of both children and their parents within the home setting. A number of research questions could be addressed.

**Skills required by the student:** Students with an interest in sedentary behaviours, population health promotion, and/or sedentary behaviour interventions would be suited for this project.

The student should have basic skills in quantitative methodology, and an ability to work as part of a research team.

**Additional skills the student will develop as part of the project:** The student will develop skills in the conceptualization of research questions, appraising research evidence, data management, quantitative statistical analysis, and advanced academic writing. They will develop skills in the use of Stata software for statistical analyses.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HBS107-Understanding Health
HBS110-Health Behaviour, HSE111-Physical Activity and Exercise for Health,
HSE203- Exercise Behaviour
58. PROJECT TITLE: INVESTIGATING THE IMPLEMENTATION OF A SCHOOL-BASED PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR INTERVENTION.

Principal supervisor: Prof Jo Salmon

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925 17254

Co-supervisors: Dr Harriet Koorts and Dr Jenny Veitch

Supervisor’s area of expertise: Prof Jo Salmon is an Alfred Deakin Professor and holds a NHMRC Principal Research Fellowship. She is Co-Director of the Institute for Physical Activity and Nutrition with more than 65 academic members of staff, and is the past President of the International Society for Behavioural Nutrition and Physical Activity (ISBNPA) which has more than 600 members. She completed her PhD on the behavioural epidemiology of sedentary behaviour. Her expertise is in the development of interventions to promote children’s physical activity and reduce sedentary behaviour.

Dr Harriet Koorts is a Postdoctoral Research Fellow within the Institute for Physical Activity and Nutrition (IPAN). Her research focuses on the implementation and evaluation of school-based physical activity and sedentary behaviour interventions at a population level. Harriet has experience conducting mixed method research and has both research and practice based experience implementing and evaluating health promotion initiatives in Australia and the UK.

Dr Jenny Veitch is a Senior Research Fellow within the Institute for Physical Activity and Nutrition (IPAN). Her research examines neighbourhood influences on physical activity and sedentary behaviour across the lifespan. She has experience with qualitative and quantitative research methodologies including conducting one-on-one interviews and focus groups and using NVivo to analyse data.

Project description: Schools are an ideal setting in which to target healthy levels of physical activity and sedentary behaviour, as children spend a considerable amount of time in this environment and schools provide access to large populations of children. Whilst the school setting is opportunistic, health improvement is one of a many competing demands schools face in addition to curriculum pressures and academic outcomes. Research shows that the perceived relevance, appropriateness and feasibility of interventions are linked to individual’s decisions to adopt and consistently deliver them over time. Understanding what makes interventions appropriate and sustainable within school settings, will help researchers develop more effective interventions aimed at improving child health.

This project uses mixed method data collected as part of an 8 month pilot study (Jan-Aug 2017), involving five primary schools who delivered a school-based physical
activity and sedentary behaviour intervention - *Transform-Us!* This project will use quantitative data from an online teacher survey and qualitative data from semi-structured teacher telephone interviews to investigate teacher implementation (i.e. how frequently they delivered the intervention) and the barriers and facilitators they faced. The student will analyse the survey data using StataSE 14 and code the interview data using NVivo11, which will then be analysed using a triangulation method.

**Skills required by the student:** Students with an interest in either the implementation of interventions, population health promotion, physical activity/sedentary behaviour, and a background in exercise science, health science or health promotion would be suited for this project. Applicants should have basic skills in quantitative and qualitative methodology, an interest in developing their research skills, and an ability to communicate effectively with a variety of audiences. Further training and support will be provided.

**Additional skills the student will develop as part of the project:** By completing this project, the student will develop and enhance their skills in data management, qualitative and quantitative methodologies (including important mixed methodology techniques such as data triangulation) and academic writing.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE313 Children’s Physical Activity and Sport, HSE212 Physical Activity Promotion and Evaluation, HSE111 Physical Activity and Exercise for Health, HSE104 Research Methods and Statistics in Exercise and Sport.
59. PROJECT TITLE: THE INFLUENCE OF ONE NIGHT OF SLEEP DEPRIVATION ON THE MUSCLE’S BIOLOGICAL CLOCK

Principal supervisor: Dr Severine Lamon

Contact details: severine.lamon@deakin.edu.au
                  9244 5571

Co-supervisors: A/Prof Brad Aisbett and Dr Jackson Fyfe

Supervisor’s area of expertise: Dr Severine Lamon is a Senior Lecturer with expertise in skeletal muscle physiology, molecular biology and biochemistry. Her main research interest is to understand the physiological and cellular mechanisms underlying skeletal muscle health and disease.

A/Prof Brad Aisbett's research investigates interactions between the physical activity, sleep and physiology of shiftworkers. He conducts laboratory and field trials to understand how irregular work and sleep patterns influence workers’ physical activity at work, and how exercise (and training) can be used to improve the health and safety of shiftworkers.

Dr Jackson Fyfe’s main research interests include the cellular basis for skeletal muscle adaptations to exercise and disease, and practical strategies to optimise adaptations to exercise interventions, with relevance to improvements in both health and performance.

Project description: Sleep is fundamental for human health. However, insufficient sleep is a global epidemic, and 45% of Australians sleep less than 7 h per night. The health risks associated with shortened sleep are severe. Sleeping 4-7 h per night increases the relative risks of type 2 diabetes, obesity, coronary heart disease and all-cause mortality. Skeletal muscle is the largest tissue of the body. On the top of allowing the body to maintain posture and perform movements, it plays a major role in energy metabolism and nutrient storage. However, the effects of suboptimal sleep on the structure and function of this important organ, and how this contributes to whole-body metabolic dysfunctions, are unknown. Twelve human participants underwent a night of complete sleep deprivation. On the following day, muscle samples were collected at rest as well as following an acute bout of resistance exercise. One month later, the same protocol was repeated but following a normal night at home. The “clock” genes are the molecular switches that regulate the muscle biological clock. Disrupting the expression of these genes prevents the muscle to grow and function normally. This project will investigate the expression of the muscle “clock” genes following a complete night of sleep deprivation in humans, and compare how this relates to the control condition.
Skills required by the student: The student should have an interest in the areas of sleep and/or biochemistry and/or skeletal muscle. Some analytical laboratory skills are also desired by not essential, as all techniques will be taught as part of honours training. Strong organisational skills and attention to detail in writing, data analysis are required.

Additional skills the student will develop as part of the project: By completing this project, the student will become proficient in standard molecular cell biology techniques. They will also develop their data analysis, basic statistics and writing skills.

Project is based at: Burwood

Units that this project most closely aligns to: HSE303 Exercise Metabolism
HSE208 Integrated Human Physiology
60. PROJECT TITLE: CREATING BETTER PARKS: UNDERSTANDING INFLUENCES ON PARK DESIGN

Principal supervisor: Dr Jenny Veitch

Contact details: jenny.veitch@deakin.edu.au
                 9251-7723

Co-supervisor: Dr Harriet Koorts

Supervisor's area of expertise: Dr Jenny Veitch is a Senior Research Fellow within the Institute for Physical Activity and Nutrition (IPAN). Her research examines neighbourhood influences on physical activity and sedentary behaviour across the lifespan. She has a particular focus on how to design public open spaces, such as parks and urban green spaces to maximise opportunities for people to be active.

Dr Harriet Koorts is a Research Fellow within the Institute for Physical Activity and Nutrition (IPAN). Her research focuses on the implementation and evaluation of physical activity and sedentary behaviour interventions at a population level. She is interested in studies conducted in ‘real-world’ settings and effective ways of translating research into practice and policy. Harriet has both research and practice based experience implementing and evaluating health promotion initiatives in Australia and the UK.

Project description: Parks are a key component of liveable cities and an important public resource providing opportunities for people of all ages to engage in physical activity, connect socially with family and friends, and have contact with nature. However, parks are generally under-utilised and most park visitors engage in low levels of physical activity. To maximise use of these valuable public resources, parks must be designed or modified to be appealing and beneficial for people of all ages. However, little research exists to inform park design for people across the lifespan or to understand considerations for decision making and strategies for translating evidence into policy/practice.

This project will be nested within a 3-year ARC Discovery Project, “ProjectPARK”. As part of this ARC funded project, stakeholders from various groups (i.e. landscape architects, local city councils etc.) participated in one-on-one face-to-face qualitative key informant interviews to: 1) explore their perceptions of park characteristics that encourage or discourage park visitation, park-based physical activity and social interactions for different life stages; 2) understand factors that contribute to decision-making and design of new parks; and 3) explore potential strategies for translating
evidence regarding important park characteristics into policy and planning practice (e.g. forums, website tools, summary documents). This Honours project will utilise qualitative data that was collected from these stakeholder interviews.

In this project, the student will address only one aspect of these interviews: 1) influences of park characteristics, 2) factors contributing to decision-making and park design, or 3) strategies for evidence translation. The student will be required to code and qualitatively analyse the data related to the chosen aspect. This project would suit applicants with a background in exercise science, health science, health promotion, or landscape architecture and have an interest in the built environment and physical activity, and translation of evidence into policy and planning practices.

**Skills required by the student:** Applicants should have an interest in developing their research skills and be able to communicate effectively with a variety of audiences. Further training and support will be provided.

**Additional skills the student will develop as part of the project:** By completing this project, the student will develop skills that will be applicable to many vocations. They will gain valuable research experience and acquire knowledge/skills in literature searching, qualitative analyses, independent learning, writing and presentation skills, analytical and critical thinking skills, and self management (i.e. time management and organizational skills). The project is of relevance to the work of numerous key community groups and stakeholders including Parks Victoria, local councils, Parks and Leisure Australia, landscape architects and park designers

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HBS107-Understanding Health, HBS110-Health Behaviour, HSE111-Physical Activity and Exercise for Health, HSE203- Exercise Behaviour, HSE212 Physical Activity Promotion and Evaluation
61. PROJECT TITLE: PARKS: DESIGNING SPACES FOR ACTIVE USE

Principal supervisor: Dr Jenny Veitch

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9251-7723

Co-supervisors: Alfred Deakin Professor Anna Timperio, Dr Lauren Arundell

Supervisor’s area of expertise: Dr Jenny Veitch is a Senior Research Fellow within the Institute for Physical Activity and Nutrition (IPAN). Her research examines neighbourhood influences on physical activity and sedentary behaviour across the lifespan. She has a particular focus on how to design public open spaces, such as parks and urban green spaces to maximise opportunities for people to be active.

Professor Anna Timperio is an Alfred Deakin Professor and National Heart Foundation Future Leader Fellow within the Institute for Physical Activity and Nutrition (IPAN). Her PhD was in behavioural epidemiology and she has 20 years of experience within this field. Prof Timperio’s research expertise centres on examining the contextual (individual, social and environmental) influences on children’s and adult’s health behaviours, and evaluation of behaviour change interventions in a variety of settings (e.g. schools, homes, workplaces etc). Prof Timperio has won numerous awards for her contributions to research, including excellence awards and an international engagement award. Prof Timperio has extensive experience supervising Honours and PhD students over the last 15 years.

Dr Lauren Arundell is a Postdoctoral Research Fellow within IPAN. Her research focusses on the measurement of physical activity and sedentary behaviours and developing and evaluating interventions that promote health enhancing behaviours.

Project description: Physical inactivity is a global epidemic and the fourth leading cause of non-communicable deaths worldwide. Parks are a key component of liveable cities and an important public resource providing opportunities for people of all ages to engage in physical activity, connect socially with family and friends, and have contact with nature. However, parks are generally under-utilised and most park visitors engage in low levels of physical activity in parks. To maximise use of these valuable public resources, parks must be designed or modified to be appealing and beneficial for people of all ages. However, little research exists to inform park design for people across the lifespan.
This Honours project will be nested within a 3-year ARC Discovery Project, “ProjectPARK”. The project is investigating which park features influence park visitation, park-based physical activity and social connectedness among children, adolescents, and older adults. As part of ProjectPARK, walk-along interviews will be conducted in parks with children, adolescents and older-adults.

This Honours project will utilise qualitative data collected from these walk-along interviews. The student will be able to choose which of the three age groups they wish to focus on. They will code and analyse data with the aim of understanding factors influencing park design for one particular age group. This project would suit applicants with a background in exercise science, health science, health promotion, or landscape architecture and have an interest in the built environment and physical activity.

**Skills required by the student:** Applicants should have an interest in developing their research skills and be able to communicate effectively with a variety of audiences. Further training and support will be provided.

**Additional skills the student will develop as part of the project:** By completing this project, the student will develop skills that will be applicable to many vocations. They will gain valuable research experience and acquire knowledge/skills in literature searching, qualitative analyses using NVivo, independent learning, writing and presentation skills, analytical and critical thinking skills, and self management (i.e. time management and organizational skills). The project is of relevance to the work of numerous key community groups and stakeholders such as Parks Victoria, local councils, Parks and Leisure Australia, landscape architects and park designers.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HBS107-Understanding Health  
HBS110-Health Behaviour  
HSE111-Physical Activity and Exercise for Health,  
HSE203- Exercise Behaviour
62. PROJECT TITLE: THE EFFECT OF SURFING ON MOOD AND MENTAL HEALTH AND WELLBEING

Principal supervisor: Dr Peter Kremer

Contact details: peter.kremer@deakin.edu.au
52273396

Co-supervisor: Dr Fraser Carson

Supervisor’s area of expertise: Dr Peter Kremer. Peter is a senior lecturer in sport and exercise behaviour with the School of Exercise and Nutrition Sciences based at the Waurn Ponds Campus. He has extensive research experience, broad knowledge and skills in academic and applied sport and exercise psychology and expert knowledge of both quantitative and qualitative research methods.

Dr Fraser Carson. Fraser is a lecturer in sport coaching, with over fifteen years delivering coach education and psychological skills training to high performance athletes and coaches. He has a strong research background with publications in performance psychology, mental toughness, wellbeing, stress and coping, and coach education.

Project description: Evidence indicates that physical activity and exercise provides a range of psychological benefits. Other evidence indicates enhanced mental health and wellbeing is associated with natural environments – a ‘green space’ effect. Surfing is a popular leisure time activity performed in the natural ocean environment. Anecdotally, surfers report a number of positive psychological effects (e.g. enhanced positive mood) following surfing and internationally a number of programs now use surfing as an activity to facilitate promote positive mental health. This project will empirically examine exercise-induced mood alteration following a single bout of surfing. It will also examine the time course of such effects over a 24 hour period post-exercise as well as on general mental health and wellbeing states.

Skills required by the student: Some knowledge of managing and analysing quantitative data would be useful but not essential

Additional skills the student will develop as part of the project: Survey data collection skills
Field research skills
Quantitative data management and analysis skills

Project is based at: Waurn Ponds
Units that this project most closely aligns to: HSE309 Behavioural Aspects of Sport and Exercise
63. PROJECT TITLE: LOSS, RESILIENCE AND PERSONAL GROWTH: EXPERIENCES FOLLOWING MULTIPLE ACL INJURIES

Principal supervisor: Dr Peter Kremer

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52273396

Co-supervisors: Dr Fraser Carson

Supervisor’s area of expertise: Dr Peter Kremer
Peter is a senior lecturer in sport and exercise behavior with the School of Exercise and Nutrition Sciences based at the Waurn Ponds Campus. He has extensive research experience, broad knowledge and skills in academic and applied sport and exercise psychology and expert knowledge of both quantitative and qualitative research methods.

Dr Fraser Carson
Fraser is a lecturer in sport coaching, with over fifteen years delivering coach education and psychological skills training to high performance athletes and coaches. He has a strong research background with publications in performance psychology, mental toughness, wellbeing, stress and coping, and coach education.

Project description: Anterior cruciate ligament (ACL) rupture is an incapacitating knee injury that occurs in sports performers. From initial injury to return to competition takes, on average, nine to twelve months rehabilitation. Despite the extensive discussions related to the medical or physical aspects following ACL reconstruction, only limited attention has been paid to the psychological components associated with the rehabilitation process and this is particularly true for athletes who have experienced multiple ACL ruptures. How an athlete deals with the initial injury and subsequent re-injury can have consequences for their return to competition, continuation in sport, and general health and wellbeing. Several studies have identified key factors to facilitate coping and positive stress responses for single ACL injuries however few studies have investigated the experiences of athletes who have had multiple ACL reconstructions. This project will investigate the psychological aspects of multiple ACL injuries by conducting qualitative interviews with a number of affected athletes as well as clinicians and significant others who have shared the journey of the athlete.

Skills required by the student: An interest in the behavioural and psychological aspects of sports injuries and rehabilitation would be beneficial. Some understanding of handling and analysing qualitative data would also be beneficial but not essential.
Additional skills the student will develop as part of the project: Interview data collection skills
Qualitative data handling and analysis skills

Project is based at: Waurn Ponds

Units that this project most closely aligns to: HSE309 Behavioural Aspects of Sport and Exercise
64. PROJECT TITLE: DO MUMS’ TEARS IMPACT YOUNG CHILDREN’S BEHAVIOURS? ASSOCIATIONS BETWEEN MATERNAL MOOD AND TELEVISION VIEWING WITH YOUNG CHILDREN’S TELEVISION VIEWING

Principal supervisor: Dr Trina Hinkley

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9244 5480

Co-supervisor: Dr Megan Teychenne

Supervisor’s area of expertise: I am a full-time researcher in early childhood physical activity and sedentary behaviours. I have worked and researched in the areas of child public health and epidemiology over the last nine years and am passionate about supporting healthy outcomes in children. My research focuses on physical activity and sedentary behaviours – particularly screen use – during the early childhood period (birth to five years). This includes influences on those behaviours, health outcomes, and identifying and implementing strategies to support healthy levels of those behaviours in our children. I am particularly interested in the influence of physical activity and screen use on children’s well-being and cognitive development. Projects I am currently involved with include the HAPPY Study which follows 1000 children from their preschool years into late primary school and Active Minds, Happy Kids, which targets reductions in the use of screens and improvements in well-being and cognitive functioning in preschoolers.

Project description: Imagine you have a young child … maybe even two or three. You’re struggling to cope with life at times – the demands of parenthood perhaps, trying to keep your relationship on an even keel, fitting work in somewhere, not to mention time for yourself. And you really want to give your kids the best start to life they can possibly have. Sometimes all you want to do is flick on the telly and flop in front of it. You wonder if this is a problem … but you don’t really know how it might impact on your kids.

This project aims to investigate maternal mood (risk of depression), maternal television viewing and the impact of those on young children’s television viewing. Little is known about the associations between these things and whether or not maternal risk of depression might ultimately influence child television viewing, which has been shown to be detrimental to a number of health and developmental outcomes. Early childhood is a critical time for growth and development and understanding which factors might influence that is crucial for developing programs to support the best start to life possible.
Recruitment and data collection for this project are complete and therefore this project will involve secondary data analysis. You will be required to undertake quantitative data analysis to answer your research question. It is likely that there will be opportunity to experience some field work on a related project.

**Skills required by the student:** This project would suit students interested in health behaviours. You should have excellent communication and interpersonal skills.

**Additional skills the student will develop as part of the project:** A large part of this project will involve analysis of data. Basic statistical knowledge or a willingness to learn is important. Statistical training and support will be provided. The student will also develop strong skills in understanding health behaviours.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE203 Exercise Behaviour, HSE212 Physical Activity Promotion and Evaluation, HSE316 Physical Activity and Population Health, HSE313 Children’s Physical Activity and Sport.
65. PROJECT TITLE: ARE SCHOOL PLAYGROUND SPACES ACTIVE PLACES?

Principal supervisor: Dr Nicola Ridgers

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                9244 6718

Co-supervisor: Dr Jenny Veitch

Supervisor’s area of expertise: Dr Ridgers and Dr Veitch are Senior Research Fellows within the Institute for Physical Activity and Nutrition. Dr Ridgers’ research primarily focuses on the measurement of children’s physical activity, examining factors that influence activity levels, and the development of theory-based interventions, particularly during school recess and lunchtime. Dr Veitch’s research examines neighbourhood influences on physical activity and sedentary behaviour across the lifespan. She has a particular focus on how to design public open spaces to maximise opportunities for people to be active.

Project description: This project is nested within the Physically Active School Spaces (PASS) Study, which aims to examine the impact of school-ground spaces and school policies on children’s recess and lunchtime physical activity levels. Recess and lunchtime have been described as the best part of the school day. Children get to engage in free-play with their peers, which is largely free from adult control. However, there has been a trend in recent years to reduce the time allocated to recess and lunchtime, change the playground rules, and restrict some of the games children can play. This project will help us to understand what might encourage (or discourage) children from being active during recess and lunchtime. It is hoped that this information will help inform the (re)design of school grounds so children can enjoy recess and lunchtime and be physically active during the school day.

Skills required by the student: No specific skills are required.

Additional skills the student will develop as part of the project: Students will gain an in-depth understanding of how the schoolyard influences children’s activity levels during recess and lunchtime. They will learn how to analyse data collected via a range of tools (e.g. activity monitors, surveys, audits, observation), and gain experience in using different software packages (e.g. Excel). They will gain experience of conducting research with schools and children.

Project is based at: Burwood

Units that this project most closely aligns to: HSE313, HSE316, HSE212
66. PROJECT TITLE: SPRINT INTERVAL TRAINING PLUS KETOGENIC DIET- IS IT A FEASIBLE OPTION?

Principal supervisor: Dr Clint Miller

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9244 6605

Co-supervisor: Dr Clinton Bruce, Dr Greg Kowalski

Dr Clint Miller has been an Accredited Exercise Physiologist in private practice for over 10 years and has worked predominately with musculoskeletal injury and disease. His research is focussed on the use of clinical exercise for improvements in physical function, performance, body composition, and work productivity in adults with musculoskeletal and cardiometabolic disease. He is interested in the relationship between lifestyle related factors, exercise participation and its influence on measures of physical function and performance with a particular emphasis on ADL's including those related to occupational demands.

Dr Clinton 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.

Dr Greg Kowalski’s research interests lie broadly in the areas of metabolic biochemistry, integrative physiology, endocrinology and analytical chemistry. A specific focus of his research lies in understanding the regulation of whole body and cell specific insulin action, metabolic tissue crosstalk (liver, muscle, adipose tissue and pancreatic β-cell) and cell metabolism both in context of normal health and pathological states such as diabetes, insulin resistance and dyslipidaemia.

Project description: Research in low carbohydrate ketogenic diets show that they are at least as effective for weight loss for people with overweight and obesity as traditional low fat energy restricted diets. We know that there are important health and fitness-related benefits to exercise training in adults with metabolic diseases such as obesity, but there are few exercise training studies in adults following a low carbohydrate ketogenic diet. Sprint interval training (SIT) is similar to high intensity interval training (HIIT) but benefits like reduced visceral adipose tissue and improved metabolic function can be achieved in less time than HIIT. This makes SIT an appealing exercise choice for many individuals. It is not known whether SIT is a feasible exercise approach in a diet which is very low in carbohydrates.
The purpose of this project is to investigate whether SIT in addition to a ketogenic diet provides additional body composition outcomes for overweight adults when compared to dieting alone.

**Skills required by the student:** Upskilling will be performed on the job. A keen interest in exercise science research is required.

**Additional skills the student will develop as part of the project:** Applied HIIT and SIT exercise prescription knowledge and skills and their utility during a unique dietary approach

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE301 Exercise Prescription for Fitness and Health, HSE111 Physical Activity and Exercise for Health, HSE201 Exercise Physiology, HSE302 Exercise Programming
67. PROJECT TITLE: DOES EXERCISE AND WEIGHT LOSS FOR CLINICALLY SEVERE OBESITY IMPROVE WORKPLACE PRODUCTIVITY?

Principal supervisor: Dr Clint Miller

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9244 6605

Co-supervisor: Dr Steve Fraser

Supervisor’s area of expertise: Dr Clint Miller has been an Accredited Exercise Physiologist in private practice for over 10 years. His research is focussed on the use of clinical exercise for improvements in physical function, performance, body composition, and work productivity in adults with musculoskeletal disorders and obesity. He is interested in the relationship between lifestyle related factors, exercise participation and its influence on measures of physical function and performance with a particular emphasis on ADL’s including those related to occupational and social demands.

Project description: Around one quarter of Australian and one third of US adults are classified as obese, and many have low aerobic fitness and have higher risk of developing musculoskeletal pain disorders. These conditions lead to reductions in the ability to carry out activities of daily living, including occupational demands. There is evidence that obesity, low aerobic fitness is related to reduced work productivity and absenteeism.

This Honours project is part of a larger study in collaboration with the Baker IDI Heart and Diabetes Institute and will investigate whether the addition of exercise training to substantial weight loss in women with severe obesity increases work productivity and reduces activity impairment.

Skills required by the student: A keen interest in learning about how exercise can lead to outcomes beyond fitness and physical health to improve other important outcomes for an individual.

Additional skills the student will develop as part of the project: Develop a deeper understanding how exercise science and exercise physiology practices can be used and targeted to improve workplace health and performance.

Project is based at: Burwood

Units that this project most closely aligns to: HSE301 Exercise Prescription for Fitness and Health, HSE320 Exercise in Health and Disease, HSE111 Physical Activity and Exercise for Health, HSE201 Exercise Physiology
68. PROJECT TITLE: HIGH-INTENSITY INTERVAL TRAINING AND ENERGY AVAILABILITY IN FEMALE ENDURANCE ATHLETES

Principal supervisor: Samantha Hoffmann

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5227 3398

Co-supervisor: Dr Chris Shaw

Supervisor’s area of expertise: Sam Hoffmann is a member of the Centre for Sport Research (CSR) and a lecturer in Applied Exercise and Sport Science at Deakin University’s School of Exercise and Nutrition Sciences. Sam's broad research areas are exercise physiology, exercise prescription and sports performance. Her interests include investigating the differences in physiological responses to exercise, adaptations to training and exercise performance predictors between males and females. Her research takes an applied approach to understanding physiological responses to exercise and their impact on exercise performance outcomes.

Chris Shaw is a member of the Institute for Physical Activity and Nutrition (IPAN) and a senior lecturer at Deakin University in Exercise and Sport Science. Chris' research focuses on how lipid droplet metabolism influences insulin action in skeletal muscle and how exercise interventions can improve metabolic health. In particular, he has expertise in developing immunofluorescence microscopy techniques to study glucose and lipid metabolism in skeletal muscle.

Project description: High-intensity interval training (HIIT) has previously been shown to elicit positive physiological and performance adaptations in well-trained endurance athletes. However, less is known about the interaction between nutrition and the adaptations to HIIT. There is evidence accumulating to suggest that commencing exercise with low muscle glycogen content (“train low”), may maximise the physiological adaptations to training. However, the research to date has focused on endurance-trained men, whilst the physiological and performance adaptations to training in women, and the mechanisms underlying them, are not well understood. The “train low” concept may be complicated in women since energy availability (defined as the ingested energy remaining for all other metabolic processes after the energy cost of training has been subtracted, Melin et al. 2015) is reportedly low in a large proportion of endurance-trained women.

Therefore, the aims of the present study are to determine the impact of undertaking HIIT with low muscle glycogen content on training capacity and endurance performance in endurance-trained women. Additionally, energy availability will be assessed by recording dietary intake and training intensity, and measuring blood
biomarkers to assess the prevalence of low energy availability and its potential impact on adaptations to HIIT.

**Skills required by the student:** Experience conducting laboratory-based exercise testing (e.g. maximal incremental tests) and cardiorespiratory training sessions would be beneficial but not essential.

**Additional skills the student will develop as part of the project:** The student involved in this project will gain experience in laboratory-based exercise testing (maximal, sub-maximal and performance trials). They will also develop coaching and communication skills, as well as knowledge/skills required for blood sampling practices and laboratory analysis techniques.

**Project is based at:** Waurn Ponds

**Units that this project most closely aligns to:** HSE301, HSE302, HSE303, HSE304
69. PROJECT TITLE: ELITE ATHLETES’ PERCEPTIONS OF STRENGTH AND CONDITIONING COACHES

Principal supervisor: Samantha Hoffmann

Contact details: s.hoffmann@deakin.edu.au
5227 3398

Co-supervisor: Dr Fraser Carson

Supervisor’s area of expertise: Sam Hoffmann is a member of the Centre for Sport Research (CSR) and a lecturer in Applied Exercise and Sport Science at Deakin University’s School of Exercise and Nutrition Sciences. Sam's broad research areas are exercise physiology, exercise prescription and sports performance. Her interests include investigating the differences in physiological responses to exercise, adaptations to training and exercise performance predictors between males and females. Sam has experience as a Strength and Conditioning Coach and her research takes an applied approach to understanding the influences of physiology and coaching and their impact on exercise performance outcomes.

Dr Fraser Carson is a lecturer in sport coaching, with over fifteen years delivering coach education and psychological skills training to high performance athletes and coaches. He currently provides psychological support for the Deakin Melbourne Boomers. He has previously been employed as performance psychologist, providing mental skills training, with a number of professional teams, coaches and athletes. He has a strong research background with a number of publications in performance psychology, mental toughness, wellbeing, stress and coping, and coach education.

Project description: In the general coaching effectiveness literature, effective coaching behaviours are considered those that result in positive outcomes for athletes; examples of these outcomes are performance, enjoyment, self-esteem, and perceived ability (Horn, 2002). Thus, effective coaches are generally those, who, through their behaviours, produce positive outcomes in athletes. However, models of coaching effectiveness also point to the central role of athletes’ perceptions of coaching behaviours in affecting athlete-related outcomes. There is now considerable research exploring the interpersonal relationships that shape athletes’ behaviours and perceptions, and how these associations have impacted the athlete. In particular, much research is devoted to coach-athlete relations (Jowett, 2012). However, there is still limited research investigating the interpersonal relationship of athletes and the physical preparation team, especially at elite level.
Strength and conditioning (S&C) coaches are constantly striving to enhance athletic performance. In order to be effective, the S&C coach needs to build a relationship with the athlete that is underpinned by respect, belief in, and trust. It is therefore important to identify the skills, characteristics and behaviours that the athlete perceives to enhance (or reduce) this relationship. Thus, the main purpose of this study is to investigate the perceptions of elite athletes towards S&C coaches they have worked with throughout their careers. Specifically to: 1) identify key behaviours in building trust; 2) highlight effective coaching practice for this cohort; and 3) to establish the issues that may impede the relationship.

For this study a mixed methodological (qualitative dominant) approach will be utilised. The crucial aspect in justifying a mixed methodology is that the combination of methods focuses on the strengths of each single method. By using a combination of methods at various points in the research process, the researcher can build on the strength of each and minimise the weaknesses of a single method approach. A mixed-method can increase both the validity and the reliability of the data. The qualitative component will consist of in-depth interviews with 20 elite athletes, which will elicit rich, detailed material and to capture the respondent’s perceptions in their own words. This will allow the researcher to present the meaningfulness of the experiences from the respondent’s perspective. The quantitative element will be a large scale survey of elite athletes, with this information being used to triangulate the qualitative date and to confirm or reject identified themes.

Skills required by the student: Some knowledge of interviewing practice would be beneficial but not essential.

Additional skills the student will develop as part of the project: Understanding of mixed methods research approaches. Develop communication skills (both written and verbal)

Project is based at: Waurn Ponds

Units that this project most closely aligns to: HSE301, HSE302, HSE309
70. PROJECT TITLE: EXERCISE IS MEDICINE: A QUALITATIVE INVESTIGATION OF KNOWLEDGE AND TRAINING IN PHYSICAL ACTIVITY COUNSELING AND PRESCRIPTION AMONG GENERAL MEDICAL PRACTITIONERS.

Principal supervisor: Samantha Hoffmann

Contact details: s.hoffmann@deakin.edu.au 5227 3398

Co-supervisors: Dr Peter Kremer, Dr Shannon Sahlqvist, Scott McCoombe

Supervisor area of expertise:
Sam Hoffmann is a member of the Centre for Sport Research (CSR) and a lecturer in Applied Exercise and Sport Science at Deakin University’s School of Exercise and Nutrition Sciences. Sam's broad research areas are exercise physiology and exercise prescription in relation to health, well-being and sports performance. Her interests include investigating the physiological responses to exercise, adaptations to training and the relationship with health, well-being and performance outcomes.

Peter Kremer is a senior lecturer in sport and exercise behaviour with the School of Exercise and Nutrition Sciences based at the Waurn Ponds Campus. He has extensive research experience, broad knowledge and skills in academic and applied sport and exercise psychology and expert knowledge of both quantitative and qualitative research methods.

Shannon Sahlqvist is a member of the Institute for Physical Activity and Nutrition (IPAN) and a senior lecturer at Deakin University in Exercise and Sport Science. Shannon's research is primarily focused on understanding and promoting physical activity, specially walking and cycling. She has good knowledge and experience in qualitative and mixed methods research design methods.

Scott McCoombe is a senior academic in the School of Medicine and is head of the year 1 Public Health Medicine stream. He has an exceptional resume of research supervision and vast experience in the area. He has a diverse set of research interests including: cancer, medical education, rural health, indigenous health and his PhD work in infectious diseases (HIV).

Project description:
The growing burden of non-communicable disease means a changing of the role and requirements of tomorrow’s doctors. For four years, the attitudes towards, and knowledge of ‘exercise is medicine’, and physical activity habits have been investigated in Medical students at Deakin University. Results thus far indicate a clear deficiency of knowledge about physical activity as well as poor physical activity habits.
A follow up project currently underway focuses on investigating the Medical students’ physical fitness levels, and how this affects their attitudes to prescribing physical activity, and their understanding of the perceived barriers to physical activity reported by Australian adults. While examining the knowledge and behaviours of Medical students assists with development of an understanding of how medical practitioners might use physical activity in their future practice it doesn’t provide any insights into how medical practitioners currently working (i.e. post-training) use physical activity counselling in their practice. This project seeks to overcome this gap and aims to expand on the previous work undertaken by the research team. A qualitative interview methodology will be used to explore levels of knowledge, skills and training relating to physical activity counselling and prescription among a sample (n~30) of practicing medical practitioners. This will provide important context for the results obtained from the medical students, and in the longer term it is anticipated that this project will help to inform the need for inclusion of an ‘Exercise is Medicine’ module/unit and more substantive training with the Medical School curriculum.

**Skills required by the student:**
Knowledge on the relationship between physical activity and health.
Some understanding of handling and analysing qualitative data would also be beneficial but not essential.

**Additional skills the student will develop as part of the project:**
Interview data collection skills
Qualitative data handling and analysis skills

**Project is based at:** Waurn Ponds

**Units that this project most closely aligns to:**
HSE301: Exercise Prescription for Fitness and Health. HSE309: Behavioural Aspects of Sport and Exercise. HSE316: Physical Activity and Population Health
71. PROJECT TITLE: HE TALENT DEVELOPMENT ENVIRONMENT IN YOUTH SPORT: EVALUATING THE FOUNDATION FOR FUTURE SUCCESS

Principal supervisor: A/Prof Paul Gastin

Contact details: pgastin@deakin.edu.au
9244 6334

Co-supervisor: Dr Luana Main

Supervisor’s area of expertise: Paul Gastin is Co-Director of Deakin’s Centre for Sport Research. Paul’s teaching and research focuses on innovation in sport science and coaching practice to enhance the performance of people and organisations across the sport participation spectrum. His work is multidisciplinary and includes athlete monitoring, performance management and sport system development. In addition to his work in academia, Paul worked in Olympic/Paralympic and professional sport in Australia and overseas over many years holding senior positions in the Victorian Institute of Sport, the UK Sports Institute and UK Sport. He is an ESSA accredited sport scientist and high performance manager.
To find out about Paul’s research view his Google scholar page along with PDF’s of all publications.

Project description: The quality of the talent development environment is an important determinant of future peak performance in sport. Past research has tended to focus on talent discovery of the individual athlete and not on the environment in which he or she develops. While talent identification deals with the assessment of prerequisites for athletic excellence, talent development emphasizes the quantity and quality of training needed to reach top-level performance. In countries with long sporting histories or ambitious sporting goals, many youth athletes undergo early specialization, with inappropriately high workloads and year-round competitive schedules. The consequence has been an increased prevalence of maladaptive outcomes such as overuse injuries, burnout and premature dropout from sport. In contrast, countries who are less well developed are looking for guidance on how best to build a sporting ecosystem and to increase sports participation and high level success. While several theoretical athlete development frameworks have been incorporated into strategic plans in some countries, their effective implementation may be lacking. Evaluation of the talent development environment therefore provides a direct assessment of the status of a sport or region/country to provide an environment conducive to future success.
This proposed research project seeks to evaluate the talent development environment of youth sport in India. Despite being the second most populous country in the world (comparable to China and four times that of the USA), India achieved only two medals at the 2016 Olympic Games. To redress this situation over the longer term, strategies to enhance the talent development pathway are required. One important step in this process is to evaluate the current environment and establish a baseline understanding of youth sport in the country. This research project will be undertaken in collaboration with sport industry partners in India.

**Skills required by the student:** Good organisational, time management and communication skills; self-driven and capable of working autonomously. An interest in talent development in sport.

**Additional skills the student will develop as part of the project:** Survey implementation and analysis; Project management; International engagement and collaboration.

**Project is based at:** Burwood

**Units that this project most closely aligns to:** HSE314 Applied Sport Science2
72. PROJECT TITLE: METABOLIC RESPONSES TO RESISTANCE EXERCISE IN HYPOXIA

Principal supervisor: Dr Craig Wright

Contact details: craig.wright@deakin.edu.au
5247 9266

Co-supervisors: Samantha Hoffmann and Dr Chris Shaw

Supervisor's area of expertise: Craig Wright is a member of the Institute for Physical Activity and Nutrition (IPAN) and a lecturer at Deakin University in Exercise and Sport Science. His long term research goal is to understand skeletal muscle health, how metabolic, hormonal and the immune response influences muscle health, and how through exercise and nutritional interventions can we augment skeletal muscle health to promote healthy ageing. Craig's current research projects utilise a range of approaches from human exercise trials down to animal and cell culture experiments to investigate these areas. Craig has previously supervised research students, all of whom have achieved first class honours research degrees and are now completing PhD research.

Sam Hoffmann is a member of the Centre for Sport Research (CSR) and a lecturer in Applied Exercise and Sport Science at Deakin University’s School of Exercise and Nutrition Sciences. Sam’s broad research areas are exercise physiology, exercise prescription and sports performance. Her interests include investigating the differences in physiological responses to exercise, adaptations to training and exercise performance predictors between males and females.

Chris Shaw is a member of the Institute for Physical Activity and Nutrition (IPAN) and a senior lecturer at Deakin University in Exercise and Sport Science. Chris' research focuses on how lipid droplet metabolism influences insulin action in skeletal muscle and how exercise interventions can improve metabolic health. In particular, he has expertise in developing immunofluorescence microscopy techniques to study glucose and lipid metabolism in skeletal muscle.

Project description: Hypoxia has been targeted towards elite athletes to improve exercise performance. There are two main accepted training strategies; 1) live high - train high and 2) live high - train low. The outcome of such strategies enhances red blood cell numbers and improves endurance capacity of the individual when returning to sea level. However, as technology advances and becomes more readily available, the general population are trying to gain an advantage to improve health and fitness. Therefore, there is growing evidence that resistance exercise in hypoxia increases
muscle and cardiovascular fitness. However these experiments have only been investigated in the male population and very little is known about the insulin and glucose response to this exercise modality. Therefore this project will investigate the glucose and insulin response to an acute bout and training responses to resistance exercise in hypoxia from young and older men and women.

**Skills required by the student:** Course work in exercise physiology or a related field is required. Coursework in biochemistry and/or molecular biology is an advantage but not necessary. All laboratory techniques will be taught to the student as part of the honours training.

**Additional skills the student will develop as part of the project:** In addition to the standard Honours research training program, the student involved in this project will gain exercise in exercise screening and testing (VO2max and repetition maximum testing). The student will also develop and understanding and skills in blood sampling practices and laboratory techniques which may include enzymatic assays for glucose and hormone detection among other lab techniques. All techniques will be taught as part of the Honours training.

**Project is based at:** Waurn Ponds

**Units that this project most closely aligns to:** HSE201, HSE303
73. **PROJECT TITLE: CAN EXERCISE TRAINING MODIFY “CHEMOBRAIN” IN WOMEN TREATED WITH BREAST CANCER CHEMOTHERAPY?**

**Principal supervisor:** Dr Steve Fraser

**Contact details:** [steve.fraser@deakin.edu.au](mailto:steve.fraser@deakin.edu.au)
9244 6012

**Co-supervisors:** Ms Niamh Mundell, Assoc Prof Andre La Gerche

**Supervisor’s area of expertise:** Dr. Steve Fraser is interested in the role of accredited exercise physiologist led exercise programs for individuals with chronic disease such as cancer, diabetes, obesity, and chronic kidney disease. The primary aim of this body of research is to provide the evidence base for the incorporation of exercise to improve the usual care of individuals with chronic disease. This will likely improve their clinical status, fitness, function, and quality of life. He has supervised >10 Honours students with 3 receiving the Vice Chancellors prize for best thesis.

**Project description:** Breast cancer (BC) is the most frequently diagnosed malignancy among women. Early-stage BC is cured in >90% of cases and patients are prone to treatment induced adverse effects. Chemotherapy, the mainstay of adjuvant BC treatment, is associated with numerous adverse effects including a decline in cognitive function. This study will evaluate the effects of chemotherapy on a range of cognitive tasks and evaluate the efficacy of an exercise training program to ameliorate cognitive decline. Breast cancer patients will be randomized to a 3-month training program or usual care. Exercise and cognitive assessments will be conducted before and after completion of chemotherapy and at 12 months. This study will suit eligible applicants with an interest in one or more of cancer, exercise physiology and cognition. The project is in collaboration with the Baker Institute.

**Skills required by the student:**

**Additional skills the student will develop as part of the project:** Develop a deeper understanding how clinical exercise can reduce the side effects of cancer treatment

**Project is based at:** Burwood/Baker Institute

**Units that this project most closely aligns to:** HSE320 Exercise in Health and Disease, HSE301 Exercise Prescription for Fitness and Health
74. PROJECT TITLE: CAN EXERCISE TRAINING REDUCE MUSCLE MASS LOSS IN WOMEN CURRENTLY TREATED WITH BREAST CANCER CHEMOTHERAPY?

Principal supervisor: Dr Steve Fraser

Contact details: steve.fraser@deakin.edu.au
9244 6012

Co-supervisors: Prof Rob Daly, Assoc Prof Andre La Gerche

Supervisor’s area of expertise: Dr. Steve Fraser is interested in the role of accredited exercise physiologist led exercise programs for individuals with chronic disease such as cancer, diabetes, obesity, and chronic kidney disease. The primary aim of this body of research is to provide the evidence base for the incorporation of exercise to improve the usual care of individuals with chronic disease. This will likely improve their clinical status, fitness, function, and quality of life. He has supervised >10 Honours students with 3 receiving the Vice Chancellor’s prize for best thesis.

Project description: Breast cancer (BC) is the most frequently diagnosed malignancy among women. Early-stage BC is cured in >90% of cases and patients are prone to treatment induced adverse effects. Chemotherapy, the mainstay of adjuvant BC treatment, is associated with numerous adverse effects including a decline in muscle mass, function and increased fatigue. This study will evaluate the effects of chemotherapy on thigh muscle mass (MRI) as well as muscle function and fatigue. This study will evaluate the efficacy of an exercise training program to ameliorate any adverse muscle effects during chemotherapy. Breast cancer patients will be randomized to a 3-month training program or usual care. Muscle mass measures (MRI, DXA), muscle function and fatigue assessments will be undertaken before and after completion of chemotherapy. This study will suit eligible applicants with an interest in one or more of cancer, exercise physiology and muscle function. The project is in collaboration with the Baker Institute.

Skills required by the student:

Additional skills the student will develop as part of the project: Develop a deeper understanding how clinical exercise can reduce the side effects of cancer treatment.

Project is based at: Burwood/Baker Institute

Units that this project most closely aligns to: HSE320 Exercise in Health and Disease, HSE301 Exercise Prescription for Fitness and Health
**75. PROJECT TITLE: DOES BLOOD FLOW RESTRICTION EXERCISE REALLY AFFECT MUSCLE TISSUE BLOOD FLOW?**

**Principal supervisor:** Dr Stuart Warmington

**Contact details:** stuart.warmington@deakin.edu.au  
925 17013

**Co-supervisors:** TBC

**Supervisor’s area of expertise:** For some time my research group has been focused on blood flow restriction exercise (BFRE) as a technique proposed to increase muscle size and strength but while using light-load exercise. Our focus has been to understand the physiology and acute responses to BFRE as well as evaluating the benefits of long-term use in a variety of populations including older adults, healthy sedentary adults and clinical populations. The principal direction in this respect is to understand the mechanisms governing blood flow restriction exercise (BFRE) as a model to promote muscle growth and increased strength, and to develop this exercise method to improve muscle health and functional outcomes in populations where loss of muscle is highly prevalent. To this effect my research group has been working on a variety of projects from acute assessments of haemodynamic stress in both young and older adults as well as training studies to identify the effects of BFRE on muscle growth, strength and fatigue.

**Project description:** One element of BFRE that has received surprisingly little attention is the actual measurement of how muscle or tissue blood flow is affected during an exercise where a restriction to flow is applied. This would seem fundamental to understanding the outcome of BFRE. Despite much work investigating the variables that may govern the method of application of a restriction to flow such as absolute restriction pressure, subject characteristics etc., measures of how these affect blood flow have not been undertaken. Therefore, this project will focus on aspects of the measurement of muscle/tissue blood flow to better understand the real effect of BFRE on muscle tissue blood flow. The outcomes of which may help to inform the future prescription variables for BFRE that may lead to greater gains in muscle size and strength with chronic training.

**Skills required by the student:** This project would suit students interested in exercise physiology, exercise performance assessment and strength and conditioning. The student should be enthusiastic towards exercise prescription and monitoring, as well as assessment of physiological characteristics of exercise.
Additional skills the student will develop as part of the project: Testing procedures and data collection will utilise non-invasive techniques such as typical anthropometric measures, as well as measurement of blood pressure and typical risk factors associated with exercise. While the primary measurement of tissue blood flow will form a novel element to the project.

Project is based at: Burwood

Units that this project most closely aligns to: HSE201, HSE208, HSE301, HSE302
76. PROJECT TITLE: INDIVIDUALISED HR METRICS TO ASSESS EXERCISE RECOVERY.

Principal supervisor: Dr Stuart Warmington

Contact details: stuart.warmington@deakin.edu.au
925 17013

Co-supervisors: TBC

Supervisor’s area of expertise: For some time my research group has focused on understanding the physiology of recovery to examine whether specific recovery intervention affected subsequent performance, and whether in fact a change in performance could be explained by the physiological effects of a recovery intervention. This has led to a focus on using HR metrics to examine recovery both in the immediate aftermath of a performance and in the lead-up to subsequent training and competition, with a view to providing advice on player recovery prior to exercise so that modifications may be made to training load, or coaching staff may better understand their expectations of player success during competition. This approach focuses particularly on using HR to examine whether the autonomic nervous system may be monitored as something indicative of global recovery, and suits a more sensible design to examining player recovery and subsequent performance given the simplicity of measurement and associated costs, and capacity for large scale monitoring. It also provides potential to capture a range of factors that may contribute to influencing recovery prior to performance such as sleep, diet, and psychosocial factors.

Project description: Like most areas of sport science, individualization is becoming of prime importance. This has been the case for aspects such as athlete development and injury rehabilitation, but more recently there is a focus on individualization of recovery based on competition metrics such as player load etc. This project aims to use HR metrics to examine factors related to recovery to determine their influence on autonomic function that is detectable through analyses of HR both following exercise and in the lead up to a subsequent performance.

Skills required by the student: This project would suit students interested in exercise physiology, exercise performance assessment and data analysis for individualising athlete management. The student should be enthusiastic towards exercise monitoring, as well as assessment of physiological characteristics of exercise.

Additional skills the student will develop as part of the project: Testing procedures and data collection will utilise non-invasive techniques such as typical anthropometric measures, as well as measurement of HR and other cardiac variables. While the primary analysis of HR data would form a novel element for the student.
Project is based at: Burwood

Units that this project most closely aligns to HSE201, HSE208, HSE301, HSE302
77. PROJECT TITLE: SPORTS SCIENCE AND COACHING RESEARCH AT GEELONG CATS FOOTBALL CLUB

Principal supervisor: Dr Jacquie Tran

Contact details: j.tran@deakin.edu.au

Co-supervisors:

Supervisor area of expertise:
Dr Jacquie Tran is a Research Fellow who works jointly within Deakin’s Centre for Sport Research and at the Geelong Cats Football Club. Jacquie has multidisciplinary research interests, including elite athlete preparation and performance, load monitoring, sports analytics, and sports technology.

Project description:
A range of research projects will be offered on sports science topics, in conjunction with the Geelong Cats Football Club. Areas of interest include:

• Motivations and experiences of junior Australian football players participating in talent pathway programs
• Coach performance and communication competence
• Career trajectories in AFL player performance: Comparisons between positional groups
• Assessing and improving data literacy and visual literacy in sport science staff

Students who would like to know more about these projects are welcome to contact Dr Jacquie Tran (email above). Please specify which topics you are most interested in and why.

Skills required by the student:
A keen interest in applied sport science. A strong work ethic, the ability to work well independently and as part of a team, good self-management skills, and good communication skills are essential.

Additional skills the student will develop as part of the project:
The skills developed will be dependent on each student’s specific research topic, but could include skills and expertise in some of the following: sports analytics, qualitative data collection and analysis methods, survey / questionnaire design, athlete development, coaching science.

Project is based at: Waurn Ponds

Units that this project most closely aligns to: HSE305 Issues in Sport Coaching, HSE309 Behavioural Aspects of Sport and Exercise, HSE314 Applied Sports Science2
PROJECT TITLE: DOES TRAINING VOLUME INFLUENCE ACADEMIC PERFORMANCE IN HIGH SCHOOL BASED SPORTS ACADEMY ATHLETES?

Principal supervisor: Dr Natalie Saunders

Contact details: natalie.saunders@deakin.edu.au
92468284

Co-supervisors: Dr Aaron Fox, Mr Matthew Pollard

Supervisor area of expertise: Natalie Saunders is a lecturer in Clinical Exercise Physiology and is currently also working as an Accredited Exercise Physiologist. Her research interests include neuromuscular control and biomechanics in a functional context, in particular understanding the various loads on the human body that results in injury, prevents injury or is related to the rehabilitation of various structures.

Dr Aaron Fox is a lecturer in Applied Sports Science and has research 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 two-dimensional ultrasound) and analytical techniques to identify optimal neuromuscular and biomechanical strategies for improving performance and reducing injury risk in sporting movements.

Mr Matthew Pollard is an Accredited Exercise Physiologist – manager of exercise and High performance Services currently working at Rise Health Group and Rowville Sports Academy

Project description: To date, it is currently unknown what effect high volume sports participation has on academic performance in elite junior sports people. Existing research tends to focus on university and collegiate level athletes however with the emergence of more high school sports academies it is important to understand what impact this may be having on high school athletes academic performance. Therefore the purpose of this research is to understand if a relationship exists that may be used to guide future training loads.

Skills required by the student: None

Additional skills the student will develop as part of the project: The student will work alongside high school sports academy athletes to understand the relationship between training loads and academic performance. This project will use quantitative and qualitative measures of training load and academic performance.

Project is based at: Burwood

Units that this project most closely aligns to: HSE323 Clinical and Sport Biomechanics; HSE104 Research Methods and Statistics in Exercise and Sport; HSE311/314 Applied Sports Science
79. PROJECT TITLE: CAN WE USE JUMPING PERFORMANCE TO BETTER GUIDE WHEN PLAYERS SHOULD RETURN TO SPORT POST ACL RECONSTRUCTION?

Principal supervisor: Dr Natalie Saunders

Contact details: natalie.saunders@deakin.edu.au
92468284

Co-supervisors: Dr Aaron Fox, Mr Matthew Pollard

Supervisor’s area of expertise: Natalie Saunders is a lecturer in Clinical Exercise Physiology and is currently also working as an Accredited Exercise Physiologist. Her research interests include neuromuscular control and biomechanics in a functional context, in particular understanding the various loads on the human body that results in injury, prevents injury or is related to the rehabilitation of various structures.

Dr Aaron Fox is a lecturer in Applied Sports Science and has research 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 two-dimensional ultrasound) and analytical techniques to identify optimal neuromuscular and biomechanical strategies for improving performance and reducing injury risk in sporting movements.

Mr Matthew Pollard is an Accredited Exercise Physiologist – manager of exercise and High performance Services currently working at Rise Health Group and Rowville Sports Academy.

Project description: Current rates of re-injury following return to sport post ACL reconstruction and/or patient not returning to pre-injury levels of sport are of concern. Limited evidence exists that suggests reduced rate of force development and peak velocity post ACL reconstruction during a jump and land task may be linked to reinjury risk. In addition, being able to assess these biomechanical characteristics in an applied clinical setting is important. Therefore the purpose of this study is review whether a reduced rate of force development exists during a functional task such as a single leg jump and land post ACL reconstruction

Skills required by the student: None

Additional skills the student will develop as part of the project: The student will be exposed to clinical based equipment and tools used to assess biomechanical characteristics during a functional sports task. In addition, the skills will gain knowledge and skills in relation to ACL injury.

Project is based at: Burwood
Units that this project most closely aligns to: HSE202 Biomechanics; HSE323 Clinical and Sport Biomechanics; HSE104 Research Methods and Statistics in Exercise and Sport
80. PROJECT TITLE: DISINHIBITING EATING AND RESPONSES TO EXTERNAL FOOD CUES

Principal supervisor: Dr Georgie Russell

Contact details: georgie.russell@deakin.edu.au
924608503

Co-supervisors: Dr Gie Liem

Supervisor’s area of expertise: Dr Russell is a lecturer within the School of Exercise and Nutrition Sciences and a member of the Centre for Advanced Sensory Science (CASS). She conducts research aimed at understanding consumer food behaviours, food choices and perceptions including the development of food behaviours in infants and children.

Project description: Some people are more likely than others to display disinhibited eating such as emotional eating or eating in the absence of hunger. These people are likely to be affected differently from others who are less disinhibited in their eating when exposed to external food stimuli.

This observational study will examine interactions between individuals’ disinhibited eating tendencies and different food stimuli.

Skills required by the student: Knowledge of or strong interest in consumer science, food behaviours and food choices is desirable. Some understanding of qualitative or observational data collection and analysis is beneficial as are strong written and communication skills and attention to detail.

Additional skills the student will develop as part of the project: Understanding of consumer science and food behaviours, predictors of food choices, marketing and product development, qualitative analysis.

Project is based at: Burwood

Units that this project most closely aligns to: HSN308 (Food, Nutrition and Society)
81. PROJECT TITLE: MARKETING VERSUS NUTRITION: WHAT INFLUENCES CONSUMERS WHEN BUYING PACKAGED FOODS AND WHY?

Principal supervisor: Dr Georgie Russell

Contact details: georgie.russell@deakin.edu.au
924608503

Co-supervisors: Dr Gie Liem

Supervisor's area of expertise: Dr Russell has expertise in understanding consumer food behaviours, food choices and perceptions including the development of food behaviours in infants and children.

Project description: Packaged foods display a number of attributes including those communicating marketing aspects (e.g. branding, product images, cartoons, colours, fonts) and those to communicate nutrition information (e.g. health star rating, nutrition information panels). These attributes are designed to influence consumers by communicating about the particular attributes (e.g. healthy, organic) and benefits (e.g. fills you up, provides energy) of particular products and brands. Presently, products in Australian supermarkets display a wide range of marketing and nutrition attributes, many of which are not regulated by governments.

This project seeks to understand how children and their parents interpret and respond to the range of attributes on food packages and how these perceptions are influenced by the characteristics of parents and children (e.g. age, gender).

Skills required by the student: Knowledge of consumer science, food policy, marketing or product development is desirable. Some understanding of qualitative analysis is beneficial as are strong written and communication skills and attention to detail.

Additional skills the student will develop as part of the project: Understanding of consumer science and food behaviours, predictors of food choices, marketing and product development, qualitative analysis, team work, critical thinking, written and verbal communication skills.

Project is based at: Burwood

Units that this project most closely aligns to: HSN308 (Food, Nutrition & Society), HSN309 (Food Policy and Regulation)
82. PROJECT TITLE: PARENTS’ BELIEFS ABOUT THEIR CHILDREN’S EATING

Principal supervisor:  Dr Georgie Russell

Contact details:  georgie.russell@deakin.edu.au
                924608503

Co-supervisors:  Dr Gie Liem

Supervisor’s area of expertise: Dr Russell is a lecturer within the School of Exercise and Nutrition Sciences and a member of the Centre for Advanced Sensory Science (CASS). She conducts research aimed at understanding consumer food behaviours, food choices and perceptions including the development of food behaviours in infants and children.

Project description: The ways in which parents interpret and respond to children’s eating behaviours can determine their feeding response. For instance, depending upon whether parents interpret children’s fussy eating behaviours as being deliberate and within the child’s control, or a normal part of development that will change over time, this will have an impact upon their response (e.g. getting upset and trying to control the child’s eating, or accepting the behaviour and providing support). These beliefs are likely to differ according to the characteristics of both the parent and the child.

This study aims to explore parents’ beliefs about their children’s eating and how they differ amongst parents and children within the same family.

Skills required by the student: Knowledge of consumer and food behaviours, child development or psychology is desirable. Some understanding of qualitative data collection and analysis is beneficial. Strong written and communication skills as well as the ability to work independently and as part of a team are also beneficial.

Additional skills the student will develop as part of the project: Understanding of consumer science and food behaviours, predictors of food choices, qualitative analysis, team work, critical thinking and problem solving skills.

Project is based at: Burwood

Units that this project most closely aligns to: HSN308 (Food, Nutrition & Society),
Project title: The role of contextual factors in driving intakes of core and non-core foods at young adults’ snack eating occasions across the day

Principle supervisor: Associate Professor Sarah McNaughton

Contact details: sarah.mcnaughton@deakin.edu.au

Co-supervisors: Ms Rebecca Leech

Supervisor’s area of expertise: Associate Professor McNaughton is a public health nutritionist and Accredited Advanced Practising Dietitian in the Institute for Physical Activity and Nutrition (IPAN). Current research interests focus on the assessment of eating patterns, dietary patterns, diet quality and indicators of a healthy diet and the impact of specific dietary patterns on chronic disease outcomes, particularly cardiovascular disease and type 2 diabetes.

Project description: International research suggests that eating patterns have changed over the last decade. Snack consumption and the contribution of energy intake from snacks have reportedly increased which may have adverse consequences for obesity and chronic disease. The impact of snacks on the healthfulness of the whole diet will depend on the food content of the snacks. Factors such as the time and location of eating, the presence of others, and activities while eating may influence the food choices at snack occasions. However, our understanding of how the healthfulness of snacks varies across the day and the role that contextual factors play in driving food choices at these eating occasions is limited. This study will further understanding of the determinants of food choices at snack occasions in young adults.

This project will examine the food composition at snacks and whether the food choices at snacks differs according to time of day and eating occasion context. This project involves secondary data analysis of dietary data collected from young adults collected in the Meals in Every Day Life Study (MEALS) using a Smartphone food diary app. The contextual factors associated with intakes of core and non-core foods at snack eating occasions across the day will be analysed.

Skills required by the student: This project is suited to a student with high-level organisational skills, excellent attention to detail and a background in nutrition. Applicants should be keen to learn about data analysis and be willing to undertake further training (this will be provided) in analysing and interpreting dietary intake data.

Additional skills the student will develop as part of the project: The project will develop the student’s capacity to analyse dietary data using statistical methods. This project will also provide the student with a unique opportunity to receive additional training and support to develop skills using STATA and MPLUS statistical software. Skills in critical analysis of dietary data, time management and academic writing will be further refined. There will also be an opportunity for the dissemination of research
findings through publication of a journal manuscript and/or conference presentations.

Project is based at: Burwood (Geelong by negotiation).

Units that this project most closely aligns to: HSN305 Assessing Food Intake and Activity; HSN302 Population Nutrition; HSN210 Nutrition and Food Promotion; HSN103 Food: the Environment and Consumers
Project title: Investigating timing of breaks in sitting and glucose control in adults with type 2 diabetes.

Principal supervisor: Nicky Ridgers (Deakin University)

Contact details: nicky.ridgers@deakin.edu.au
9244 6718

Co-supervisors: Megan Grace, Robyn Larsen (Baker Heart and Diabetes Institute)
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Project description: Type 2 diabetes (T2D) is the fastest growing chronic health problem in Australia. Patients with T2D can spend 70% or more of their waking hours sitting. Prolonged periods of sitting have been linked to poor postprandial and 24-hour glucose control, which can be mitigated with regular, brief periods of light intensity activity. It has yet to be determined how often breaks in sitting need to occur to realise these benefits.

The proposed project aims to investigate the effectiveness of different timing of breaks in sitting to lower postprandial and 24-hour glucose in adults with T2D. This honours project will form part of a larger funded study. Participants will complete three conditions in a random order: (i) 7 hours prolonged sitting; (ii) 7 hours sitting interrupted every 30 minutes with 3 minutes of light intensity simple body weight resisted activities (single leg raises, calf raises, half squats); (iii) 7 hours sitting interrupted every 60 minutes with 6 minutes of simple body weight resisted activities. Blood samples will be collected during the laboratory condition for measurement of venous glucose and insulin. Participants will also be fitted with continuous glucose monitors for determination of 24-hour interstitial glucose levels and glucose variability. Data will be analysed using generalised linear mixed models (GLMMs) controlling for fixed and random effects.

Skills required by the student: None – training can be provided

The student will learn: participant recruitment, good clinical practice, basic statistical analysis using Stata software

Units that this project most closely aligns to: HSE304, HSE316
School of Exercise and Nutrition Sciences

2018 HONOURS PROJECT PREFERENCE FORM

Name: ___________________________ Deakin student ID: _______________________  
Address: ___________________________ Postcode: ___________________________  
Mobile: ___________________________ Home: ___________________________  
Email: ___________________________ Date: ___________________________

Please note the following information:
• The application process is wholly online for 2018. Please submit your Honours application via the applicant portal by Friday 24 November 2017 and upload your completed project preference form as supporting documentation with your application by the deadline. If you have any queries about the admission process please contact ens-enquire@deakin.edu.au or phone 9244 5436 for more information.
• The list of Honours projects for 2018 will be available via the H418 or H442 course handbooks.
• Applicants are advised that allocation to research projects is a competitive process and an applicant cannot be assured of being assigned to their choice of research projects.
• Applicants are also required to contact the Supervisors of the projects you nominated below before submitting this form.

Please nominate your four preferences:

1st preference - Project no: ___________ Supervisor: ___________________________  
Project title: ___________________________  
Have you personally spoken with the supervisor about the project? (please circle) Yes No

2nd preference - Project no: ___________ Supervisor: ___________________________  
Project title: ___________________________  
Have you personally spoken with the supervisor about the project? (please circle) Yes No

3rd preference - Project no: ___________ Supervisor: ___________________________  
Project title: ___________________________  
Have you personally spoken with the supervisor about the project? (please circle) Yes No

4th preference - Project no: ___________ Supervisor: ___________________________  
Project title: ___________________________  
Have you personally spoken with the supervisor about the project? (please circle) Yes No

Some projects have many students apply for them. If you are NOT offered one of the above projects would you consider an offer of an honours project in a related area? (Please circle) Yes No 
Please list any other projects you may consider if you are not offered your preferences:

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