



DEAKIN
UNIVERSITY AUSTRALIA

MELBOURNE GEELONG WARRNAMBOOL

School of Exercise and Nutrition Sciences

HONOURS PROGRAM 2012



INFORMATION FOR PROSPECTIVE STUDENTS

**EXERCISE AND SPORT SCIENCE
FOOD SCIENCE AND NUTRITION**

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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.

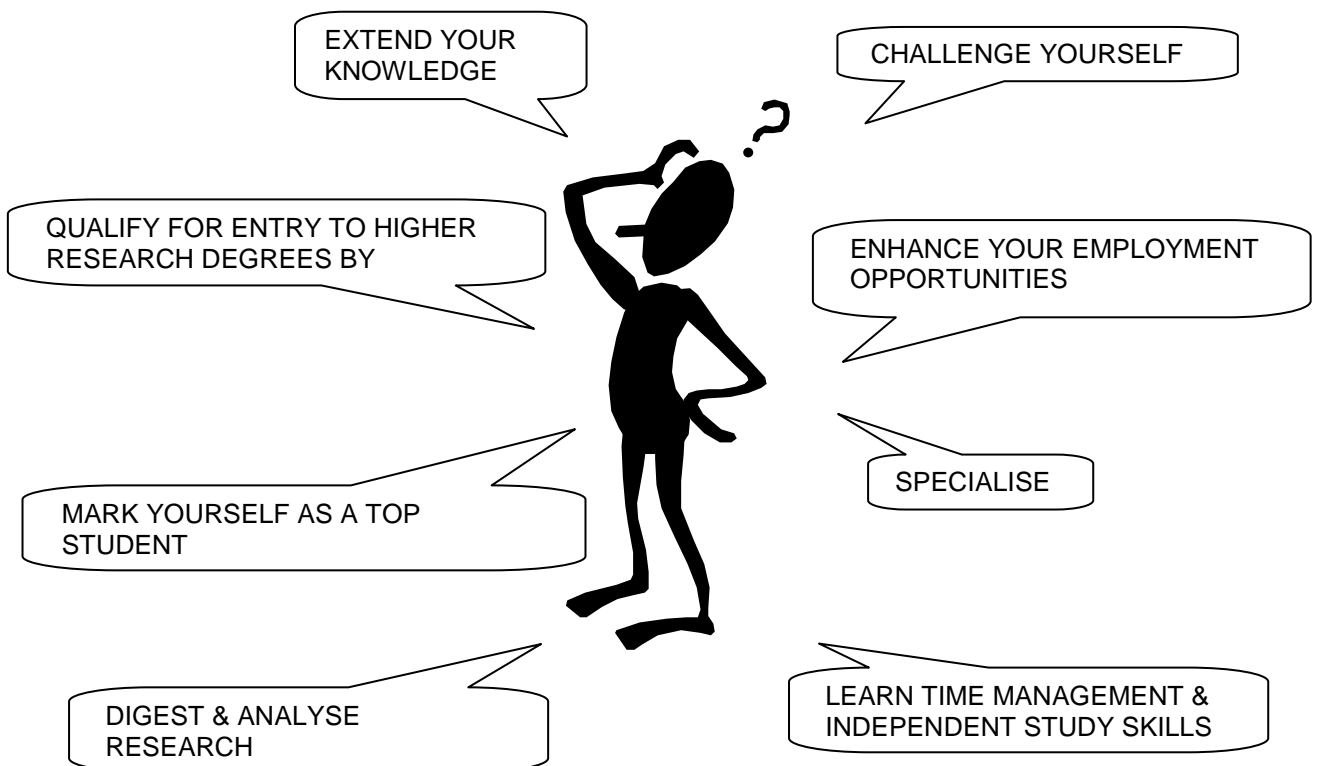
The School offers the following Type A Honours degrees:

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 one year full time
- Allocation of a supervisor and co-supervisor



WHY DO HONOURS?

Extend your knowledge

Honours allows you to broaden your understanding of university life and to understand the role of academic research. Students are encouraged to take part in research seminars and forums and to present their research at conferences.

Challenge yourself

Undergraduate learning is not a lot different from high school; you have set concepts you need to know and these are assessed at the end of each unit. On the other hand honours, as in all research, requires you to go and find the answers to questions that are not always clear cut and then work out what you found and why. Not only that you then have to present it in written and oral forms for others to understand. It is a challenge that will not only help you learn more about your chosen field, but also more about yourself.

Qualify for entry to higher degrees by research (PhD and Masters programs)

Your honours year will provide you with training in all aspects of research; this will prepare you for further research degrees but also up skill you in understanding the complexities of research and its application to industry.

Enhance your employment opportunities

Graduates with a four year degree are sought after in the industry because of their superior skills in research, analysis and communication. The honours degree also allows you to specialise more than your undergraduate degree; having specialist knowledge can be very attractive to potential employers.

Specialise

There are a range of areas that you can specialise in. Your undergraduate degrees in Exercise and Sports Science or Food Science and Nutrition are broad degrees, covering a wide range of topic areas; however Honours lets you develop more specialist knowledge in an area of interest. In exercise and sports science you can investigate aspects of biomechanics, coaching, skill acquisition, motor control, physiology, physical activity and molecular biology. In nutrition and food sciences you can investigate aspects of nutrition, food choice, eating patterns, health effects, food policy and the composition of food.

Mark yourself as a top student

The honours degree makes you different from other graduates: first you have to be a top student to get into the honours program; and second it stamps you as a person willing to pursue the challenges of research and shows that you can operate independently and at a high level of performance.

Digest and analyse research

The skills that you acquire in honours will make you a consummate consumer of research in your area of work but also in general life. When the media quotes statistics and findings from research you will be able to critically evaluate it and draw your own conclusions about the research and to pass accurate information onto your family and work colleagues.

Learn time management and independent study skills

In your honours year the major assessment task, your thesis, is not due for 10 months! As the thesis is worth 50% of your overall grade, a good thesis mark goes a long way to securing a good honours grade overall. Although the thesis is due in October, many critical tasks must be completed well before and often these tasks do not have formal deadlines to motivate you. Through your honours year you will learn the value of pre-planning, setting smaller 'deadlines' for yourself (your supervisor will help, but won't enforce deadlines) and being disciplined to set aside time to work on the important tasks, not just the urgent ones. Self-discipline to work independently is a skill highly sought after by all employers.

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.

Students who complete honours also have the opportunity of undertaking research positions within the School or other universities. Such positions allow you to participate in research, including data collection and analysis, in paid employment without committing to a postgraduate research degree.

CARA LORD

Bachelor of Exercise and Sport Science (Honours) – graduated 2009
Research Assistant

“Undertaking the honours program at Deakin was the greatest challenge, yet it was the most rewarding experience I could ever have hoped for. I acquired so much knowledge and gained so many skills through the program which has propelled towards so many great opportunities which I could not have achieved without the honours experience”

Cara’s honours project focused on the “Validity of Fit for Duty tests for Australian volunteer firefighters suppressing bushfires”. Cara completed her field trials in ACT in association with ACT Rural Fire Service. It focused on the use of physiological, subjective and physical measures through the use of GPS and heart rate monitors to compare the fit for duty tests performance to the work outputs of firefighting tasks. This honours project allowed Cara to follow her desired path into a research career focusing on the health and safety of Australian volunteer firefighters in which she hopes to commence a PhD in 2011.

CARLEY GRIMES

Bachelor of Nutrition and Dietetics (Honours) – graduated 2008
PhD Candidate

“Completing the honours program at Deakin was a highly rewarding experience that enabled me to develop a variety of research skills. I particularly enjoyed the opportunity to be able to focus on a key area of research which interested me and increase my knowledge in this field”

Carley’s honours project examined consumers’ knowledge and attitudes to salt intake and labelled salt information. Carley completed a cross-sectional survey using a questionnaire that she developed to assess salt related shopping behaviours, attitudes to salt intake and health and consumers ability to read sodium labelling on food products. This honours project allowed Carley to further her journey into a research career through the commencement of a PhD looking at dietary salt intake and health in children (for which she also received a postgraduate scholarship from the National Heart Foundation.

Careers

“I strongly believe that honours was the best thing I have done in my education and I wouldn't be where I am now without it”

Greg Carstairs, Human Performance Scientist, Australian Defence Force
Bachelor of Exercise and Sport Science (Honours) – graduated 2008

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 as a research officer or assistant, 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.

DOXI GEROYIANNIS

Bachelor of Exercise and Sport Science (Honours) – graduated 2009
Victorian Institute of Sport

“The honours program at Deakin was an extremely valuable experience. It helped to develop my research skills and allowed me to pursue a specific area of interest relating to applied sport science. I would recommend undertaking honours at Deakin for students to extend their personal development and increase their employability”

Doxi's honours project investigated the effects of cold water immersion on acclimation to exercise in the heat. It focused on training protocols for heat acclimation, training monitoring and recovery techniques that are used in sport at the elite level. This honours project contributed to Doxi's professional development as a Sport Scientist. She currently works with the Rowing program at the Victorian Institute of Sport where her duties include fitness testing and training monitoring, skills which were developed during her honours year.

STEPHEN NICHOLLS

Bachelor of Exercise and Sport Science (Honours) – graduated 2009
Geelong Football Club Coaches Technology Assistant

“Completing honours was one of the most challenging years of study but also the most rewarding. It was significant in my professional development and a contributing factor in gaining employment”

Stephen's honours study investigated the relationship between game load and fatigue and recovery in AFL players. It involved collecting GPS data from matches and self reporting questionnaires from the days following the match. This honours project helped in the development of academic skills and contributed to Stephen's employment within the industry. Stephen is currently working with Geelong Football Club assisting the coaches in video analysis, opposition analysis and player development, utilising skills developed at Deakin.

WHAT TYPES OF HONOURS PROJECTS CAN I DO IN SENS?

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.

Exercise and sport science

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; and strength and conditioning.

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; and early childhood influences on eating.

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 use that for a further degree; Honours is about basic research training.

*****Refer to the back of this handbook for next years Honours projects*****

WHAT HAPPENS IN THE HONOURS YEAR?

This intense year means that you should be able to commit 35 hours a week to your honours qualification. The honours degree is 50% course work and 50% research; both parts count towards your final mark and both are therefore important. The course work 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 research project is conducted in second trimester 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

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 present your literature review and research proposal to your peers as an oral presentation.

Research methods (HBS400)

This unit examines the ethics of research, research design and statistics. Again 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.

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 Faculty honours 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 2012 (**listed on pages 19-72**). 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 the preference form that appears on **page 73** of this handbook and return it to Georgina Power in the School of Exercise and Nutrition Sciences (Building J3.07 or fax to 9244 6017) by 12 November 2011.

3. Submit an online application

To apply for honours you will need to submit an online application at <http://www.deakin.edu.au/future-students/applications-enrolments/applications/honours.php>.

The closing date for timely applications is 2 December 2011. 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, certified hard-copies must be submitted within five working days. 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 2 December 2011. It is anticipated that successful candidates will be advised of their offer during December 2011.

Late applications will be considered depending on availability of appropriate supervisors, projects and places up until 10 February 2012.

ADDITIONAL INFORMATION

Scholarships

Continuing students may be eligible for a general Deakin Honours Scholarship if they have achieved outstanding academic results throughout their undergraduate studies. To be eligible you must be an Australian citizen, or holder of an Australian permanent humanitarian visa, and enrolled full time in an end-honours degree at Deakin. Students do not apply for these scholarships; rather they are selected by the Faculty based on your results in your undergraduate degree.

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.

HOW DO I FIND OUT MORE ABOUT HONOURS FOR NEXT YEAR?

Website

There is information on the Deakin University web site under the School of Exercise and Nutrition Sciences: <http://www.deakin.edu.au/hmnbs/ens>

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 *directors* on the contact details provided below:

Dr Glenn Wadley

(Honours Director)

Ph: (03) 9244 6018

Email: glenn.wadley@deakin.edu.au

Associate Professor Tim Crowe

(Deputy Honours Director)

Ph: (03) 9251 7266

Email: tim.crowe@deakin.edu.au

INHERENT REQUIREMENTS OF HONOURS

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

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

The following inherent requirements are associated with the attributes of a Deakin graduate and the Deakin University Student Charter*

Understanding of the professional, social, economic and cultural contexts of the discipline and related fields

Graduates will be expected to accept social and civic responsibilities and provide leadership on relevant issues to their discipline. They will successfully contribute to their communities and actively seek to be well-informed citizens.

Graduates should be able to advocate for constructive change in their communities, including professions and workplaces, whilst demonstrating an awareness of competing needs of different communities.

Graduate should be flexible and have transferable skills for different types of employment within their discipline.

Awareness of ethical issues, social responsibility and cultural diversity

The graduates will understand the social and cultural diversity in our community, and demonstrate respect for indigenous knowledge, cultures and values.

The graduate will demonstrate appreciation of diversity and an understanding of the rights of all students and staff of the University to be treated with respect and free from sexual harassment, harassment, discrimination, victimisation and vilification in all dealings, regardless of religious beliefs, cultural background, sexual orientation, age or political beliefs. This should be demonstrated in their day to day interactions as well as any assessment tasks they are required to undertake.

Preparing diligently for qualifications, employment and continuous learning

Throughout completion of their degree, the graduate must be able to:

- Take responsibility to self-manage their enrolment and course planning, using advice from their Faculty
- Participate constructively in learning in classes and online
- Take joint responsibility for their education be self-directed learners
- Engage closely with Faculty and discipline-based colleagues and participate in professional bodies where appropriate
- Explore opportunities for interdisciplinary learning and for translating academic learning into practice
- Obtain a Police Records Check or Working With Children Check if required for practicum placements

Showing and earning respect with others

The graduate must be able to display professional conduct while undertaking work and practicum placements, fieldwork or educational exchanges. The graduate must always treat staff and other students with respect and courtesy, and they must engage in rational discussion in areas of disagreement.

Communicating effectively and appropriately in a range of contexts

The graduate must be able to communicate effectively with individuals and groups in society in a variety of professional and community contexts. Communication skills areas include: speaking, non-verbal, listening, reading and writing. Communication may also include the use of graphical information. Communication may occur interpersonally or through other mediums, e.g. email, online discussion or mailed documents.

Effective and appropriate communication will be demonstrated through:

- Relating to others in socially appropriate ways
- Elicitation of others' view/information
- Responsiveness to others
- Using language and non-verbal behaviour that adapts to a specified person or persons in the context of a situation (Verderber & Verderber, 2001)
- Clarity in conveying information
- Flexibility in the use of various communication modes, as required

Developing, planning and managing independent work

The graduate must be able to organize themselves to address work requirements through:

- developing ideas through research (e.g. reading, library information)
- engagement with others regarding learning objectives and unit content
- analysis and synthesis of information
- development of types of documentation that satisfy work requirements (e.g. essays, journals, graphs)
- completing requirements within the timeframes provided in units, the course or fieldwork placement
- accepting and acting on advice and feedback on academic performance

Working effectively as part of a team

The graduate must be able to work collaboratively and cooperatively with others at a level of performance deemed to be necessary to meet the requirements of unit(s).

Effectively using information and communication technologies

The graduate must demonstrate an ability to use ICT to communicate with staff and students and engage in teaching and learning activities, at a level of performance deemed to be necessary to meet the requirements of unit(s).

Applying knowledge learned in the program to new situations

The graduate must demonstrate an ability to apply information and skills to situations in other contexts, e.g. in a workplace environment (simulated or real), through analysis of case studies.

Positively shaping the educational experience

The graduate must demonstrate an ability to be informed about course requirements in their Faculty and seek assistance if required. The graduate should use initiative in learning and aspire to intellectual independence.

* (Schedule A: Attributes of a Deakin Graduate); Approved by Academic Board on 21 May 2008)

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1. THE WORK DEMANDS AND DEVELOPMENTAL NEEDS OF AUSTRALIAN COACHES

Supervisor: Dr Andrew Dawson

Supervisor's profile:

Dr Andrew Dawson is a Lecturer in the area of Exercise and Sport Science in the School of Exercise and Nutrition Sciences. He teaches Sport and Exercise Psychology and Sport Coaching. Andrew's research is primarily concerned with understanding the long-term development of sport coaches. This research can be broken down into five main areas: coach education and professional development; career development in sports coaching; coach effectiveness' sports policy and governance in relation to coach development; and the sport coach as health coach.

Andrew recently launched the Australian Coaching Workforce Study which is investigating the social and economic aspects of coaches' work and this honours project (along with another offered in 2012) will examine key themes developed from this data set. Below is a link: <http://www.deakin.edu.au/research/stories/2011/05/30/calling-all-weekend-warriors>

Contact details:

Email: andrew.dawson@deakin.edu.au

Ph: (03) 9251 7309

Co-supervisors: Dr Paul Gustin, Associate Professor Pamm Kellett (School of Management and Marketing)

Project description:

Sport is an integral part of Australian life and contributes more than 1% to Australia's GDP (\$10Bn) through a variety of industry sectors such as education, health, entertainment, and tourism. The way people work in sport is complex and varies from full-time professional to part-time volunteer. Beyond basic census data we know little about the contribution of the various sport occupations make to the economy and society. The recent Crawford (2009) review into the organisation and management of Australian sport and subsequent Federal Government (2010) response revealed that the Australian Sports Commission (ASC) needs to be better informed when developing policy and allocating resources into sport, especially at the community (grass roots) level. One of the key areas for development is the coaching workforce. To date we know little about how they work and develop themselves and so making policy development and implementation a significant challenge for the ASC and the state governments. This investigation will examine the financial, personal and social rewards/costs of coaching in the top 20 participation sports in Australia. This information will be used to inform policy development, implementation and operationalisation by national, state and local sport organisations.

Methodological approach:

An in-depth statistical analysis of existing data from the Australian Coaching Workforce Study will be used to make comparisons and draw out any significant differences between the top 20 participation sports in Australia in terms of coach workforce development. This project aims to answer the following questions: 1) How much work do coaches actually do? 2) What are coaches' aspirations and development needs? and 3) What policies and investments do sport organisations require to support and develop their coaches and their sport?

Necessary skills/knowledge:

Statistical data analysis skills is preferred.

2. THE PERSONAL REWARDS AND COSTS OF COACHING SPORT IN AUSTRALIA

Supervisor: Dr Andrew Dawson

Supervisor's profile:

Dr Andrew Dawson is a Lecturer in the area of Exercise and Sport Science in the School of Exercise and Nutrition Sciences. He teaches Sport and Exercise Psychology and Sport Coaching. Andrew's research is primarily concerned with understanding the long-term development of sport coaches. This research can be broken down into five main areas: coach education and professional development; career development in sports coaching; coach effectiveness' sports policy and governance in relation to coach development; and the sport coach as health coach.

Andrew recently launched the Australian Coaching Workforce Study which is investigating the social and economic aspects of coaches' work and this honours project (along with another offered in 2012) will examine key themes developed from this data set. Below is a link: <http://www.deakin.edu.au/research/stories/2011/05/30/calling-all-weekend-warriors>

Contact details:

Email: andrew.dawson@deakin.edu.au

Ph: (03) 9251 7309

Co-supervisors: Dr Paul Gustin, Associate Professor Pamm Kellett (School of Management and Marketing)

Project description:

Sport is an integral part of Australian life and contributes more than 1% to Australia's GDP (\$10Bn) through a variety of industry sectors such as education, health, entertainment, and tourism. The way people work in sport is complex and varies from full-time professional to part-time volunteer. Beyond basic census data we know little about the contribution of the various sport occupations make to the economy and society. The recent Crawford (2009) review into the organisation and management of Australian sport and subsequent Federal Government (2010) response revealed that the Australian Sports Commission (ASC) needs to be better informed when developing policy and allocating resources into sport, especially at the community (grass roots) level. One of the key areas for development is the coaching workforce. To date we know little about how they work and develop themselves and so making policy development and implementation a significant challenge for the ASC and the state governments. This investigation will examine the financial, personal and social rewards/costs of coaching in the top 20 participation sports in Australia. This information will be used to inform policy development, implementation and operationalisation by national, state and local sport organisations.

Methodological approach:

An in-depth statistical analysis of existing data from the Australian Coaching Workforce Study will be used to make comparisons and draw out any significant differences between the top 20 participation sports in Australia in terms of coach workforce development. This project aims to answer the following questions: 1) What is the personal and financial investment coaches make to do their work?; 2) What rewards do coaches receive from their work?; and 3) How will understanding the rewards and costs of coaching contribute to the development of policy and management practice in Australian sport?

Necessary skills/knowledge:

An understanding of statistics is preferable for this project.

3. CARDIOVASCULAR AND METABOLIC BENEFITS OF EXERCISE FOR PROSTATE CANCER SURVIVORS

Supervisor: Dr Steve Fraser

Supervisor's profile:

Dr. Fraser is interested in the role of exercise for clinical populations for the prevention and treatment of chronic disease. He is currently investigating the cardio-metabolic benefits of exercise in prostate cancer survivors. He is also investigating how exercise improves insulin sensitivity and the use of resistance exercise as a treatment for Type 2 diabetes and obesity. Techniques used to investigate this include human clinical exercise training, assessment of function in clinical populations, blood biomarkers of cardio-metabolic health.

Contact details:

Email: steve.fraser@deakin.edu.au

Ph: (03) 9244 6012

Co-supervisor: Assoc. Prof. Trish Livingston (Faculty of Health, Deakin University)

Project description:

One in 9 men in Australia will develop prostate cancer in their lifetime and 5 year survival rates are currently at 83%. Prostate cancer survivors are at increased risk of dying from co-morbidities, including cardiovascular disease, diabetes and osteoporosis, which may be prevented or ameliorated through participation in physical activity, thereby enhancing survivorship outcomes through a reduction in physiological and psychological symptoms and improvements in quality of life. The substantial benefits in prostate cancer survivors undertaking physical activity has not been translated into practice. The relationship between fitness improvements, risk of developing co-morbidities and psychological outcomes have not been extensively studied in prostate cancer survivors. The project will investigate the links between fitness improvements, in prostate cancer survivors (6 months post treatment, hormone treatment exempt) after exercise training. These potential fitness improvements and how these relate to cardio-metabolic risk reduction, quality of life and psychological outcomes will be investigated.

Methodological approach:

Prostate cancer survivors (6 months post treatment) will be recruited through outpatient clinics; Peter MacCallum, Epworth Healthcare, and Austin Health. The exercise program will be designed by Exercise Physiologists and conducted at the Deakin YMCA. Physiological (anthropometry, BP) and fitness assessments (CV fitness and strength) will be conducted pre and post exercise training. The relationship between these measures and blood biomarkers of cardiovascular and metabolic risk, psychological and quality of life questionnaires (e.g. Cancer-specific Quality of Life questionnaire, Depression inventory) will be investigated.

Necessary skills/knowledge:

Students should have a basic understanding of exercise physiology, with good interpersonal and organizational skills required.

4. CREATINE KINASE AS A PREDICTOR OF INJURY AND OVERTRAINING IN ELITE AUSTRALIAN FOOTBALL

Supervisor: Dr Paul Gustin

Supervisor's profile:

Dr Paul Gustin is a Senior Lecturer in Exercise and Sport Science. He has twenty years experience working in high performance sport including head of Sport Science at the VIS and Technical Manager at UK Sport. Research interests relate to training science and methods of athlete management and monitoring including workload assessment, adaptation and recovery and application of technology in the coaching process.

Contact details:

Email: paul.gustin@deakin.edu.au

Ph: (03) 9244 6334

Co-supervisor: Dr Kevin Netto

Industry supervisor: Mr Brendan Fahrner, Richmond Football Club

Project description:

Physical training causes microtrauma within the skeletal muscle. When this occurs, the body overcompensates the repair of this tissue allowing adaptation to training stimulus. This microtrauma damage has been suggested as a possible cause of symptoms associated with delayed onset muscle soreness. Literature also suggests that repetitive microtrauma or maladaptation can lead to injury within athletes. In elite collision sport, athletes are required to complete several training sessions a day in the lead up to the major stimulus of the week, competition. If sufficient recovery practices are not in place, these athletes can risk sustaining an injury and therefore miss training sessions and games.

Creatine Kinase (CK) is a known marker of muscle microtrauma. It is used as a blood marker for myocardial infarction and other muscle breakdown conditions such as muscular dystrophy. Total serum CK levels have also been found to acutely increase above normal levels in people who have sustained a muscle injury. Therefore the aim of the current honours project is to investigate if CK can be used as a marker of overtraining or maladaptation and the possible use of CK as a predictor of injury within elite collision sport athletes (AFL football).

Methodological approach:

The project involves the weekly monitoring of an elite Australian Rules football squad (Richmond FC). Weekly training loads (GPS and session-RPE) and accompanying injury data, along with weekly CK levels (analysed at the club) will be collected throughout the pre-competition and competition training cycles. At the completion of data collection, multi-level modeling techniques will be used to identify trends associated with CK and the possible relationships with training loads and injury rates within the squad.

Necessary skills/knowledge:

An interest in applied sport science with the focus on injury risk management and elite athlete assessment. Good time management is essential.

5. TASK-DEPENDANT MODULATION OF CORTICOSPINAL EXCITABILITY AND INTRACORTICAL INHIBITION DURING MOTOR IMAGERY OF A STRENGTH TASK

Supervisor: Dr Dawson Kidgell

Supervisor's profile:

With a PhD in Neurophysiology, Dr Kidgell's research interests include using transcranial magnetic stimulation (TMS) to assess neural adaptations associated with skill and strength training; in particular the neural basis of cross education training as well as strength training for neuromuscular conditions. Dr Kidgell also has a research interest in neuroplasticity of the human motor cortex following musculoskeletal injury, limb immobilization and motor imagery training and the corticospinal control of movement in health and disease.

Contact details:

Email: dawson.kidgell@deakin.edu.au

Ph: (03) 9251 7264

Co-supervisor: Dr Michael Spittle

Project description:

Strength training forms an important component of the rehabilitation process following musculoskeletal or neuromuscular injury, thus understanding how different forms of training can influence strength development and corticomotor excitability is crucial for clinical settings. Strength training studies have demonstrated an increase in strength and corticomotor excitability as have motor imagery strength training programs. Motor imagery is a potential intervention with clinical groups because it can be completed while the client is still injured, and this may have benefits in maintaining strength and speeding recovery from injury. Understanding the most efficacious application of imagery strength training is important in developing appropriate interventions using motor imagery. Despite this, little is known about the effects of imagery perspective use in motor imagery strength training programs. Internal imagery has been considered more efficacious because of its perceived greater kinesthetic output; however, this has not been tested. This project, therefore, aims to determine the task-dependent effect of short-term strength training and short-term motor imagery strength training on strength development and corticomotor excitability. Internal and external imagery perspective conditions will be compared to determine the effectiveness of each form of imagery training on strength development and neuroplasticity. Internal imagery strength training and external imagery strength training groups will be compared with strength training and control groups on changes in strength and corticospinal excitability following 4 weeks of training.

Methodological approach:

1. Maximal strength testing of upper limbs
2. 4 weeks of strength training of one limb
3. Corticomotor measures throughout training intervention
4. Questionnaire measurement of imagery use and imagery perspective use

Necessary skills/knowledge:

Students should have a basic understanding of neurophysiology, functional anatomy, biomechanics, and psychology. Word processing skills and data entry (use of excel) is desirable.

6. PSYCHO-PHYSIOLOGICAL MARKERS OF STRESS IN RESPONSE TO A BUSHFIRE SUPPRESSION SIMULATION

Supervisor: Dr Luana Main

Supervisor's profile:

Dr Luana Main's research focus is on the psycho-biological monitoring of overtraining in endurance athletes, with her work seeking to identify possible physiological mechanisms behind the development of fatigue in response to stress (physiological +/- psychological), and at the same time, identify ways to non-invasively monitor athletes health and well-being. Currently Luana is now exploring these same research questions in the context of Physically Demanding Occupations (i.e. firefighters, military, mining) with Dr Brad Aisbett with the view to assist industries to develop comprehensive policy, best practice guidelines, and training and educational materials to preserve the health and safety of their personnel on the job.

Contact details:

Email: luana.main@deakin.edu.au

Ph: (03) 9244 5030

Co-supervisor: Dr Brad Aisbett

Project description:

Each year, bushfire threatens people and property across Australia. Striving to safeguard Australians from the devastation and destruction of bushfire are our rural firefighters. On the fireground, firefighters face a number of physical and mental stressors including; working long hours during day and night shifts, often over consecutive days with little rest between shifts. On shift they must perform arduous physical labour and make complex decisions, amidst extremes in temperature and the personal suffering of others. Managing firefighters' stress and fatigue levels during and between fireground shifts so that they are ready and able to perform their duties safely and productively is fundamental for firefighters, their agencies and the public they protect. This honours project represents a key step toward devising well validated, practical methods to manage firefighters' fatigue by evaluating the psycho-physiological impact of multi-day bushfire suppression deployments on firefighters. The honours research is nested within a larger project investigating the operational readiness of rural firefighters during bushfire suppression under different conditions.

Methodological approach:

Male and female firefighters will participate in a three- day simulated fireground tour during which repeated bouts of physical and cognitive tasks will be performed every two hours during wake/work periods. The simulation mimics a three-day bushfire 'tour of duty' where firefighters work three consecutive 14-hour shifts. Firefighters will live at the simulation site for three days (two nights). Over the course of the simulation, participants will be fitted with a heart rate monitor, an activity monitor (to record physical activity levels during wake and sleep parameters during rest opportunities) and ingest core body temperature capsules. Physical tests will comprise a range of repetitive tasks representative of the carry and drag actions that comprise the principal fireground tasks. Cognitive tests will involve a divided attention task, a situational awareness task and a vigilance task. Subjective measures of sleepiness/fatigue, perceived exertion thermal comfort, blood pressure, blood glucose concentration and hydration levels will be recorded every two hours. While subjective measures of general wellbeing, together with a number of inflammatory blood markers will be collected every morning and night.

Necessary skills/knowledge:

The ability to work in teams; High levels of time management and initiative.

7. EFFECT OF DIFFERENT CONFIGURATION OF MILITARY BODY ARMOUR ON LIFTING MECHANICS

Supervisor: Dr Kevin Netto

Supervisor's profile:

Dr Kevin Netto's research background lies in quantifying musculoskeletal load during occupationally and athletically demanding and injurious tasks. Specifically, his research has delved into spinal injuries, neck and back pain as well as rehabilitation of these injuries.

Contact details:

Email: kevin.netto@deakin.edu.au

Ph: (03) 9251 7277

Co-supervisor: Dr Brad Aisbett

Project description:

Manual lifting is a common task performed by military personnel in the course of their duties. The objects personnel lift vary in size and weight and lifts in the combat are commonly performed while wearing military body armour. These garments are bulky and have been shown to restrict movement of the wearer. This situation could have severe consequences on the lifting mechanics of the wearer which in turn, pre-dispose the wearer to injury. As such, body armour manufacturers have designed different ensembles to enhance the mobility of the wearer. The effect of these new designs is however unknown. This study aims to quantify the differences in lifting mechanics in five different body armour designs.

Methodological approach:

Twenty participants will be asked to perform repeat lifts of three different objects while wearing military body armour. The size and weight of these objects will represent the three most common objects lifted by military personnel. Five different designs of body armour will be tested. Participants' lifting mechanics will be quantified by a 24-camera motion analysis system and surface electromyography.

Necessary skills/knowledge:

Biomechanics and analysis knowledge is preferred but not essential. Good time management.

8. EFFECT OF COMPRESSION GARMENTS ON PERFORMANCE IN THE COLD

Supervisor: Dr Kevin Netto

Supervisor's profile:

Dr Kevin Netto research background in sports biomechanics lies in quantifying the load place on the athlete. He is especially interested in running, jumping, landing and cutting movements.

Contact details:

Email: kevin.netto@deakin.edu.au

Ph: (03) 9251 7277

Co-supervisors: Dr Dawson Kidgell, Paul Collins

Project description:

It is well know that a reduction in muscle temperature impairs not only maximal force production but also neuromuscular function. A 1°C drop in muscle temperature can result in performance decrements of 2-5%. These reductions are especially pronounced in short duration, high intensity or high speed movements. Compression garments have been shown to significantly increase skin temperature during exercise in the cold. Further, these garments may also have the added effect of enhancing proprioception. Thus the aim of this study is to investigate the possible performance improvement during short duration, high force and high speed movements when compression garments are used in cold environments.

Methodological approach:

Participants will perform a number of high intensity and high speed movements of the lower limb in either a thermo neutral (22°C) or a cold (10°C) environment while wearing a compression or control garment. Electromyography from the main leg extensors along with performance measures such as maximal force, rate of force development and ability to track the limb will be measured.

Necessary skills/knowledge:

Biomechanics and analysis knowledge is preferred but not essential. Good time management.

9. AN EXAMINATION OF STRENGTH, POWER AND LOAD PROFILES OF DEVELOPING AERIAL SKIERS

Supervisor: Dr Kevin Netto

Supervisor's profile:

Dr Kevin Netto research background in sports biomechanics lies in quantifying the load placed on the athlete. He is especially interested in running, jumping, landing and cutting movements.

Contact details:

Email: kevin.netto@deakin.edu.au

Ph: (03) 9251 7277

Co-supervisors: Dr Paul Gastin, Dale Chapman (AIS/OWIA)

Project description:

In Australia, elite aerial skiers enter the sport from other non-snow acrobatic sports (gymnastics and diving). These athletes undertake a change in training regime much later in their athletic career. Very little is understood about this transition and the loads placed on the athlete. Considering the high rate of injury in this cohort, this study proposes to monitor the physical and physiological changes in these athletes through a winter training cycle. This information will not only facilitate the optimization of training but also the potential of identifying injury.

Methodological approach:

The Australian aerial skiing team will be tested on a fortnightly basis for changes in strength, power, anthropometry and load. These tests will be completed on an isokinetic dynamometer, using a force plate and by taking subjective ratings of wellness. Concurrently, aged-matched controls will also be tested.

Necessary skills/knowledge:

Biomechanics and analysis knowledge is preferred but not essential. Good time management.

10. AN INVESTIGATION OF ECCENTRIC LOWER LIMB NEUROMUSCULAR CONTROL AND VARIABILITY IN NON-PATHOLOGICAL POPULATIONS DURING A DROP LANDING TASK

Supervisor: Dr Natalie Saunders

Supervisor's profile:

Exercise Physiologist. In 2006 she completed her PhD titled 'Characteristics of the female landing pattern' which aimed to understand neuromuscular control during landings in netball. 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. She also has an interest in understanding the variability of motor tasks and how these relate to performance and injury.

Contact details:

Email: natalie.saunders@deakin.edu.au

Ph: (03) 9244 3729

Co-supervisors: Dr Michael Spittle, Dr Dawson Kidgell, Dr Jason Bonacci

Project description:

Poor eccentric lower limb neuromuscular control has implications across a spectrum of movement tasks. For example, poor landing technique in sport has been implicated in lower limb injuries. This research project aims to better understand eccentric lower limb neuromuscular control at both the central and peripheral levels during a basic drop landing task. Once we better understand normal eccentric lower limb neuromuscular control and possible dysfunctional patterns, in conjunction with central motor control mechanisms underpinning the movement, we can better implement intervention practice to prevent or return from injury.

Methodological approach:

The methods involved will include:

- EMG analysis
- TMS investigation
- possible 3D kinematic analysis

Necessary skills/knowledge:

It is desirable, but not necessary, that the candidate who undertakes this research has some understanding of EMG and TMS analysis technique. It is preferred that the candidate has a strong desire to progress research in the field of neuromuscular control.

11. AN INVESTIGATION OF ECCENTRIC LOWER LIMB NEUROMUSCULAR CONTROL AND VARIABILITY IN NON-PATHOLOGICAL POPULATIONS DURING AN ACTIVITY OF DAILY LIVING (SIT TO STAND)

Supervisor: Dr Natalie Saunders

Supervisor's profile:

Natalie Saunders is a lecturer in Clinical Exercise Physiology and is currently also working as an Accredited Exercise Physiologist. In 2006 she completed her PhD titled 'Characteristics of the female landing pattern' which aimed to understand neuromuscular control during landings in netball. 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. She also has an interest in understanding the variability of motor tasks and how these relate to performance and injury.

Contact details:

Email: natalie.saunders@deakin.edu.au

Ph: (03) 9244 3729

Co-supervisors: Dr Michael Spittle, Dr Dawson Kidgell, Dr Jason Bonacci

Project description:

Poor eccentric lower limb neuromuscular control has implications across a spectrum of movement tasks. For example, poor landing technique in sport has been implicated in lower limb injuries. In addition the ability to control fundamental activities of daily living, such as stand-to-sit is paramount to functional capacity and quality of life. This research project aims to better understand eccentric lower limb neuromuscular control at both the central and peripheral levels. Once we better understand normal eccentric lower limb neuromuscular control and possible dysfunctional patterns, in conjunction with central motor control mechanisms underpinning the movement, we can better implement intervention practice to improve functional capacity and quality of life.

Methodological approach:

The methods involved will include:

- EMG analysis
- TMS investigation
- possible 3D kinematic analysis

Necessary skills/knowledge:

It is desirable, but not necessary, that the candidate who undertakes this research has some understanding of EMG and TMS analysis technique. It is preferred that the candidate has a strong desire to progress research in the field of neuromuscular control.

12. ACTIHEART FOR MONITORING METABOLISM IN PEOPLE WITH CHRONIC HEART FAILURE (CHF): A VALIDATION STUDY

Supervisor: Professor Steve Selig

Supervisor's profile:

Professor Steve Selig holds the Chair - Clinical Exercise Science at Deakin University, where he leads the academic group, Deakin University Clinical Exercise (DEUCE). Prof Selig is an Honorary Research Fellow in the Department of Cardiology, Faculty of Medicine, University of Melbourne. He currently serves as Director – Curriculum on the National Board of Exercise & Sport Science Australia (ESSA), and is Chair of the ESSA National Accreditation and Curriculum Committee. Prof Selig is an active researcher on the effects of exercise for people living with chronic disease, particularly those with cardiovascular and metabolic conditions.

Contact details:

Email: steve.selig@deakin.edu.au

Ph: (03) 9251 7165

Co-supervisor: Dr Itamar Levinger (Victoria University)

Project description:

The aim is to examine the reliability and validity of physiological monitoring in CHF patients using Actiheart technology. This study will then lead on to a further clinical trial (PhD) to investigate Actiheart as a surrogate method for the early detection of clinical deterioration in CHF patients, and this may be useful in the management of patients who are being considered for cardiac transplantation and / or ventricular assist devices. From a lifestyle perspective, the method may also provide new strategies aimed at improving individual management including prescribing more adequate exercise training programs for this population.

Methodological approach:

Physical activity levels will be assessed using a compact heart rate monitor with an integrated uni-axial accelerometer (Actiheart, Cambridge Neurotechnology, see <<http://www.camntech.com/>>). The total weight of the Actiheart is 8 grams and it is attached to the volunteer via two standard ECG electrodes, one placed to the left of the sternum on the line of the 5th intercostal space, the other on the mid-clavicular line of the 5th intercostal space. The Actiheart is programmed to record successive epochs of PA. Activity and heart rate data are logged into a non-volatile memory for later download. For the validation study, volunteers will walk on a treadmill at steady state at 3.5 km.hr⁻¹, 4.5 km.hr⁻¹ and 3.5 km.hr⁻¹ with added weight (equivalent to 10% of body mass). Volunteers will also undertake the Bruce Protocol treadmill test, the most common treadmill protocol used in cardiologist-supervised exercise stress testing. Metabolic data calculated using the Actiheart algorithm will be benchmarked against metabolic measurement data (VO₂) using Innocor (breath-by-breath) technology. Repeat testing will be performed 5-10 days after the first series of treadmill tests.

Necessary skills/knowledge:

13. EFFECTS OF ORAL CREATINE SUPPLEMENTATION AND RESISTANCE TRAINING ON CORTICOMOTOR EXCITABILITY AND INTRACORTICAL INHIBITION IN HEALTHY ADULTS

Supervisor: Professor Rod Snow

Supervisor's profile:

Professor Rod Snow is Professor of Exercise Physiology in the School of Exercise and Nutrition Sciences and Deputy Head of School. Professor Snow is a member of the Centre for Physical Activity and Nutrition Research (C-PAN) and is a co-leader of the Muscle Health research group within CPAN. His research interest is focused on understanding how skeletal muscle regulates creatine content in health and disease.

Contact details:

Email: rod.snow@deakin.edu.au

Ph: (03) 9251 7013

Co-supervisor: Dr Dawson Kidgell

Project description:

Resistance training is an effective intervention against aging- and disease-related loss of muscle mass, strength, and function, leading to improved functional status, maintenance of independence, and the prevention of disability. Furthermore, another intervention that may enhance physical fitness, augment the benefits of resistance training, and provide a potential bioenergetic and neuroprotective benefit is creatine monohydrate supplementation. Creatine supplementation has been shown to increase brain and muscle creatine and phosphocreatine concentrations and improve muscular performance in adults. When combined with resistance training, supplementation enhances the training-related improvements in muscle mass, strength, endurance, and average power in adults and in patients with neuromuscular disease. Because muscle weakness, fatigue, and atrophy are strong predictors of disability, there may be important therapeutic uses for creatine monohydrate combined with resistance training. In addition, the effect of creatine supplementation on motor cortical excitability is less well defined. Therefore, the purpose of the present study is to examine the effect of 4-weeks of heavy-load controlled strength training with creatine supplementation on the development of strength, power and motor cortex excitability and inhibition in healthy adults.

Methodological approach:

This project will involve recruitment and testing of healthy volunteers to examine the neurophysiological responses to resistance training with creatine supplementation. This will be done by examining the effects of a 4-week resistance training program with (treatment group) or without (placebo) creatine monohydrate supplementation on motor cortex excitability, intracortical inhibition and indices of muscle function (maximal voluntary torque, 1-RM strength and reactive strength).

Necessary skills/knowledge:

This project would suit students interested in the neuromuscular aspects of exercise physiology. Word processing skills and data entry (use of excel) is desirable.

14. CHANGES IN ATTENTION ALLOCATION DURING THE LEARNING OF A MOTOR SKILL

Supervisor: Dr Michael Spittle

Supervisor's profile:

Dr Michael Spittle is a Senior Lecturer in Motor Learning and is currently supervising or co-supervising a number of postgraduate student projects in the areas of skill acquisition and motor learning. His research interests include imagery and mental practice, attention and decision-making, and skill acquisition. He has several recent publications in the area of research related to the proposed project.

The external co-supervisor is Derek Panchuk, who is a lecturer in motor learning at Victoria University and an expert in research on visual perception; decision making; perceptual training; interceptive timing and gaze behaviours during natural actions.

Contact details:

Email: michael.spittle@deakin.edu.au

Ph: (03) 9244 5229

Co-supervisor: Dr Derek Panchuk (Victoria University)

Project description:

An individual's eye movements provide insight into the allocation of attention and processing requirements of the task at hand. In complex tasks, the observer must learn the dynamic properties of the environment in order to distribute gaze and attention where they are required. Changes in eye movements as a skill is acquired are a consequence of learning at several levels; an individual must determine what cues are relevant and how to locate them, the order in which cues must be fixated to accomplish the task as well as the optimal timing of information pick up. While differences in attention allocation between novice and expert performers are well established, changes that occur during the learning process are not well understood. The aim of this project is to examine changes in attention allocation, as measured using eye movement recordings, as individuals learn a novel motor skill. This will allow us to determine the time course of learning, how gaze behaviour changes during the acquisition of a motor skill and whether changes in attention allocation precede or follow changes in motor skill performance.

Methodological approach:

Participants will have their attentional behavior measured while learning a novel motor task. Attention allocation will be recorded using an eye movement recorder (Applied Science Laboratories (ASL) Mobile Eye) and analysed for variables including the number, type and duration of fixations to determine gaze behavior. Previous studies have tended to compare expert and novice performers' attentional behaviour rather than investigate changes that occur as an individual learns a motor skill.

Necessary skills/knowledge:

- Interest in skill acquisition and motor learning and/or psychology
- Good organisational skills and motivation to manage the project through to completion

15. THE RELATIONSHIP BETWEEN PRESSURE AND SET SHOT GOAL KICKING CONSISTENCY IN ELITE AFL FOOTBALL

Supervisor: Dr Michael Spittle

Supervisor's profile:

Dr Michael Spittle is a Senior Lecturer in Motor Learning and is currently supervising or co-supervising a number of postgraduate student projects in the areas of skill acquisition and motor learning, including projects related to AFL football. His research interests include imagery and mental practice, attention and decision-making, and skill acquisition. He has several recent publications in the area of research related to the proposed project.

The external co-supervisor is Ray Breed, who is High Performance Manager at North Melbourne Football Club. His responsibilities include skill acquisition/sport science coordinator, game analysis, training development, and game sense. He has also previously supervised several honours projects.

Contact details:

Email: michael.spittle@deakin.edu.au

Ph: (03) 9244 5229

Co-supervisor: Ray Breed (High Performance Manager, North Melbourne FC)

Project description:

Set shot goal kicking is believed to be a crucial performance variable contributing to team success in elite AFL football. Teams can demonstrate significant variability in the goal kicking accuracy during a season. Understanding game-related and individual pressure characteristics that influence performance of this crucial skill will assist in monitoring and developing approaches to improve consistency of performance. The project will investigate the relationship between game-related and personal pressure and set shot goal kicking routine, technique and accuracy in elite AFL football. Previous research on anxiety and choking in sport has indicated that anxiety and self-perceptions can influence skill performance when a performer is placed under pressure: it is possible that these individual pressure variables influence in-game set shot goal kicking consistency of players in the AFL, including consistency of routine, technique, and as a consequence accuracy.

Methodological approach:

The project would require you to analyse game footage and collect data from AFL footballers from North Melbourne FC. The proposed method is likely to involve the following stages: 1) players will complete a trait anxiety questionnaire and a self-perceptions questionnaire; 2) players will complete a goal-kicking test session under pressure and no pressure conditions; 3) video-footage of the games will be acquired; 4) using the video footage, each set shot kick for goal will be coded and categorised utilising coding software into game time, game score, player, routine, technique and accuracy; and 5) analysis of the relationships between variables. Heart rate may also be used to measure goal kicking related anxiety.

Necessary skills/knowledge:

Interest in performance analysis of team sports, particularly skill acquisition and motor learning; Willingness to travel regularly to North Melbourne FC for data collection and other activities associated with the project (which may include training and times outside Mon-Fri 9-5); Commitment to attend North Melbourne FC for data collection and analysis on at least one day per week throughout the project (preferably Monday or Tuesday); An interest and knowledge in football would be an advantage; Good organisational skills and motivation to manage the project through to completion.

16. AN INVESTIGATION INTO THE IMPORTANCE, FREQUENCY AND TYPE OF CONTESTED POSSESSION IN AFL

Supervisor: Dr Michael Spittle

Supervisor's profile:

Dr Michael Spittle is a Senior Lecturer in Motor Learning and is currently supervising or co-supervising a number of postgraduate student projects in the areas of skill acquisition and motor learning, including projects related to AFL football. His research interests include imagery and mental practice, attention and decision-making, and skill acquisition. He has several recent publications in the area of research related to the proposed project.

The external co-supervisor is Ray Breed, who is High Performance Manager at North Melbourne Football Club. His responsibilities include skill acquisition/sport science coordinator, game analysis, training development, and game sense. He has also previously supervised several honours projects.

Contact details:

Email: michael.spittle@deakin.edu.au

Ph: (03) 9244 5229

Co-supervisors: Ray Breed, Dr Paul Gastin

Project description:

A variable that is perceived to be important to effective performance in Australian Football (AF) and especially in the Australian Football League (AFL) is contested possession. In an invasion game, such as AF, gaining and maintaining possession of the ball is important for success. Consequently, winning contested possession is thought to be crucial to winning games, yet no research has been conducted on this. In AF, contested possession occurs when there is a contest for the ball, so that possession comes from winning a contest. In statistical terms in the AFL, contested possessions consist of hard ball gets, contested marks, free kicks, and loose ball gets. Thus, this honours project will aim to explore the type, frequency, and performance outcomes of contested possessions in elite AFL football. It is hoped that this will provide an understanding of how contested possession relates to successful performance at the elite level and this will provide a basis of understanding for developing associated training activities. It will also assist in understating game strategies and tactics related to contested possession. This project, therefore, is likely to engage the student in activities including video-based analysis and coding of AFL games.

Methodological approach:

The proposed method is likely to involve the following stages: 1) games of AFL will be selected at random for analysis; 2) video-footage of the games will be acquired; 3) using the video footage, each contested possession will be coded and categorised for type and frequency of contested possession (e.g., open space, congestion, fall of ball (ground) contest, aerial contest) as well as for the outcome of the contested possession; and 4) analysis of the relationships between coded variables.

Necessary skills/knowledge:

Interest in performance analysis of team sports, particularly skill acquisition and motor learning; Willingness to travel regularly to North Melbourne FC for data collection and other activities associated with the project (which may include training and times outside Mon-Fri 9-5); Commitment to attend North Melbourne FC for data collection and analysis on at least one day per week throughout the project (preferably Monday or Tuesday); An interest and knowledge in football would be an advantage; Good organisational skills and motivation to manage the project through to completion.

17. AN EXAMINATION OF SHORT TERM AEROBIC TRAINING FOR IMPROVING EXERCISE TOLERANCE IN OBESE INDIVIDUALS

Supervisor: Dr Stuart Warmington

Supervisor's profile:

Dr. Warmington is a Lecturer in Exercise Physiology and his research interests focus on 3 areas: 1) physiological mechanisms by which clinical groups may better tolerate exercise and adapt to training to gain improvements in health; 2) novel training methods that improve exercise outcomes in clinical groups; and 3) physiological mechanisms by which recovery methods may impact performance.

Contact details:

Email: stuart.warmington@deakin.edu.au

Ph: (03) 9251 7013

Co-supervisor: Dr Steve Fraser

Project description:

It's been shown that the physiological transition from rest to exercise is slower in type 2 diabetic and in obese adolescents, partly owing to a lower tolerance of exercise in these groups. We are currently investigating if this impairment exists in obese adults. It is expected that this impairment may be improved with exercise training, but the time course and characteristics of this adaptation to training to ensure better tolerance of exercise have not been investigated.

As such, the main aim of this project is to investigate whether short-term aerobic training improves the physiological characteristics of the transition from rest to exercise with obesity. The significance of this research will be to better inform the prescription of exercise in this clinical group to enhance tolerance and adherence to exercise training.

Methodological approach:

This project will involve recruitment and testing of two groups of subjects (Lean and Obese) to examine the physiological characteristics that define the transition from rest to exercise. This will be done both before and after a three week (10 session) aerobic training period and so assess the short-term improvements in exercise tolerance that may be important for early prescription of exercise in obese individuals.

Necessary skills/knowledge:

This project would suit students interested in clinical aspects of exercise physiology, exercise performance assessment and physiology of disease. The student should be enthusiastic towards exercise as a clinical treatment and be prepared to recruit and work with volunteers that lack recent experience with exercise. Testing procedures and data collection are non-invasive using an advance metabolic cart to assess oxygen consumption and cardiac parameters during the initial stages of exercise.

18. VASCULAR OCCLUSION TRAINING: WHAT'S POSSIBLE IN CLINICAL GROUPS?

Supervisor: Dr Stuart Warmington

Supervisor's profile:

Dr. Warmington is a Lecturer in Exercise Physiology and his research interests focus on 3 areas: 1) physiological mechanisms by which clinical groups may better tolerate exercise and adapt to training to gain improvements in health; 2) novel training methods that improve exercise outcomes in clinical groups; and 3) physiological mechanisms by which recovery methods may impact performance.

Contact details:

Email: stuart.warmington@deakin.edu.au

Ph: (03) 9251 7013

Co-supervisor: Dr Dawson Kidgell

Project description:

It's been shown that when low-resistance exercise is performed with a vascular occlusion applied to restrict muscle blood flow during exercise, that the gains in strength and hypertrophy are similar to the gains achieved with high-resistance strength training. This novel outcome is in contrast to the fact that the greatest gains in strength and hypertrophy are most commonly thought to be achieved only with high-resistance strength training. As such, vascular occlusion training that utilises only low-resistance exercise, may provide a substantial benefit to clinical groups where strength training proves beneficial, but where high-resistance strength training is not recommended due to the implied clinical risk.

However, vascular occlusion training, or KAATSU training, has been used little outside Japan, and it is unknown whether it is safe, ethical and efficacious for use in clinical populations. Therefore, this project will aim to examine clinical risk factors associated with vascular occlusion training with a view the future implementation of this type of training in clinical "at risk" populations.

Methodological approach:

This project will involve recruitment and testing of healthy volunteers to examine the physiological responses to vascular occlusion training that may indicate this method of training to provide adverse risk if conducted in clinical populations. This will be done by examining controlled exercise under conditions of NO-occlusion, and graded levels of occlusion during low-resistance exercise. Factors to be assessed will be metabolic and cardiac responses that typically confer added risk of resistance training such as oxygen consumption, HR, cardiac output, blood pressure, blood lactate and respiratory parameters.

Necessary skills/knowledge:

This project would suit students interested in clinical aspects of exercise physiology, exercise performance assessment and physiology of disease. The student should be enthusiastic towards exercise prescription and monitoring, as well as exercise as a clinical treatment. Testing procedures and data collection will utilise non-invasive techniques such as an advance metabolic cart to assess oxygen consumption and cardiac parameters, as well as blood pressure and typical risk factors associated with exercise.

19. DOES RECOVERY FROM EXERCISE INDUCE POSITIVE PHYSIOLOGICAL RESPONSES TO METABOLISM AND CARDIOVASCULAR FUNCTION?

Supervisor: Dr Stuart Warmington

Supervisor's profile:

Dr. Warmington is a Lecturer in Exercise Physiology and his research interests focus on 3 areas: 1) physiological mechanisms by which clinical groups may better tolerate exercise and adapt to training to gain improvements in health; 2) novel training methods that improve exercise outcomes in clinical groups; and 3) physiological mechanisms by which recovery methods may impact performance.

Contact details:

Email: stuart.warmington@deakin.edu.au

Ph: (03) 9251 7013

Co-supervisor: Dr Paul Gastin

Project description:

We have shown that recovery strategies following exercise training and competition are in widespread use, despite a large dissociation between the rationales for prescription in comparison with outcomes from focused research. Partly, this stems from the difficulty in measuring, or even predicting, the outcomes from recovery following exercise. Nevertheless, very little research has focused on truly understanding the physiological outcomes from a number of recovery strategies in both the short and long term, as such this project aims to shed more light on understanding both the metabolic and cardiovascular responses to recovery, in particular that of water immersion.

Methodological approach:

This project will involve recruitment and testing of healthy volunteers to examine the physiological responses to recovery following exercise. This will be done by examining metabolism and cardiovascular function following exercise during recovery and control conditions such as oxygen consumption, HR, cardiac output, blood pressure, blood lactate and respiratory parameters.

Necessary skills/knowledge:

This project would suit students interested in exercise performance assessment and prescription of exercise and recovery. The student should be enthusiastic towards exercise prescription and monitoring, as well the challenges of physiological testing in an exercise environment. Testing procedures and data collection will utilise non-invasive techniques such as an advance metabolic cart to assess oxygen consumption and cardiac parameters, as well as blood pressure, and other typical measurements of exercise performance and recovery.

20. TWELVE MONTH FOLLOW UP OF THE 'KAPS: KIDS PHYSICAL ACTIVITY WITH PARENTAL SUPPORT' STUDY

Supervisor: Helen Brown

Supervisor's profile:

Helen Brown's main interest is investigating influences on children's physical activity, particularly relating to mediators (e.g. enjoyment, self-efficacy) of physical activity behaviour change in children. She is involved in several studies relating to this topic, with the main emphasis on the development of multi-setting strategies to promote physical activity in children. Helen is a Lecturer in the School of Exercise and Nutrition Sciences and is currently completing her PhD after gaining first class honours for her honours study relating to teacher professional development in Sport and Physical Education.

Contact details:

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Ph: (03) 9244 6327

Co-supervisor: Professor Jo Salmon

Project description:

A key component in the development of children's health and wellbeing is physical activity. With evidence of declining physical activity levels in children and rapid increases in the prevalence of overweight and obesity in children from developed countries over the last two decades, it is critical to develop programs to prevent further declines in children's physical activity levels and thereby improve health outcomes. One such program is KAPS (Kids Physical Activity with Parental Support), a randomised controlled trial involving families of 10-12 year old children which examined the effectiveness of targeting mediators of change in children's physical activity.

Aim: To conduct a follow up investigation of the families involved in the KAPS study to explore the sustainability of the program.

Methodological approach:

This study will involve a qualitative methodological approach. Interviews with 'KAPS' families will be undertaken and analysed to explore the sustainability of the KAPS program. It will investigate aspects of the program which enabled families to maintain their participation in physical activity and perceived barriers which hindered activity levels. The findings of this project will inform future intervention development to prevent further declines in children's physical activity.

Necessary skills/knowledge:

Desirable: HSE203, HSE313

21. DOES ACTIVE GAMING AFFECT CHILDREN'S DAILY PHYSICAL ACTIVITY LEVELS AND ENERGY EXPENDITURE?

Supervisor: Dr Nicola Ridgers

Supervisor's profile:

Dr Ridgers is an Alfred Deakin Postdoctoral Researcher working in the area of children's physical activity levels and sedentary behaviour. She was a researcher on the first published Nintendo Wii and Nintendo Wii Fit active gaming studies, which were funded by Nintendo UK, before they were commercially available. She has also worked with the computer gaming industry to optimise settings for a step-powered peripheral device in relation to physical activity intensities.

Contact details:

Email: nicky.ridgers@deakin.edu.au

Ph: (03) 9244 6718

Co-supervisor: Dr Lisa Barnett (School of Health and Social Development)

Project description:

In Australia, 81% of children aged 7-11 years own an electronic gaming system of some kind. Video gaming is a valued leisure activity in children, and with few children meeting daily screen-time recommendations. In addition, children who engage in high levels of gaming may be at an increased risk of obesity. Active video games provide opportunities for children to be physically active while playing video games, which may impact on daily activity levels and energy expenditure. However, few studies have examined the impact of playing active games on these variables.

This study will be an exploratory proof of concept study to see how active video games affect children's physical activity levels and energy expenditure across the day. This study is timely as it is drawing from current technological advances that impact currently on children's behaviour. It is novel as it is examining free-living energy expenditure, which builds on previous laboratory based settings. There is the potential to publish a peer-reviewed article from this study.

Methodological approach:

Approximately 10-15 children from one school who do not own an active gaming console and do not meet screen time recommendations (>2 hrs/day) will be recruited to the study. Children will be asked to participate in an afterschool program that uses the Nintendo Wii console and games to encourage active gaming using both upper-body and whole body movements. Pre, mid, and post intervention testing will be conducted to examine physical activity levels and energy expenditure before, during and after the program using novel physical activity monitoring technology.

Necessary skills/knowledge:

The student will need to have an interest in the topic. Experience of playing computer games (both active and sedentary) would be beneficial though not essential. Training will be provided for the use of activity monitoring equipment.

22. DOES ACTIVE GAMING INCREASE CHILDREN'S MOTOR SKILLS?

Supervisor: Dr Nicola Ridgers

Supervisor's profile:

Dr Ridgers is an Alfred Deakin Postdoctoral Researcher working in the area of children's physical activity levels and sedentary behaviour. She was a researcher on the first published Nintendo Wii and Nintendo Wii Fit active gaming studies, which were funded by Nintendo UK, before they were commercially available. She has also worked with the computer gaming industry to optimise settings for a step-powered peripheral device in relation to physical activity intensities.

Contact details:

Email: nicky.ridgers@deakin.edu.au

Ph: (03) 9244 6718

Co-supervisor: Dr Lisa Barnett (School of Health and Social Development)

Project description:

In Australia, where electronic gaming is prevalent, many children do not master basic motor skills such as catching or throwing and are at risk of being less physically active as a result. It is possible use of active electronic games (e.g. Wii Tennis) may help children's motor skill development. Yet there is little research on this topic.

Aim: This study will be an exploratory proof of concept study to see if active electronic games can increase children's motor skills. The long term aim will be for the student to write this study up for publication.

Methodological approach:

The approach is quantitative. Approximately 15-20 children will be recruited in one school who have not used active electronic games before. Children who are not involved in organized physical activities outside of school will be the target. Children will be asked to participate in an afterschool program for a series of weeks using the Wii with a focus on developing one or two motor skills (e.g. the 'strike' as used in tennis or the 'underarm roll' as used in bowling). Pre and post testing will measure the motor skill/s using the Test of Gross Motor Development (TGMD-2) prior to, and after the intervention Training will be provided for the motor skill instrument.

Necessary skills/knowledge:

- An interest in the topic.
- Having played electronic games before will be helpful but not necessary!

23. PROMOTING PHYSICAL ACTIVITY AMONGST DISADVANTAGED WOMEN

Supervisor: Megan Teychenne

Supervisor's profile:

Megan Teychenne is currently a Lecturer in Physical Activity and Health and has undertaken research in the area of women's health and epidemiology over the last four years. Her research focuses on investigating the associations between physical activity, sedentary behaviours and depression, particularly amongst women and socio-economically disadvantaged groups. She has also been involved in examining the intra-personal, social and physical-environmental influences on women's physical activity and sedentary behaviour and is particularly interested in the development of strategies to promote physical activity and reduce sedentary behaviours amongst 'at-risk' populations.

Contact details:

Email: megan.teychenne@deakin.edu.au

Ph: (03) 9244 6910

Co-supervisor: Dr Anna Timperio

Project description:

Socio-economically disadvantaged women are more likely to be physically inactive and engage in sedentary behaviour (e.g. TV viewing). However, little research has assessed the effectiveness of physical activity interventions amongst disadvantaged women and even fewer interventions have been designed to reduce sedentary behaviour amongst this target group. Therefore, it is important to develop and test the feasibility of strategies aimed to promote physical activity and reduce sedentary behaviour amongst this high-risk target group.

Aim: To conduct a formative evaluation of an intervention that has been designed to increase physical activity and reduce sedentary behaviour amongst women living in a socio-economically disadvantaged neighbourhood.

Methodological approach:

A qualitative survey will be developed and administered, assessing the perceived feasibility of the intervention strategies amongst participants following a 3-month intervention period.

Necessary skills/knowledge:

The student should have excellent communication and interpersonal skills, excellent organisational skills and understand basic concepts of qualitative research. HSE203, HSE212 or HSE316 desirable.

24. CLUSTERING OF EATING BEHAVIOURS, PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR IN CHILDREN AND ADOLESCENTS

Supervisor: Dr Anna Timperio

Supervisor's profile:

Dr Timperio is a senior researcher in the Centre for Physical Activity and Nutrition Research (C-PAN). She is an active researcher with a program of work focused on understanding the range of influences on physical activity, eating behaviours and weight status, particularly among children and adolescents, and over critical life transition periods (e.g., childhood to adolescence, adolescence to young adulthood). A major focus of her recent work has been examining neighbourhood food and physical activity environments.

Contact details:

Email: anna.timperio@deakin.edu.au

Ph: (03) 9251 7244

Co-supervisor: Dr Sarah McNaughton

Project description:

Protecting children from development of preventable chronic disease risk factors is a national health priority. Nutrition and physical activity are important for physical and psychosocial health across the lifespan. The 2007 National Nutrition and Physical Activity Survey found that 39% of 4-8 year old children, 49% of 9-13 year olds and 99% of 14-16 year olds did not consume more than one serve of fruit/day. While the proportion of children consuming two or more serves of vegetables/day was even lower, ranging from 0-5% across these age groups. Furthermore, compliance with physical activity recommendations (60 minutes or more of at least moderate-intensity physical activity every day) is also low with only 20-40% of children between 9-16 years adequately active for health. Independent of physical activity levels, sedentary behaviour, or sitting time, is also an emerging issue of concern for children. There is evidence to suggest that unhealthy behaviours track throughout childhood, and that they cluster together such that children may be classified as unhealthy on a number of behaviours. Understanding the complex patterns of these behaviours, the characteristics of children in different clusters of behaviours and how these behaviours track over time will assist in the development of intervention aimed at promoting nutrition and physical activity. Therefore the aims of this study are to: 1) Examine patterns of children's eating, physical activity and sedentary behaviours over two and four years; and 2) Identify the characteristics of children who have persistently high levels of physical activity, low levels of sedentary behaviour and high fruit and vegetable intakes over childhood.

Methodological approach:

The HEAP study was a longitudinal study that aimed to investigate the contextual influences on changes in children's eating, physical activity and obesity throughout childhood and adolescence. The study involved 1,560 children (aged 5-6 years and 10-12 years) at baseline in 2002/3. The first follow up of children was conducted in 2006 with data collected from 407 families. The second follow up in 2008 involved 377 families. Data collection included a parent survey, proxy report survey, accelerometry, measured height and weight of the child and GIS assessment of the child's physical activity and food environments.

Necessary skills/knowledge:

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.

25. PGC-1-REGULATION OF NDRG2 IN SKELETAL MUSCLE: IMPLICATIONS FOR THE CONTROL OF OXIDATIVE STRESS AND METABOLISM

Supervisor: Victoria Foletta

Supervisor's profile:

Victoria Foletta is a molecular and cell biologist also with a background in cell signalling and biochemistry. Her current research interests include determining how genes and their protein products control skeletal muscle growth, insulin sensitivity and metabolism primarily using cell culture-based models. The characterization of the signaling pathways involved in these biological processes gives us a greater understanding of molecular mechanisms controlling normal growth and function of skeletal muscle in addition to disease development and progression.

Contact details:

Email: victoria.foletta@deakin.edu.au

Ph: (03) 9244 5013

Co-supervisor: Dr Glenn Wadley

Project description:

Oxidative stress is a feature associated with many diseases including type 2 diabetes, cancer, neurodegenerative and cardiovascular diseases, and is emerging to have pathophysiological effects on skeletal muscle. Oxidative stress occurs when there is too much reactive oxygen and nitrogen species (ROS/RNS) produced within cells damaging DNA, protein and lipids potentially leading to pathological changes and cell death. One of the key modulators of ROS/RNS production is the PGC-1alpha protein, which contributes to the transcriptional regulation of many genes involved in mitochondrial biogenesis and oxidative metabolism. Its up-regulation during oxidative stress helps to protect against ROS effects but how it functions to do so is not well characterized. We have recently identified a novel gene transcriptionally induced by PGC-1alpha called NDRG2 and our preliminary studies have demonstrated NDRG2 to play a novel role in metabolism in skeletal muscle cells. We would like to extend these observations to determine whether NDRG2 also mediates antioxidant effects like PGC-1alpha during oxidative stress. The aim of this study is to identify whether the expression of NDRG2 regulates ROS/RNS production and protects against cell death during normal and oxidative stress conditions in skeletal muscle cells. The identification of down-stream protein effectors of PGC-1alpha regulation like NDRG2 will help determine how PGC-1alpha combats against oxidative stress. This has important implications in our understanding of disease progression associated with oxidative stress.

Methodological approach:

Mammalian (muscle) cell culture techniques, gene expression manipulation by RNAi or overexpression systems using retroviral infection techniques, and real time PCR and western blotting to analyses both RNA and protein levels will be utilized. ROS/RNS production will be measured using fluorescent cell-based assays and cell death will be assessed using cytotoxicity assays.

Necessary skills/knowledge:

Previous knowledge of molecular and cell biological techniques is an advantage but not required. A keen interest for science and learning laboratory-based techniques are essential.

26. EXERCISE AND OXIDATIVE STRESS IN SKELETAL MUSCLE

Supervisor: Dr Glenn Wadley

Supervisor's profile:

Dr Wadley is a lecturer in the School of Exercise and Nutrition Sciences. A key focus of his research program is examining the impact of physical activity during early life on later adult health. Another key focus 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 current research projects utilize a range of approaches from human exercise trials down to animal and cell culture experiments to investigate these areas. Some of Dr Wadley's projects are currently funded by the National Health and Medical Research Council (NHMRC) of Australia and has received substantial funding from the Heart Foundation of Australia.

Contact details:

Email: glenn.wadley@deakin.edu.au

Ph: (03) 9244 6018

Co-supervisor: Associate Professor Aaron Russell

Project description:

Some of the major health benefits of regular exercise are increased mitochondrial content, antioxidant defences and insulin sensitivity and reduced oxidative stress in skeletal muscle. Oxidative stress during exercise is due to increased production of reactive oxygen species (ROS) in the contracting skeletal muscle. The increased ROS is thought to be one of the mechanisms that stimulates muscle to adapt to exercise training. However, it is currently unknown at what exercise intensities ROS are produced by skeletal muscle. Therefore, this project will determine the exercise intensities at which ROS levels increase in humans during endurance exercise.

Methodological approach:

Techniques include protein extraction, western blotting and enzymatic assays.

Necessary skills/knowledge:

Course work in exercise physiology, biochemistry and/or molecular biology is required but not necessary.

27. WHAT ARE THE MOLECULAR MECHANISMS FOR PHYSICAL ACTIVITY IN CHILDHOOD IMPROVING ADULT HEART HEALTH?

Supervisor: Dr Glenn Wadley

Supervisor's profile:

Dr Wadley is a lecturer in the School of Exercise and Nutrition Sciences. A key focus of his research program is examining the impact of physical activity during early life on later adult health. Another key focus 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 current research projects utilize a range of approaches from human exercise trials down to animal and cell culture experiments to investigate these areas. Some of Dr Wadley's projects are currently funded by the National Health and Medical Research Council (NHMRC) of Australia and has received substantial funding from the Heart Foundation of Australia.

Contact details:

Email: glenn.wadley@deakin.edu.au

Ph: (03) 9244 6018

Co-supervisor: Associate Professor Aaron Russell

Project description:

We have found in rats that a few weeks of regular exercise during juvenile development (i.e. before adolescence), results in bigger hearts in adulthood. This is despite them being sedentary for their entire adult lives and long after the training effects should have worn off. It is possible one of the molecular mechanisms to explain these surprising findings could be due to alterations in microRNA (miRNAs), which are small noncoding ribonucleic acids (RNAs) that are known to function by inhibiting protein translation or enhance messenger RNA degradation. Therefore, the aim of this project is to examine if miRNA expression is altered in the hearts of these rats.

Methodological approach:

Techniques include RNA extraction and quantitative PCR.

Necessary skills/knowledge:

Course work in exercise physiology, biochemistry and/or molecular biology is required but not necessary

28. DOES ASSESSED DIETARY SALT INTAKE PREDICT ACTUAL 24 HOUR URINARY EXCRETION OF SALT?

Supervisor: Dr Alison Booth

Supervisor's profile:

Dr Alison Booth is a post-doctoral research fellow with Centre for Physical Activity and Nutrition Research, working within the Food Lifestyle and Health research program. Her current research focuses on the health of young female regular blood donors. She is also involved in the area of dietary and exercise behaviour change for the improvement of cardiovascular health (including blood pressure, weight management, blood lipids).

Professor Caryl Nowson holds chair of Nutrition and Ageing. Dr Riddell is a member of the Centre for Physical Activity and Nutrition Research (C-PAN) and her research focuses on long term dietary strategies for the prevention and management of cardiovascular disease. She is currently Head of School (Teaching and Learning).

Contact details:

Email: alison.booth@deakin.edu.au

Ph: (03) 9251 7177

Co-supervisors: Professor Caryl Nowson, Dr Lynn Riddell

Associate Supervisor: Carley Grimes (PhD student), SONIC coordinator

Project description:

There is evidence that young children are consuming too much salt, but there are known inaccuracies in assessing dietary salt intake using dietary recalls. One of the main limitations is the lack of accurate food composition data on the salt content of Australian Foods. Recently, in collaboration with the George Institute, we have gained access to an extended food database of over 15,000 foods (incl salt) to more accurately assess dietary salt intake. 24hr urinary excretion is the gold standard method for assessing dietary salt intake, however it is not known if dietary salt intake assessed by dietary recalls using a more extensive food composition data base provides a good estimate of actual salt intake.

Aim: To assess dietary salt intake of primary school children and food sources of salt.

Methodological approach:

The SONIC (Salt and Other Nutrients In Children) study are collecting 24hr dietary records on primary school children as well as 24hr urine collections.

You will be required to assist the SONIC researchers with collecting dietary data from participating children. You will then enter some of the food records and other information into an extended FoodWorks data base and perform dietary analysis. Then use SPSS to analyse the data to address the aims stated.

Necessary skills/knowledge:

Basic SPSS, literature searching.

29. HOW SKINNY IS THE SKELETON? FOOD INSECURITY OF TERTIARY EDUCATION STUDENTS

Supervisor: Dr Sonia Brockington

Supervisor's profile:

Sonia Brockington is a Lecturer in Nutrition and Dietetics. She has 10 years experience in clinical dietetics and clinical education prior to coming to Deakin University in 2009 where she has been teaching into the Master of Dietetics program as well undergraduate and postgraduate nutrition. Sonia is current completing a Master of Public Health with a focus in international health.

Contact details:

Email: sonia.brockington@deakin.edu.au

Ph: (03) 9244 5015

Co-supervisor: Dr Lukar Thornton

Project description:

Food insecurity is an increasingly common concern amongst vulnerable population groups, such as low income earners, refugees, the homeless and the young. Recent research suggests financial difficulties are a significant problem for many university students which may impact the ability of student to attend lectures, participate in classes and ultimately academic success. A recent study conducted at Griffith University in Queensland found 27-45% of a university population was food insecure, which is at least double the estimated national prevalence of food insecurity. Factors associated with food insecurity included year of study and living arrangements. Those who were food insecure reported lower levels of general health. To meet financial needs, many students are working over 20 hours per week which has significant impacts on academic potential. Many students utilise numerous coping strategies to deal with food insecurity. More research however, is warranted to explore the prevalence, causes and impacts of food insecurity amongst university students. Furthermore, Deakin University is in a unique situation to be able to explore the relationships between food insecurity, rural, urban and international student cohorts across its three campuses of Burwood, Geelong and Warrnambool.

Methodological approach:

Similar to a recent study in Queensland, we will employ a cross-sectional survey design using a self-administered questionnaire, which will gather information on demographic and food security related information, to determine the prevalence and severity of food insecurity among Deakin University students. It is proposed that data collection will occur on each of the Deakin campuses by the student. The data will be entered into SPSS. Descriptive statistics will be used to determine the prevalence and severity of food insecurity and Chi-squared analysis will be used to investigate associations between food insecurity and rural/urban and international students' status as appropriate.

Necessary skills/knowledge:

This will be most suited to students with an interest in public/population health and nutrition. Excellent written and verbal communication skills will be required. Sound analytical skills and experience in using databases and statistical software (eg: excel, SPSS) would be beneficial. A current driver license is required and access to transport will be of benefit.

30. SUPERMARKET EXPOSURE TO ENERGY-DENSE SNACK FOODS AND DRINKS: AN URBAN-RURAL COMPARISON

Co-Supervisors: Dr Adrian Cameron* and Dr Lukar Thornton*

Supervisor's profile:

Dr Adrian Cameron is an epidemiologist who has published widely in the areas of obesity and the metabolic syndrome. A current research focus is the social and environmental influences on eating behaviour and nutrition and together with Dr Lukar Thornton, Adrian has recently lead a study examining the role of supermarkets in shaping Australian diets. He has published 40+ peer-reviewed papers and book chapters and has received several awards for his work. Adrian's work is widely cited (>1600 citations) and frequently used to inform and support important obesity-prevention initiatives.

Contact details:

Email: adrian.cameron@deakin.edu.au

Ph: (03) 9244 6433

Project description:

This project involves the use of a newly developed audit tool for the investigation of energy-dense snack-food availability in supermarkets, and assessment of whether availability varies by degree of rurality (and neighbourhood socioeconomic status). Comprehensive within-store audits of snack-food availability in supermarkets had never before been undertaken within Australia or internationally prior to a study in Melbourne supermarkets undertaken by co-supervisors Cameron and Thornton. That initial study showed large differences in shelf space allocated to energy dense snack foods and drinks according to socioeconomic position. Patterns of obesity and consumption of energy-dense foods in rural areas are similar to those from urban areas of low socioeconomic position. This project will involve auditing of both large and small supermarkets in rural Victoria to investigate whether the availability of energy-dense foods in rural areas differs to that in urban areas, and whether a socioeconomic gradient also exists in rural areas. The results of this study will have the potential to inform obesity prevention initiatives aimed at the food purchasing environment in rural areas and will inform health promotion activities aimed at reforming the supermarket food environment.

Methodological approach:

Fieldwork will involve the auditing of stores from numerous areas of rural Victoria. The audit tool is a brief questionnaire which examines availability (including shelf space, numbers of varieties, cost) and positioning (including end of aisle displays, cash register displays, island displays) of a) chips, b) chocolate, c) confectionery and d) soft drinks. Areas would include major rural centres and smaller rural towns and supermarkets would include both large and small chains in these areas. Approval to audit stores will be sought from store managers. As this is not human research, ethics approval is not required. Analysis of the data will include a comparison of the newly collected rural data with data from urban supermarkets collected in 2010. A comparison of stores based on socioeconomic position will also be undertaken.

Necessary skills/knowledge:

The prospective student will require the ability to work autonomously during data collection, good attention to detail, nutrition knowledge related to the consumption of energy-dense snack foods/drinks and good statistical analysis and report writing skills.

**Note that Drs Cameron and Thornton will have responsibility for the conduct of this project and the supervision of the student. Professor Tony Worsley will act in a mentoring capacity to the co-supervisors but will not have day-to-day contact with the student. Drs Cameron and Thornton are both co-supervisors of PhD students and this project will be their first supervision of an honours student at Deakin University.*

31. THE EFFECT OF NUTRITIONAL SUPPLEMENTATION ON THE HEALING OF DIABETIC FOOT ULCERS

Supervisor: Associate Professor Tim Crowe

Supervisor's Profile:

Tim is a Senior Lecturer in Nutrition and is involved in several areas of nutrition research including specialised nutrition in the prevention of surgical complications and nutrition support in wound healing.

Contact Details:

Email: tim.crowe@deakin.edu.au

Ph: (03) 9251 7266

Co-Supervisors: Tanya Gilliver (Clinical Leader of Dietetics, Northern Health) and Felicity Blenkiron (Senior Podiatrist, Northern Health)

Project description:

Diabetic foot ulcers are a common consequence of diabetes, which occur as a result of the vascular and neurological complications associated with the disease, as well as opportunistic infections and inadequate wound healing. The most recent prevalence estimates suggest that between 4 and 10% of individuals with diabetes have foot ulcers.

Recent clinical research has focussed on the dietary conditionally essential amino acid arginine and its role in wound healing. Published research has shown that it offers a benefit in the healing of pressure ulcers (also known as bed sores). Little in the way of human studies using clinically relevant models examining the effect of arginine supplementation on diabetic foot ulcers have been conducted. If the same rate of diabetic foot ulcer healing can be achieved with arginine supplementation as seen with pressure ulcers, then this would have important management implications in treating this condition.

Aim: To assess by means of a randomised-controlled trial, the healing rate of diabetic foot ulcers in patients with diabetes attending a hospital outpatient clinic who are consuming an arginine-containing nutritional supplement versus patients who are only receiving standard nutritional care.

Methodological Approach:

Thirty patients with a diagnosed diabetic foot ulcer who are part of the High Risk Foot Service Clinic at Northern Health will be selected for inclusion in the trial. Patients will be randomised to receive either two arginine-containing supplements per day or standard dietetic intervention for the control group in addition to their normal diet. At each visit to the clinic, patients will have measurements of the foot ulcer size and depth as well as the patients overall health status to assess the rate of healing over 6 weeks. Non-nutrition foot ulcer care will be kept constant during the study period according to standard clinic protocols. Nutritional status and intake will be assessed at baseline.

Necessary skills/knowledge:

Dietary analysis, understanding of the role of nutrition in disease, and the ability to work in a hospital environment as part of a medical research team. This work will be predominantly based at Northern Health in Epping and the student will work within the Nutrition and Dietetics Department.

32. DETERMINANTS OF CHANGES IN SERUM 25-HYDROXYVITAMIN D FOLLOWING VITAMIN D SUPPLEMENTATION IN OLDER ADULTS

Supervisor: Professor Robin Daly

Supervisor's Profile:

Professor Robin Daly is the Professor and Chair of Exercise and Ageing within the Centre for Physical Activity and Nutrition Research. His research is focused on understanding the role of exercise and nutrition for optimising musculoskeletal health and preventing chronic diseases such as osteoporosis, sarcopenia and type 2 diabetes. His research expertise includes: conducting large and complex clinical intervention and health promotion trials in children and older adults; using cutting-edge imaging modalities (MRI and CT) to assess body composition, bone micro-architecture and knee cartilage; and health issues related to vitamin D deficiency and chronic low-grade systemic inflammation.

Contact Details:

Email: rmdaly@deakin.edu.au

Ph: (03) 9244 6040

Co-Supervisor: Professor Caryl Nowson

Project description:

Vitamin D deficiency, as measured from serum 25-hydroxyvitamin D (25OHD) levels in the blood, is now recognised as a major public health problem worldwide. For many years it has been thought that the main role of vitamin D was to facilitate calcium absorption to maintain bone health and prevent fractures. However, recent data has shown that low vitamin D status is linked to a myriad of common non-skeletal chronic diseases, including CVD, hypertension, diabetes, certain types of cancer, multiple sclerosis, rheumatoid arthritis and depression. To combat vitamin D deficiency, vitamin D supplementation is frequently recommended to normalize circulating 25OHD levels. However, the serum 25OHD responses to supplementation with vitamin D vary markedly between individuals. Therefore, it is difficult to determine (or predict) the optimal dose of vitamin D needed to achieve sufficient serum 25OHD levels. While several sources of variability have been identified, including the level of fat mass (obesity) which has been shown to be inversely related to changes in 25OHD levels, there is emerging data that certain dietary factors or the composition of a meal (e.g. fat content or meal size) may also play an important role. The aim of this study is to investigate determinants of changes in serum 25OHD in response to vitamin D supplementation alone and calcium-vitamin D fortified milk in elderly men and women.

Methodological Approach:

This project will involve using existing data from previous randomized controlled trials to investigate determinants of changes in serum 25OHD levels in response to vitamin D supplementation alone and calcium-vitamin D fortified milk in elderly men and women. This will include assessing body composition from DXA and CT scans and analysing dietary results from 3-day food diaries.

Necessary skills/knowledge:

This project will require a highly motivated student with good writing and excellent organizational skills with an attention to detail and a willingness to learn how to analyse data from large-scale randomized controlled trials. Some experience with statistical software packages would be helpful.

33. EFFECTS OF VITAMIN D SUPPLEMENTATION ON THE CENTRAL NERVOUS SYSTEM AND MUSCLE FUNCTION IN OLDER ADULTS

Supervisor: Professor Robin Daly

Supervisor's Profile:

Professor Robin Daly is the Professor and Chair of Exercise and Ageing within the Centre for Physical Activity and Nutrition Research. His research is focused on understanding the role of exercise and nutrition for optimising musculoskeletal health and preventing chronic diseases such as osteoporosis, sarcopenia and type 2 diabetes. His research expertise includes: conducting large and complex clinical intervention and health promotion trials in children and older adults; using cutting-edge imaging modalities (MRI and CT) to assess body composition, bone micro-architecture and knee cartilage; and health issues related to vitamin D deficiency and chronic low-grade systemic inflammation.

Contact Details:

Email: rmdaly@deakin.edu.au

Ph: (03) 9244 6040

Co-Supervisor: Dr Dawson Kidgell

Project description:

Vitamin D deficiency is now recognized as a common medical problem in adults, especially the elderly. While one of the main roles of vitamin D is to facilitate calcium absorption to maintain bone health and prevent fractures, in recent years it has been shown that almost every tissue and cell in the body has a vitamin D receptor (VDR). This includes skeletal muscle, which may help to explain the findings that low vitamin D status has been associated with reduced (and accelerated) losses in muscle strength, power and function and an increased risk of falling in the elderly. It has also been shown that the brain has vitamin D receptors and the central nervous system has the capacity to activate the biological active form of vitamin D [1,25-dihydroxyvitamin D]. Since the role of the central nervous system is to send signals to the muscles to produce coordinated movements and an appropriate motor response to maintain posture, it is possible that the increased risk of falling associated with vitamin D deficiency is related to its effects on the central nervous system. Previous research has shown that vitamin D treatment can improve muscle function and prevent falls in the elderly, but its effects on the nervous system remain uncertain. Therefore, the aim of this study is to conduct a short-term intervention trial to investigate the effects of vitamin D supplementation on neural adaptations and muscle function in older adults.

Methodological Approach:

This project will involve conducting a short term (6-8 weeks) intervention trial in which older women will be randomized to receive either vitamin D supplementation or a placebo matched control. All women will be required to attend Deakin University on three separate occasions to complete a series of tests to assess neural excitability, muscle strength, power, function and performance. This project will provide the student with the opportunity to learn new novel methods related to assessing neural and muscle function, and gain some experience in conducting a randomized controlled trial.

Necessary skills/knowledge:

This project will require a highly motivated student with good writing and communication skills, excellent organizational skills with an attention to detail. Some experience with the assessment of muscle strength and/or function would be advantageous.

34. DEVELOPMENT OF HIGH PROTEIN, LOW FAT AND HIGH FIBRE SNACK PRODUCTS USING UNDERUTILISED LEGUMES

Supervisor: Dr Shirani Gamlath

Supervisor's profile:

Dr Shirani Gamlath has actively established a research program on use of functional ingredients in product development and application of novel processing technologies to retain the bioactive components in foods. This field encompasses 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.

Contact details:

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Ph: (03) 9251 7267

Co-supervisor: Dr Stuart Smith

Project description:

There is a need to develop healthy snack products as alternatives to high levels of carbohydrate, fat and salt containing products such as corn chips and potato crisps. Legumes are a good source of protein, minerals, dietary fibre and bioactive components however, are underutilised in human foods. Chickpea (*Cicer arietinum L.*) and lentils (*Lens culinaris*) are legumes, grown in tropical and subtropical areas that present high potential as functional ingredients for the food industry. Both contain moderately high protein, low fat and dietary fibre contents. The available carbohydrate is mainly starch which is reported to be slow digestible, thus eliciting low glycaemic responses in human nutrition. Hence, legumes could play an important role as a low-glycaemic functional ingredient in a healthy diet. This study will focus on incorporating maximum possible levels of chickpea and lentil to develop snack products containing high protein, high dietary fibre, low fat, and low salt contents. The effect of incorporation of legumes on physical, chemical, nutritional and sensory properties of products will be investigated.

Methodological approach:

- Products will be formulated using different levels of chickpea and lentil using potato flour or rice flour as the control. Baking will be considered as the processing method.
- Processed products will be evaluated for physical (colour, texture) characteristics using objective methods. Sensory testing, nutritional analysis and storage study will be conducted on selected products.

Necessary skills/knowledge:

The student needs to be confident in laboratory skills and well organized. All training will be undertaken by Dr Shirani Gamlath but a basic knowledge of product development, laboratory skills and statistical analysis would be useful.

35. CONSUMPTION OF HIGH FAT FOODS AND THE INFLUENCE ON FAT TASTE SENSITIVITY

Supervisor: Associate Professor Russell Keast

Supervisor's profile:

Associate Professor Keast is a Lecturer in the area of Sensory Science in the School of Exercise and Nutrition Sciences. He teaches at undergraduate and postgraduate level and also supervises higher degree students. Associate Professor Keast is a member of the Centre for Physical Activity and Nutrition Research (C-PAN) 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. In addition, Associate Professor Keast is a qualified chef and his research and teaching interests overlap the emerging areas of Molecular Gastronomy and Culinology.

Contact details:

Email: russell.keast@deakin.edu.au

Ph: (03) 9244 6944

Co-supervisors: Lisa Newman and Rivkeh Haryono

Project description:

This project is an exciting hands-on experience into the area of sensory science. Fat consumption has long been an area of interest due to its appealing sensory properties and association with obesity. It is widely acknowledged that we perceive five tastes which include sweet, sour, salty, bitter and umami, however emerging evidence now suggests existence of a sixth taste, fat taste. Previous research at Deakin University has found links between fat taste sensitivity, dietary fat intake and obesity. Deakin is the world leading research group investigating fat taste. It is still unknown whether consumption of dietary fats can alter ones fat taste sensitivity or vice versa. Your project will contribute to the growing body of knowledge in this developing field. If you are thinking of a going on to a PhD program, this is an excellent project to get you started.

Aim: The aim of this project is to determine whether or not consumption of a high fat food daily will alter an individual's sensitivity to fatty acids.

Methodological approach:

You will be involved in the organization and management of a dietary intervention from recruitment of participants to data analysis. Participants will be required to consume high fat foods (chocolate, potato chips, nuts etc) daily and will have their fat taste sensitivity tested before, during and after consumption of the diet.

Necessary skills/knowledge:

Understand basic concepts of sensory testing, along with food and nutritional knowledge. Must have good work ethic and time management skills.

36. FOODS THAT CONTAIN TOO MUCH SODIUM

Supervisor: Associate Professor Russell Keast

Supervisor's profile:

Associate Professor Keast is a Lecturer in the area of Sensory Science in the School of Exercise and Nutrition Sciences. He teaches at undergraduate and postgraduate level and also supervises higher degree students. Associate Professor Keast is a member of the Centre for Physical Activity and Nutrition Research (C-PAN) 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. In addition, Associate Professor Keast is a qualified chef and his research and teaching interests overlap the emerging areas of Molecular Gastronomy and Culinology.

Contact details:

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Ph: (03) 9244 6944

Co-supervisor: Dr Gie Liem

Project description:

The human diet has significantly changed more over the past 50 years than the preceding 10 million years. As a result of dietary reliance on processed foods humans consume excessive concentrations of sodium (Na). Sodium in the form of sodium chloride (NaCl) is added to many processed foods for a variety of reasons, but the primary reason is to increase salt taste which is preferred by consumers. Excessive dietary sodium is linked with development of hypertension and reducing the level of sodium in processed foods is a public health priority issue.

Aim: Identify foods that are suitable for significant sodium reduction by determining which foods contribute the most sodium to the diet, without eliciting saltiness.

Methodological approach:

Sensory evaluation using both trained panel and consumers to evaluate the potential maximum replacement of Na with K in a prototypical food.

Necessary skills/knowledge:

You will be involved in the organization and management of sensory evaluation study from recruitment of participants to data analysis.

37. HOW AND WHY IS DIET AFFECTED IN WOMEN TREATED FOR BREAST CANCER? (DIETETICS PROJECT)

Supervisor: Associate Professor Russell Keast

Supervisor's profile:

Associate Professor Keast is a Lecturer in the area of Sensory Science in the School of Exercise and Nutrition Sciences. He teaches at undergraduate and postgraduate level and also supervises higher degree students. Associate Professor Keast is a member of the Centre for Physical Activity and Nutrition Research (C-PAN) 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. In addition, Associate Professor Keast is a qualified chef and his research and teaching interests overlap the emerging areas of Molecular Gastronomy and Culinology.

Contact details:

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Ph: (03) 9244 6944

Co-supervisor: Anna Boltong, Dietitian and PhD candidate, Peter MacCallum Cancer Centre.

Project description:

Weight gain is common in breast cancer survivors, the causes of which are thought to be multifactorial. The contribution from dietary change is largely unknown. The honours project is a sub-study of a larger project investigating the influences on taste and food pleasure in people receiving chemotherapy and implications for diet, social dining and nutritional status. It is hoped this research will go some way toward identifying the most appropriate type and timing of dietary support for breast cancer survivors.

Aims: 1) To investigate whether dietary intake is affected following a diagnosis of breast cancer and subsequent chemotherapy treatment; and 2) If dietary intake is altered, to describe the changes that occur and the underlying factors which contribute to dietary change.

Methodological approach:

The honours project will make use of quantitative dietary data to determine the nature of dietary change across the cancer treatment trajectory. Qualitative data will be collected from study participants via interview to determine reasons for dietary change.

Necessary skills/knowledge:

Basic nutrition and food science research skills are required which include data collection, data entry and data analysis along with critical appraisal skills and scientific and academic writing. This project will focus largely on the use of nutritional analysis software (FoodWorks) to analyse dietary data. Analysing dietary intake by food group counts is also required. A good working knowledge of food and drink items comprising the Australian food supply is necessary. The project will require direct collection of data from hospital patients with cancer and as such students should feel at ease with basic interview techniques and general patient contact. Some laboratory work is involved in making up taste solutions for testing with study participants. High value should be placed on meticulous attention to detail and an ethical approach to the conduct of research.

38. ANALYSING THE DEVELOPMENT OF THE NATIONAL FOOD PLAN

Supervisor: Associate Professor Mark Lawrence

Supervisor's profile:

Mark is a public health nutritionist with over 25 years experience in food policy. He is actively involved in public health nutrition research analysing the development of policies and programs to protect and promote the nutritional health of populations. He is particularly interested in planning, implementing and evaluating policies across the food system for their impact on population health and environmental outcomes. Mark has published over 50 scientific papers and currently is an investigator on 5 research projects totaling over \$2million. He is an advisor to the WHO and is a member of the NHMRC dietary guidelines committee.

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Ph: (03) 9244 3789

Co-supervisor: TBA

Project description:

As part of its election platform the Australian government is developing a National Food Plan. The Plan is intended to outline future directions for the development of the Australian food system(s) with emphasis on protecting and promoting the population's health and the food industries economic growth. The development of the Plan began in 2011 and is now attracting a significant amount of attention as it will be central to many food and nutrition activities in years to come. Many stakeholders are challenging how the Plan is being developed and what it might look like. They are concerned that there is a need for greater public health and community involvement in its development and the shaping of the final document and recommendations.

Aims:

- To examine the scientific case for a national food plan
- To analyse the stakeholders, events, processes and contexts influencing the development of the national food plan
- To develop recommendations for advancing public health interests in the national food plan

Methodological approach:

The primary methodological approach is food policy science. This involves three steps in the investigation:

- 1) Reviewing background information on the rationale to the national food plan
- 2) Collecting documentary and key informant interview data that provide insights into the stakeholders, events, processes and contexts influencing the development of the national food plan
- 3) Interpreting the collected information against food policy theories and principles.

Necessary skills/knowledge:

- Successful completion of unit HSN309 would be an advantage
- Reasonable knowledge of the Australian food system
- Good qualitative data collection, analysis and interpretation skills
- Good writing and communication skills

39. WHEN SIZE MATTERS; MINIMISING CHILDREN'S EFFORT TO EAT VEGETABLES

Supervisor: Dr Gie Liem

Supervisor's profile:

Dr Gie Liem is a Senior lecturer within the School of Exercise and Nutrition Sciences. He is co-leader of the sensory science group which delivers top quality research concerning sensory and consumer science. Dr Liem's main research interest is food choice of children and finding ways to increase children's vegetable consumption.

Contact details:

Email: gie.liem@deakin.edu.au

Ph: (03) 9244 6039

Co-supervisor: Dr Dawson Kidgell

Project description:

The main aim of this project is to increase children's vegetable consumption by decreasing the effort involved in eating. The direct benefit of eating a particular food is often taste. Vegetables have in general not the sensory profile children like, therefore children are not willing to put a lot of effort in consuming vegetables. By manipulating the size of vegetables we will try to minimize the effort, which is involved in eating vegetables. This project gives you the opportunity to work with children and become familiar with muscle activity measurements, food frequency measurements and sensory science. The project includes all stages of research, which will give you an excellent academic challenge as well as relevant skills for future jobs.

Methodological approach:

Children will come to the Deakin eating lab on two separate days. On each day they will be given vegetables to eat while we measure the jaw muscle activity with a non-invasive painless measurement called Electromyography (EMG). By investigating the association between muscle activity, vegetable size and consumption we can estimate which size requires the least effort and results in the highest vegetable consumption.

Necessary skills/knowledge:

A nutrition or exercise background is preferred.

40. THE OPTIMAL DISTRACTION TO INCREASE CHILDREN'S VEGETABLE CONSUMPTION

Supervisor: Dr Gie Liem

Supervisor's profile:

Dr Gie Liem is a Senior lecturer within the School of Exercise and Nutrition Sciences. He is co-leader of the sensory science group which delivers top quality research concerning sensory and consumer science. Dr Liem's main research interest is food choice of children and finding ways to increase children's vegetable consumption.

Contact details:

Email: gie.liem@deakin.edu.au

Ph: (03) 9244 6039

Co-supervisor: Dr Michael Spittle

Project description:

The main of this project is to increase children's vegetable consumption by optimizing distraction. You may have been in a situation where you were eating food while watching a movie, before you know it you ate much more than you initially wanted. Movies can be an excellent distracted to increase food intake and this concept may even work to increase the consumption of healthy foods such as vegetables. Last year we brought children into a cinema and gave them carrots to eat while they were watching a movie. Children consumed around 175% of their normal daily vegetable intake while watching the movie. We, however, do not know how movie distraction works. Do children pay less attention to the foods they eat? Does their speed of eating changes when the pace of the movie changes? In this project you will make use of eye-tracking to objectively measure children's attention to food while they are watching a movie. This project gives you the opportunity to work with children and become familiar with eye-tracking measurements, food frequency measurements and sensory science. The project includes all stages of research, which will give you an excellent academic challenge as well as relevant skills for future jobs.

Methodological approach:

Children will come to Deakin University for two 30 minute sessions. During each session children will be watching 4 movie segments (i.e. happy, sad, negative or fearful) of 3.5 minutes each in a balanced order while wearing sophisticated eye tracking glasses (Applied Science Laboratories (ASL) Mobile Eye). By investigating the association between eye-focus, pace of the movie and vegetable consumption we can estimate which movie distracts children the most and results in the highest vegetable consumption.

Necessary skills/knowledge:

Nutrition and exercise students are preferred.

41. PERCEPTIONS OF AGEING AND HEALTHY LIFESTYLE BEHAVIOURS

Supervisor: Dr Sarah McNaughton

Supervisor's profile:

Dr Sarah McNaughton is a public health nutritionist in the area of nutritional epidemiology in the Centre for Physical Activity and Nutrition Research (C-PAN). Current research interests focus on the assessment of 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. She is also conducting research on the influences on dietary patterns among older adults and is leading an Australian Research Council-funded study in this area known as the Wellbeing, Eating and Exercise for a Long Life (WELL) study.

Contact details:

Email: sarah.mcnaughton@deakin.edu.au

Ph: (03) 9251 7842

Co-supervisor: TBA

Project description:

Worldwide, it is well-recognised that the population is ageing and that this will have significant economic and social impacts. While life expectancies are increasing, there is also an awareness of the need for improved quality of life at older ages. Obesity and its determinant behaviours, physical inactivity and poor diet are major public health concerns and are significant determinants of the quality of life among the ageing population. Older adults consume too few fruits and vegetables, and have lower than recommended intakes of a range of nutrients important for prevention of chronic disease. It is also estimated that approximately 45% of adults are not sufficiently active to achieve health benefits and older adults are less likely to participate in 'sufficient' physical activity than younger adults. A number of factors may be important influence on lifestyle behaviours in older adults, and some research has suggested that individual perceptions of ageing may be important however there is little research focusing on the influences of nutrition and physical activity behaviours.

Aims: 1) To examine associations between perceptions of ageing and eating and physical activity behaviours, and self-rated health and 2) to examine whether these associations vary by socioeconomic status

Methodological approach:

This project involves secondary statistical analysis of data collected from a study of older adults. The WELL study is a cohort study of 4000 adults aged 55-65 years living in urban and rural areas of Victoria and involves the collection of baseline data in 2010 and follow-up data in 2012. Participants were randomly selected from the Australian electoral roll. Self-report questionnaires will be used to assess outcomes such as food intake, physical activity and sedentary behaviours, anthropometry and quality of life. This project will focus on the cross-sectional data collected at baseline in 2010. Diet and other lifestyle behaviours will be investigated using an established healthy lifestyle score.

Necessary skills/knowledge:

This project is suited to someone with knowledge of 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.

42. IRON IN PRE-MENOPAUSAL WOMEN BLOOD DONORS

Supervisor: Dr Lynn Riddell

Supervisor's profile:

Dr Riddell is a Senior Lecturer in the area of Nutrition in the School of Exercise and Nutrition Sciences. She teaches at undergraduate and postgraduate level and supervises research degree students and honours students. Dr Riddell is a member of the Centre for Physical Activity and Nutrition Research (C-PAN) and her research focuses on long term dietary strategies for the prevention and management of cardiovascular disease. She is currently Associate Head of School (Teaching and Learning).

Contact details:

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Ph: (03) 9251 7270

Co-supervisor: Dr Alison Booth

Project description:

The impact of dietary factors on enhancing or inhibiting iron status in free living adults Women of child-bearing age are at risk of developing iron deficiency after whole blood donation. Identifying the main sources of iron intake, influences on iron intake and their relationships with serum ferritin will assist in the development of health promotion strategies to increase iron intake and maintain iron levels in this group.

Aims: 1) To identify the main sources of iron intake in pre-menopausal women blood donors; 2) To explore relationships between sources of iron intake and serum ferritin; and 3) To identify demographic influences on iron intake and serum ferritin in pre-menopausal women blood donors.

Methodological approach:

This is a cross-sectional study of blood donors at risk of iron deficiency. Two-hundred pre-menopausal women who are volunteer donors were recruited to participate in the study. Blood samples were taken during a standard donation visit to measure iron status, and volunteers were asked to complete questionnaires to assess demographics as well as dietary intake. One such questionnaire was the Short Iron Specific Checklist. This checklist assesses dietary and supplement contributions to Iron intake (including fortified food products).

You will be required to enter some of the food frequency questionnaires and perform dietary analysis. The Short Iron Specific Checklist will be used to identify the main sources of Iron intake in this group and to use statistical methods in SPSS to explore relationships between iron intake and serum ferritin and the influence of age, education, physical activity, smoking status and medical history on iron intake and serum ferritin.

Necessary skills/knowledge:

Basic SPSS, literature searching.

43. CHANGES IN GUT BACTERIA IN AUSTRALIAN INFANTS WITH FOOD ALLERGY

Supervisor: Dr Stuart Smith

Supervisor's profile:

Dr Stuart Smith's research focuses on gut health and interaction between food components and the gut microbiota and involves the study of dietary changes in gut microbiota, including the influence of food components on beneficial probiotic bacteria, and their microbial metabolic activities. His research encompasses expertise in food microbiology, food chemistry, molecular analysis of gut microbiota, gut models (tissue culture) and dietary intervention studies.

Contact details:

Email: stuart.smith@deakin.edu.au

Ph: (03) 9251 7260

Co-supervisors: Dr Shirani Gamlath, Professor Mim Tang (RCH Department Allergy and Immunology)

Project description:

It is becoming more common that gut bacteria influence human physiology, gut and body health. Changes in the bacterial profile have been linked to chronic diseases such as allergic disease, obesity, diabetes and inflammatory bowel disease. Using molecular profiling methods of real time PCR (qPCR), in a study in 2011 with children with peanut allergy, we have commenced showing differences in gut microbiota between those treated with probiotic supplement and allergen doses with those untreated indicating that there may be re-training of the immune system in to lowering allergic responses in treated infants. This study will continue expanding information of the colonic microbiota in this group of Australian infants with food allergy. Since gut bacteria are known to influence human physiology including gut homeostasis and changes in the predominant bacteria appear associated with chronic disease, then changes in the profile of the predominant colonic bacteria of a cohort of Australian infants with food allergy in comparison with a control group of allergic infants will reveal links between allergy and colonic bacteria.

Aims: The overall aims are to use molecular-based profiling (qPCR) techniques to further investigate differences in colonic microbiota populations in infants with clinical symptoms caused by food allergy but treated with a probiotic and small doses of allergen with the profile of colonic bacteria to a population of non-treated allergic infants.

Methodological approach:

- Stool samples from the clinically defined groups (allergic vs. non-allergic) will be collected and stored at -70°C. QIAmp DNA Stool Mini Kit™ (Qiagen, Germany) will be used to isolate the total bacterial DNA.
- Real-time PCR (qPCR) will be performed using the Stratagene MX-3000P system (Integrated Sciences Pty Ltd). Primers for total bacteria and species-specific primers for Bacteroidetes, Firmicutes (including Clostridia), Bifidobacteria and Lactobacilli, and novel bacteria will be used to observe changes.

Necessary skills/knowledge:

The student will need good laboratory skills, to be well organized and like working with other members of the Functional Foods group and the volunteer subjects. A basic knowledge of functional foods, microbiology, molecular methods especially real time PCR, laboratory skills and statistical analysis would be useful.

44. HEALTH FOCUS ON AUSTRALIAN NATIVE BUSH FRUITS FOR ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY

Supervisor: Dr Stuart Smith

Supervisor's profile:

Dr Stuart Smith's research focuses on gut health and interaction between food components and the gut microbiota and involves the study of dietary changes in gut microbiota, including the influence of food components on beneficial probiotic bacteria, and their microbial metabolic activities. His research encompasses expertise in food microbiology, food chemistry, molecular analysis of gut microbiota, gut models (tissue culture) and dietary intervention studies.

Contact details:

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Ph: (03) 9251 7260

Co-supervisors: Dr Shirani Gamlath, Mr Jeroen Rens (Sensient Technologies Pty Ltd)

Project description:

Research into the functionality of spices, herbs and native foods has shown that the properties of these foods include antimicrobial and antioxidant activities. Phytochemical/flavor-rich Australian native fruits have been shown, *in vitro*, to have more powerful antioxidant activity than blueberries. To capitalize on their functionality for food innovation, scientific analysis of the beneficial effects of these food components on changes within the gut and on gut microbiota must be undertaken before they can be considered of value in food product development. Recently we examined several spices for their antimicrobial ability against beneficial probiotic bacteria. Based upon the results some spices vary in ability to influence the growth of several commercial probiotic strains present in foods. In association with a flavour ingredients manufacturer with access to novel bush fruits, we now wish to examine two commercially available Australian native bush foods (e.g. Davidson plum, Quandong) and determine their antioxidant activities and antimicrobial activities against known commercial probiotics in dairy-based foods. Based upon blueberries being powerful antioxidants in human *in vivo* studies, we hypothesise that Australian native fruits that appear to be more powerful antioxidants *in vitro* could represent novel antioxidants that can target pathogens and may or may not target probiotics. This information will: a) provide a better understanding of the characteristics of probiotic strains that are beneficially important for product development and b) identify novel native fruits that that could be placed in dairy-based foods in synergistic action with probiotics.

Aims: To assess the effect of novel native bush foods on commercial strains of probiotic bacteria and to examine their antioxidant potential in dairy-based foods.

Methodological approach:

- Using antioxidant and antimicrobial bioassays, examine the antimicrobial effect of Australian native fruits on known commercial probiotics used in dairy-based foods.
- Use several approaches to measure the antioxidant and bactericidal/bacteriostatic influence of Australian native fruits the probiotic cell viability.

Necessary skills/knowledge:

The student will need good laboratory skills, to be well organized and work with other members of the Gut Health group. A basic knowledge of functional foods, microbiology, laboratory skills and statistical analysis would be useful.

45. THE RELATIONSHIP BETWEEN PERSONALITY AND ADHERENCE TO DIETARY RECOMMENDATIONS

Supervisor: Dr Susan Torres

Supervisor's profile:

Dr Susan Torres is a qualified dietitian and lecturer in Human 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 relationship between anxiety and fat taste, and how stress response differs in lean versus obese individuals.

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Ph: (03) 9244 6189

Co-supervisors: Professor Caryl Nowson, Professor Tony Worsley

Project description:

Dietary factors are associated with the development of many chronic diseases including cardiovascular disease and diabetes. In an effort to reduce the prevalence and burden of diet related disease in countries such as Australia, governments have developed dietary guidelines recommending healthy eating which includes having a diet rich in fruits and vegetable and minimising fat in the diet. Although a significant proportion of the population believes that following a healthy diet will be beneficial for health and understand what core foods make up a healthy diet, many are unable to translate this knowledge into healthy eating behaviours. It has been proposed that psychological factors, including personality traits, may be an important factor influencing dietary change.

Aims: To determine the relationship between personality and compliance with dietary recommendations.

Methodological approach:

The honours student will access an existing database of a randomised controlled trial investigating the effects of two weight loss diets on blood pressure in free living overweight and obese individuals. Fifty-four men were randomly assigned to one of two weight loss diets: a low fat, moderate sodium, high potassium, high calcium DASH diet (n=27) or a low fat diet (n=27). All men followed the diet for 12 weeks. Personality was measured at baseline using the Goldberg Big 5 Personality test. All subjects completed a 24 hour recall every fortnight. A food frequency questionnaire was completed at baseline and at week 12 to assess usual intake of fruit, vegetables and dairy products.

The honours student will also have an opportunity to participate in a currently running research study.

Necessary skills/knowledge:

Good communication and organisational skills.

46. OPTIMISING SALT AND POTASSIUM INTAKE TO IMPROVE BLOOD PRESSURE RESPONSES TO STRESS (PROJECT 1)

Supervisor: Dr Susan Torres

Supervisor's profile:

Dr Susan Torres is a qualified dietitian and lecturer in Human 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 relationship between anxiety and fat taste, and how stress response differs in lean versus obese individuals.

Contact details:

Email: susan.torres@deakin.edu.au

Ph: (03) 9244 6189

Co-supervisor: Professor Caryl Nowson

Project description:

The current diets of the Australian population are high in salt and low in potassium. This dietary pattern of a high salt and low potassium intake is strongly linked with the development of hypertension. Hypertension is a well-established risk factor for cardiovascular disease, Australia's biggest health problem killing more people than any other disease. This problem is further compounded by over exposure to psychological stress resulting in sustained, high levels of blood pressure during the day. A diet that is low in salt and high in potassium is very effective at reducing resting blood pressure, but the effect on blood pressure responses to stress is not known.

This project will be conducted by two students. Both students will conduct the study as indicated below in the methods. Each student will address a different aspect of this study.

Aims: To determine if an optimal dietary intake of salt and potassium reduces blood pressure response and the time taken to return blood pressure to normal levels after acute psychological stress.

Methodological approach:

Eligible subjects will be male, 20-40 years, Body Mass Index range of 20-30 kg/m² (normal weight/overweight), high/normal blood pressure (systolic blood pressure of 120-160 mmHg or diastolic 80-90 mmHg). The men will be randomly allocated to two treatment groups: 1) Low salt, High potassium group (n=30) will consume a diet that is low in salt and high in potassium; and 2) Control group (n=30) will consume a diet based on the average Australian diet which is relatively high in salt and low in potassium.

Each group will consume the diet for 4 weeks. Twenty-four hour urines will be collected before, during and after the dietary intervention as an objective measure of dietary compliance with advice to alter salt and potassium intake. At the completion of the 4 weeks of dietary intervention, cardiovascular (blood pressure and heart rate) responses to psychological stress (Trier Social Stress Test) will be measured in all subjects.

Necessary skills/knowledge:

Good communication and organisational skills.

47. OPTIMISING SALT AND POTASSIUM INTAKE TO IMPROVE BLOOD PRESSURE RESPONSES TO STRESS (PROJECT 2)

Supervisor: Dr Susan Torres

Supervisor's profile:

Dr Susan Torres is a qualified dietitian and lecturer in Human 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 relationship between anxiety and fat taste, and how stress response differs in lean versus obese individuals.

Contact details:

Email: susan.torres@deakin.edu.au

Ph: (03) 9244 6189

Co-supervisor: Professor Caryl Nowson

Project description:

The current diets of the Australian population are high in salt and low in potassium. This dietary pattern of a high salt and low potassium intake is strongly linked with the development of hypertension. Hypertension is a well-established risk factor for cardiovascular disease, Australia's biggest health problem killing more people than any other disease. This problem is further compounded by over exposure to psychological stress resulting in sustained, high levels of blood pressure during the day. A diet that is low in salt and high in potassium is very effective at reducing resting blood pressure, but the effect on blood pressure responses to stress is not known.

This project will be conducted by two students. Both students will conduct the study as indicated below in the methods. Each student will address a different aspect of this study.

Aims: To determine predictors of blood pressure response to acute physiological stress (diet, lifestyle (physical activity) and body composition).

Methodological approach:

Eligible subjects will be male, 20-40 years, Body Mass Index range of 20-30 kg/m² (normal weight/overweight), high/normal blood pressure (systolic blood pressure of 120-160 mmHg or diastolic 80-90 mmHg)). The men will be randomly allocated to two treatment groups: 1) Low salt, High potassium group (n=30) will consume a diet that is low in salt and high in potassium; and 2) Control group (n=30) will consume a diet based on the average Australian diet which is relatively high in salt and low in potassium.

Each group will consume the diet for 4 weeks. Twenty-four hour urines will be collected before, during and after the dietary intervention as an objective measure of dietary compliance with advice to alter salt and potassium intake. At the completion of the 4 weeks of dietary intervention, cardiovascular (blood pressure and heart rate) responses to psychological stress (Trier Social Stress Test) will be measured in all subjects.

Necessary skills/knowledge:

Good communication and organisational skills.

48. EXAMINATION OF CONSUMER'S FOOD AND HEALTH CONCERNS

Supervisor: Professor Tony Worsley

Supervisor's profile:

Tony Worsley is Professor of Behavioural Nutrition. His broad interests include nutrition promotion and food communication as well the study of consumers' food and nutrition behaviours. Current research includes: examination of the food knowledge required by food consumers, fruit and vegetable promotion policies; the influence of household food purchasing and consumption on obesity risk; consumers' use of food label information; population cooking skills and the ways to increase skill levels; the food habits of baby boomers; consumers' food and health concerns; and the influence of personal and cultural values and social ideologies on food behaviours.

Dr Wei Chun Wang is a postdoctoral research fellow in CPAN. Her research interests include utilizing applied statistical modelling in behavioural nutrition e.g. to determine the predictors of health and dietary behaviour among middle to old aged people. Current research includes: baby boomers' food and health concerns, reasons of shopping at particular food stores, consumers' food knowledge, promotion of consumers' food knowledge and cooking skills, food labelling information used by consumers, and consumers' psycho-social influences on their food choice.

Contact details:

Email: tonyw@deakin.edu.au

Ph: (03) 9244 6743

Co-supervisor: Dr Wei Wang

Project description:

During the last quarter of 2011 we will conduct a national on line survey of consumers' food and health concerns. This follows a series of studies we have conducted over the past 10 years. There will be an opportunity to analyse part of this survey in order to one or two hypotheses about some of the influences on consumers' concerns.

Methodological approach:

Measurements of prevalence of various food and health concerns will be established through simple descriptive statistics, and scaling of these concerns will be achieved via factor analysis. Specific hypotheses about the likely predictors of food and health concerns will be tested via multiple regression analyses.

Necessary skills/knowledge:

Basic knowledge of statistics and SPSS.

49. CHOICE OF WEIGHT LOSS DIET IMPROVES LONG TERM RESULTS AND LONG TERM PARTICIPATION ON THE STUDY

Supervisor: Associate Professor Russell Keast

Supervisor's profile:

Associate Professor Keast is a Lecturer in the area of Sensory Science in the School of Exercise and Nutrition Sciences. He teaches at undergraduate and postgraduate level and also supervises higher degree students. Associate Professor Keast is a member of the Centre for Physical Activity and Nutrition Research (C-PAN) 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. In addition, Associate Professor Keast is a qualified chef and his research and teaching interests overlap the emerging areas of Molecular Gastronomy and Culinology.

Contact details:

Email: russell.keast@deakin.edu.au

Ph: (03) 9244 6944

Co-supervisor/s: Prof Peter Clifton

Laboratory Head , Nutritional Interventions

Baker IDI Heart and Diabetes Institute

Ph: (03) 8462 9702

Peter.Clifton@bakeridi.edu.au

Project description:

The research project aims to show by offering a choice of three different weight loss diets plus the ability to change diet styles throughout the study you are more likely to remain in the study and more likely to achieve the study goals of a 10% weight loss at 12 months

Methodological approach:

100 overweight or obese people with type 2 diabetes aged 40-70 with a BMI of >27 will be recruited from the Diabetes Clinic at Baker IDI and the tests will be performed at the Baker IDI Healthy Lifestyle Research Centre in the Alfred Centre, Commercial Rd. Prahran. All people referred to the dietitians at the clinic will be offered the chance to enter the study and if they decline this option they will constitute a standard treatment control group. Those who refuse to participate will be asked if their data can be used for this purpose. At least 20 control subjects will be recruited over the whole study. Participants can be on all types of medications including insulin.

Necessary skills/knowledge:

Good communication and organisational skills.

50. CAN THE HEALTH BENEFITS RESULTING FROM EXERCISE TRAINING BE FURTHER ENHANCED BY ALSO TARGETING 'NON-EXERCISE' TIME?

Supervisor: Professor Jo Salmon

Supervisor's profile:

Professor Jo Salmon holds a Personal Chair in the School of Exercise and Nutrition Sciences. She is Associate Head of School – Research and a member of the Centre for Physical Activity and Nutrition Research (C-PAN). Professor Salmon is an active researcher in understanding and influencing physical activity in populations, in particular children and families. Professor Salmon's program of research focuses on the behavioural epidemiology of children's' and adults' physical activity and sedentary behaviour. She is interested in the assessment of these behaviours; in understanding the individual, social and environmental factors that influence participation; and the development of strategies to promote physical activity and reduce sedentary time among children and adults.

Contact details:

Email: jo.salmon@deakin.edu.au

Ph: (03) 9251 7254

Co-supervisor: Associate Professor David Dunstan (Baker IDI)

Project description:

Exercise is considered to be one of the cornerstones in the management of type 2 diabetes, obesity and cardiovascular disease. Regular exercise involving aerobic and resistance training is known to have numerous favourable health benefits. However, since 'exercise time' constitutes such a small proportion of the waking hours, there have been increased calls to also target the behaviours people undertake during their 'non-exercise' time.

Aim

To investigate if the behavioural intervention was effective in reducing overall sitting and breaks in sitting at work.

Methodological approach:

In this study, participants attending exercise sessions within the Healthy Lifestyle Research Centre will be provided with devices that record physical activity and sedentary time throughout the day. The devices will be used as a key intervention tool to help guide participants to reduce their sedentary time and increase their activity level during the hours in the day that they are not exercising. A control group of participants will undertake exercise sessions in the Healthy Lifestyle Centre, but will not receive any instruction regarding what to do during the 'non-exercise' periods. Your role within the intervention is expected to be:

- Primary: Examining the activPAL and Accelerometer data from all participants
- Secondary: Assisting with running the gym sessions for participants, data collection and assisting with study recruitment

Necessary skills/knowledge:

Gym floor experience, experience with activPALs and GTX3 Accelerometers, and behavioural epidemiology background would be useful. Good communication and organisational skills.

51. DROP THE SALT AND (DON'T) ADD IT BACK IN

Supervisor: Dr Gie Liem

Supervisor's profile:

Gie is a senior lecturer at the school of exercise and nutrition sciences. He is co-leader of the sensory science group which delivers top quality research concerning sensory and consumer science. Consumer perception and usage of salt is an ongoing research topic in the sensory science group.

For more information please see:

<http://www.deakin.edu.au/hmnbs/ens/staff/index.php?username=gliem>

Contact details:

Gie.liem@deakin.edu.au

Co-supervisor:

Associate Professor Russell Keast

Project description:

Sodium chloride (table salt) is widely used in industry sourced products and in the domestic kitchen to enhance flavour. The detrimental effects of high salt consumption on blood pressure and related diseases such as cardiovascular diseases have pushed the food industry to decrease the amount of salt they use in their products. Australia and the UK have long taken the lead in reducing sodium in industry sourced products and created consumer awareness about the danger of a high salt consumption (Grimes, Riddell, & Nowson, 2009; Liem, Miremadi, & Keast, 2011). Anecdotal evidence, however, suggests that the sales of table salt increased at a similar rate as sodium has been decreased in industry sourced products (Feunekes, personal communication). A large review suggests that the intake of sodium in the past decades has been remarkably stable (Bernstein & Willet, 2010). Furthermore, a recent study from our lab suggests that consumers are likely to add salt to sodium reduced products when they are given the opportunity to add salt (Liem & Zandstra in preparation). To date it remains to be investigated whether a low sodium diet increases sodium used from the salt shaker and how this is influenced by the social environment.

Methodological approach:

Participants will come to the sensory lab four times during 1 week. Each time they are offered a free lunch, which they will consume together with a fellow participant. They are instructed to consume as much of the lunch as they like. A salt shaker will be provided to each participant and they are free to use it. Participants are told to listen to an audio story and will be told that they will be asked questions about the content of the story. The real objective of the study is to measure how much participants consume of the meal and how much salt they add. The fellow participant is a confederate of the study and is instructed to either add no salt to the lunch or add 3 shakes of salt. Lunches vary in salt content (i.e. low salt, high salt). The order of lunches will be balanced across participants.

Necessary skills/knowledge:

A nutrition or exercise background is preferred.

52. DEVELOPMENT OF AN IN-GAME MATCH ANALYSIS SYSTEM TO ANALYSE JUNIOR AUSTRALIAN FOOTBALL MATCHPLAY

Supervisor: Dr Michael Spittle

Supervisor's profile:

Michael Spittle is a Senior Lecturer in Motor Learning and is currently supervising or co-supervising a number of postgraduate student projects in the areas of skill acquisition and motor learning. He has several recent publications in the area of research related to the proposed project.

Contact details:

Michael Spittle
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michael.spittle@deakin.edu.au

Co-supervisor/s:

Paul Gastin
Pam Kellett

Project description:

The Honours project is part of a larger funded project investigating the Australian Football League (AFL) Junior Matchplay Policy in 2012. This project will focus on the development of a measure of in-game performance variables in Junior Australian Football (AF) and subsequent analysis of matchplay using the developed measure. The AFL Junior Matchplay Policy specifies sequential modifications to the game of AF that are aimed at making the game appropriate for the developmental age of players (in terms of physical development, promoting optimal skill acquisition, and for player safety). Modifications may include reducing the number of players on the field, reducing the size of the field, rotating players through playing zones, and modifying the tackling rules. The aim of this research is to explore how these modifications effect matchplay and participation of juniors in AF.

Methodological approach:

The research will involve developing an observational measure of performance during games (i.e., a games analysis tool) to assess performance variables such as possession rate/opportunity, impact of congestion/space, player intimidation, prevalence of injury, pressure, and skill execution (e.g., kicking and handballing). Once the measure has been developed, it will be used to analyse junior AF matches. A comparison between Junior AF matches in leagues that adopt the AFL Junior Matchplay Policy and Junior AF matches that do not adopt the AFL Junior Matchplay Policy will be made. Several junior football leagues will be involved in the research and data will be collected early, mid, and late in the season.

Necessary skills/knowledge:

- Interest in skill acquisition and motor learning
- Good organisational skills and motivation to manage the project through to completion
- Availability to attend junior football matches (usually on the weekend) for data collection (which may also include interstate travel)
- Availability to begin the research project early in 2012 (to develop and pilot test the measure before the season begins)

53. DOES ALTERNATING BETWEEN SITTING AND STANDING AT WORK IMPROVE ENERGY EXPENDITURE IN OVERWEIGHT WORKERS?

Supervisor: Associate Professor David Dunstan

Supervisor's profile:

Associate Professor Dunstan is the Head of the Physical Activity laboratory in the Division of Metabolism and Obesity at the Baker IDI Heart and Diabetes Institute and Project Leader for Physical Activity Research within Baker IDI's Healthy Lifestyle Research Centre. Over the past 10 years, A/Prof Dunstan and his team have pioneered an area of research that has provided new perspectives on sedentary behavior and health and disease. This research is widely acknowledged nationally and internationally as a paradigm shift, with prolonged sitting now recognised as an emerging public health concern that may have significant adverse metabolic and health effects, even in people who meet the recommendation of 30 minutes physical activity on most days of the week. A/Prof Dunstan has also established an internationally-recognised research program focusing on understanding the influence of physical activity in health and disease, particularly in relation to the management of type 2 diabetes.

Contact details:

Associate Professor David Dunstan
Head, Physical Activity Laboratory
Email: David.Dunstan@bakeridi.edu.au
Ph: 8532-1873

Co-supervisor/s:

Professor Robin Daly
School of Exercise and Nutrition Sciences
Email: rmdaly@deakin.edu.au
Ph: 9244-6040

Dr Alicia Thorp
Physical Activity Laboratory
Email: Alicia.Thorp@bakeridi.edu.au
Ph: 8532-1854

Project description:

New epidemiological and experimental evidence indicates that prolonged sitting is associated with adverse health outcomes, independent of time spent in physical activity. As modern workplace environments become increasingly dependent on computer use, the challenge that exists is how to alter workers' postural allocations during the day to be less reliant on prolonged sitting. Evidence from acute studies show significant health benefits may be gained from working in an upright posture. For example, the use of walking (treadmill) workstations that allow continuous light ambulation can significantly increase energy expenditure in obese workers, compared to a seated working posture. However, for a large proportion of workplace contexts, it is unlikely that walking workstations that promote constant ambulation will be feasible. Electric height-adjustable work stations have emerged as a viable design option to facilitate variation in workers' posture, from sitting to standing throughout the working day. No studies to date have investigated the potential to increase energy expenditure in overweight workers when utilising the desks.

The **aim of the study** will be to objectively quantify acute energy expenditure (30 minutes) at rest and during both standing and seated working postures using electric, height-adjustable desks in overweight/obese workers. We **hypothesise** that occupational energy expenditure will be significantly higher during a standing working posture.

Methodological approach:

Overweight/obese but otherwise healthy adult computer-dependent workers will be recruited to examine the effects on energy expenditure of standing to work. Resting energy expenditure and energy expenditure during standing and sitting working postures will be determined on two separate days (separated by one week) from breath-by-breath analysis of expired air (indirect calorimetry). Participants will be given access to a 'simulated office' with electric height-adjustable sit-to-stand desks and be instructed to undertake their usual occupational tasks (typing at a computer, writing, talking on phone). A calibrated ParvoMedics TrueOne 2400 gas analysis system will be used to measure oxygen consumption (VO₂) and carbon dioxide production (VCO₂) at one minute intervals during 30 minutes of rest and during each 30 minute working posture. This project will provide the student with the opportunity to learn gold-standard methods related to assessing energy expenditure, and gain some experience in conducting an acute study.

Necessary skills/knowledge:

This project will require a highly motivated student with good writing and communication skills, excellent organisational skills with an attention to detail. Some experience with the assessment of energy expenditure would be advantageous.

School of Exercise and Nutrition Sciences
2012 HONOURS PROJECT PREFERENCE FORM

Name: _____ Deakin student ID: _____

Address: _____ P/C _____

Mobile: _____ Home: _____

Email: _____

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.

Please nominate below up to four preferences, in order of preference, for honours in 2012:

1st preference - Project no: _____ **Supervisor:** _____

Project title: _____

****It is strongly encouraged that you speak to the supervisor of your first preference****

Have you personally spoken with the supervisor about the project? Yes No

2nd preference - Project no: _____ **Supervisor:** _____

Project title: _____

Have you personally spoken with the supervisor about the project? Yes No

3rd preference - Project no: _____ **Supervisor:** _____

Project title: _____

Have you personally spoken with the supervisor about the project? Yes No

4th preference - Project no: _____ **Supervisor:** _____

Project title: _____

Have you personally spoken with the supervisor about the project? Yes No

If you are NOT offered one of the above projects would you consider an offer of an honours project in a related area?

Yes No

Please return this form to Georgina Power at the School of Exercise and Nutrition Sciences (J3.07; phone: 9244 5032) by 12 November 2011 or fax to 9244 6017 for timely applications. Late applications will be considered depending on availability of appropriate supervisors, projects and places up until 10 February 2012.