HONOURS PROJECTS 2016

EXERCISE PHYSIOLOGY AND BIOCHEMISTRY

CARDIOVASCULAR PHYSIOLOGY

HEALTH BEHAVIOUR AND PERFORMANCE

EXERCISE REHABILITATION

PHYSICAL AND HEALTH EDUCATION

BIOMECHANICS AND MOTOR CONTROL
Introduction to Honours

The Honours research degree at School of Sport Science, Exercise and Health is a prestigious one-year, research-based extension of your undergraduate degree that is available only to students who demonstrate academic excellence. During your Honours year, you will be required to complete four units and to spend most of your time on your research work and thesis. Irrespective of whether you are interested in undertaking a career in research, our Honours Research programme will allow you to develop a broad range of generic skills highly valued in the workforce, such as problem-solving and organisational skills, initiative, advanced computer skills and capacity to work independently and in a team. In this respect, the Honours degree is of great value for your career prospects as it distinguishes you from regular BSc graduates who would not have had the same opportunity for an advanced learning experience.

If you are interested in pursuing an Honours Research Degree, it is important that you determine the general area that you wish to study, and discuss potential research projects with staff in that area. It is important to stress that you are not required to define your own research project as most Honours projects are normally part of the supervisor’s on-going research. The School offers several research streams: Biomechanics, Motor Control and Development, Exercise Physiology and Biochemistry, Health Behaviour and Performance Psychology, Health and Physical Education and Exercise Rehabilitation/Occupational Safety and Health. In order to help you to find a project that suits you, we have compiled a list of some of the Honours research projects on offer for 2016.

If you wish to pursue this degree, you must initiate discussions with members of staff as soon as possible as limits on the number of available supervisors in a given year may prevent some eligible students from gaining entry. Once you have secured a potential supervisor, you will need to apply on-line through Student Connect. If you are successful, a formal invitation will be mailed to you in January 2016 by the Faculty.

It is important to note that in order to enrol in the Honours Research Degree offered by the School of Sport Science, Exercise and Health you must reach a grade point average of 65% and above across your third year units. For this reason, you should aim at performing exceptionally well at your final exams.

If you have any queries about our Honours program, please feel free to contact our Honours Coordinator, Prof Paul Fournier ((08) 6488 1356 or paul.fournier@uwa.edu.au) or Inga Carr (08) 6488 2360 or inga.carr@uwa.edu.au.

SCHOLARSHIPS AVAILABLE

There are two scholarships available for Honours students:

**THE FRANK PYKE MEMORIAL SCHOLARSHIP**

Stipend of $5000 is available to assist an Honours student, (who has demonstrated academic excellence and other outstanding achievements, abilities, leadership or community involvement in sport or exercise related activities) to complete a Bachelor of Science (Honours) degree course in SSEH at UWA. UWA scholarship office calls for applications in April each year.

**THE REDIMED SCHOLARSHIP**

This scholarship is available to encourage and assist a meritorious student to undertake honours in the School of Sport Science, Exercise and Health with a thesis related to exercise rehabilitation or workplace health. UWA scholarship office calls for applications in April each year.
WINTHROP PROFESSOR BRIAN DAWSON

- Effects of supplements and other ergogenic aids on performance and training
- Effects of sand running and grass running on inflammatory markers and economy of exercise
- Work rate and performance indicators in team sports
- Pre cooling and performance changes
- Post exercise recovery procedures: cold water immersion and sleep
- Field tests of fitness (shuttle run, timed runs etc)

For more information, please do not hesitate to contact Brian Dawson on 6488 2276 or brian.dawson@uwa.edu.au

PROFESSOR PAUL FOURNIER

Sport performance research
Recently, we have found that ingesting both quinine and glucose increases power output during a maximal sprint cycling effort. Our next aims are to examine whether these ergogenic aids can also improve the performance of sporting events relying on muscle power.
- Effect of quinine alone or in combination with glucose on track running performance (100, 200, 400, 800m run) and other high-intensity sporting events. Co-supervisor: Kym Guelfi
- Effect of glucose ingestion on track running performance (100, 200, 400, 800m run) and other high-intensity sporting events. Co-supervisor: Kym Guelf

Fundamental Exercise Science
Recently we have shown that free radicals play an important role in mediating muscle fatigue and muscle growth in response to resistance training. Here we propose to explore the mechanisms involved.
- The role of free radicals in muscle fatigue. Co-supervisor: Tony Bakker, Peter Arthur
- The role of free radicals in muscle hypertrophy. Co-supervisor: Peter Arthur

Exercise and Health
The prevalence of chronic fatigue in the general populations and athletes is increasing, but the causes and treatment of this illness are unknown. Here we examine the possibility that increased muscle oxidative stress is involved.
- Effect of chronic fatigue on oxidative stress in muscle. **Co-supervisor: Karen Wallman**
- The use of antioxidants/oxidants as a means to counter the central and peripheral fatigue associated with chronic fatigue syndrome, chronic obstructive diseases, diabetes, etc. **Co-supervisor: Karen Wallman**
- Role of oxidative stress in mediating fatigue in diabetes and obesity

It is well established that diabetic individuals have a higher incidence of fall and are more prone to car accidents. Our goal is to elucidate some of the mechanisms involved.

- Effect of diabetes on eye tracking and reaction time. **Co-supervisor: Brendan Lay**

Over the past decade we have shown that sprinting has the capacity to prevent hypoglycaemia in individuals with type 1 diabetes. Our aim is now to identify the factors likely to affect the benefits of sprinting in hypoglycaemia prevention and to develop better strategies to improve blood glucose control.

- Factors affecting the glucose-rising effect of sprinting in individuals with or without type 1 diabetes. **Co-supervisors: Ray Davey, Kym Guelfi**
- The use of incidental activity or exer-gaming as a means to normalise blood glucose levels in sedentary individuals in good or poor health (e.g. diabetes). **Co-supervisor: Michael Rosenberg**

**Comparative Physiology**

In recent years, a species of tree frogs in Canada has been shown to survive freezing and thawing, severe dehydration, and lack of oxygen for several days. Our aim is to identify some of the mechanisms whereby this SUPER frog species achieve these feats as a step to help in cryogenic research. This project will be performed in collaboration with the Zoology Department at UWA and Professor Ken Storey from Carleton University in Canada. **Co-supervisor: Ken Storey, Peter Arthur, Phil Withers**

For more information, please do not hesitate to contact Paul Fournier on 6488 1356 or paul.fournier@uwa.edu.au

**KYM GUELFI**

The effect of exercise on unhealthy snacking behaviour: implications for weight management. (Co-supervisors: Assoc Prof James Dimmock and Dr Ben Jackson)

- Previous research has shown that the consumption of unhealthy energy-dense snack foods is higher after engaging in an exercise session that is considered ‘effortful’ compared with the doing the same exercise session if it is considered ‘fun’. This study will examine how to optimally frame exercise so that the benefits gained from participation are not cancelled out by unhealthy eating in the post-exercise period.

The effect of exercise on stress-induced energy intake: implications for appetite control and weight management.
Stress often leads to unhealthy eating – especially consumption of energy-dense comfort foods. Although exercise is often promoted to help manage stress, nobody has tested whether exercise can help break the connection between stress and unhealthy eating. This study will examine whether there is a difference in eating behaviour following acute stress between sedentary and physically active individuals.

**Investigating the ergogenic effects of mouth-rinsing on athletic performance.**
(Co-supervisor: Prof Paul Fournier)
• Rinsing the mouth with various solutions can activate receptors in the oral cavity that link to the brain and improve athletic performance. A number of projects are available to further examine how mouth rinsing benefits athletic performance.

**Cycling to break the cycle of pregnancy diabetes.**
(Co-supervisor: Prof Karen Wallman, Prof John Newnham (KEMH)
• Regular exercise has many benefits for both the pregnant woman and her child, yet most women do not remain physically active during pregnancy. A number of projects are available examining the benefits of exercise during pregnancy.

*For more information, please do not hesitate to contact Kym Guelfi on 6488 2602 or kym.guelfi@uwa.edu.au*

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**ASSOCIATE PROFESSOR PETER PEELING**

1. Iron metabolism in athletic populations
2. Exercise, inflammation and hemolysis
3. Altitude and the training response
4. Post-exercise recovery procedures: Sleep
5. Remote Ischemic Pre-Conditioning

*For more information, please do not hesitate to contact Peter Peeling on 6488 2363 or peter.peeling@uwa.edu.au*

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**ASSISTANT PROFESSOR GRANT LANDERS**

1. Exercise in the heat
2. Recovery techniques for high intensity exercise
3. Anthropometry and sporting performance
4. Athlete monitoring via MTDS
For more information, please do not hesitate to contact Grant Landers on 6488 2362 or grant.landers@uwa.edu.au

PROFESSOR KAREN WALLMAN

- Effects of supplements on repeated sprint performance in athletes
- Effects of precooling on exercise performance
- Reliability and validity of the fitbit HR Charger wristband
- Do psychological traits affect the immune response in injured athlete

Students who might wish to undertake an Honours project with Karen Wallman should discuss the opportunity with her by contacting Karen on 6488 2304 or by email karen.wallman@uwa.edu.au

CARDIOVASCULAR PHYSIOLOGY GROUP

WINTHROP PROFESSOR DANNY GREEN, DR LOUISE NAYLOR, DR ELISA ROBEY, DR HOWARD CARTER, ASSOC/PROFESSOR KAY COX, DR ILKKA HEINONEN, DR BARB MASLEN & DR KURT SMITH

The cardiovascular research group works at the junction of medicine and sport science. Our research is driven by a passion to understanding how exercise can improve health and wellbeing. Our team is driven to produce world class research that can make a difference to the health of all people, whether they are healthy or have a disease.

Our vision is to improve the health, fitness and quality of life of Australians of all ages.

Our mission is to facilitate new and disruptive approaches that focus on the early detection and optimal prevention of human cardiovascular diseases.

Originating from research performed in the 1990’s which focused on maintaining the health of people waiting for heart transplants at Royal Perth Hospital, this group now performs research in collaboration with all of the major teaching hospitals in WA including QEII, Fiona Stanley Hospital, Princess Margaret Hospital and the Perth Cardiovascular Institute. We are the only dedicated clinical trials unit for research on exercise, physical activity and human health in Western Australia.

We are currently funded by the National Health and Medical Research Council of Australia, the Australian Research Council, the National Heart Foundation of Australia and the WA State Government. These grants are
highly competitive and attest to our status as a leading group internationally in the study of exercise and human disease prevention.

Close international links and opportunities for joint research exist with the Mayo Clinic (USA), University of British Columbia in Canada, The University of Oregon and John Moores University in Liverpool (UK) along with the Baker IDI in Melbourne. These strong working relationships with leading International organisations and Universities reflect our leading status worldwide in the areas we study.

In working with our team, you will also get experience with new technologies including cerebral and vascular ultrasound that are used to detect and manage cardiovascular disease that cause heart attack, stroke and are associated with obesity and diabetes. Our studies focus on early prevention of disease in high risk populations such as children with obesity and diabetes and the best management of adults with established cardiovascular disease and risk factors (coronary disease, stroke, heart failure, obesity, diabetes).

Obesity and diabetes are the major epidemics of the 21st century and their impact will worsen as developing countries become more affluent. The major impact of these problems is that they cause atherosclerosis and cardiovascular diseases - which lead to heart attack and stroke - the leading causes of death and disability in the Western world. Exercise training and increases in physical activity have major beneficial impacts on obesity, diabetes and the prevention and retardation of atherosclerosis. Surprisingly, the mechanisms responsible for the beneficial effects of exercise are not fully understood and the most appropriate and therapeutic forms of exercise to prevent cardiovascular diseases are therefore still largely unknown.

The Cardiovascular Physiology Research Group works collaboratively on multidisciplinary projects involving the effects of exercise and exercise training on cardiovascular disease and artery health. Put simply, we ask the questions:

- How does exercise work?
- How do we optimize the benefits of exercise in terms of preventing disease and improving quality of life?
Our research looks at people across the spectrum of health and disease, from elite athletes to chronically ill individuals, to generate a multifaceted understanding of cardiac and vascular exercise physiology. We are also interested in basic science research to add further mechanistic insights into mechanical and neural regulation of the cardiovascular system.

Our studies encompass the lifespan, from children and adolescents with obesity and diabetes, patients with heart disease awaiting transplantation, to elderly patients with dementia and cancer.

We welcome enquiries from Honours or PhD students who may be interested in research involving the impact of exercise on common chronic diseases such as diabetes, obesity, stroke and heart disease.

Some examples of potential projects include:

**W/Prof Danny Green** (danny.green@uwa.edu.au)

- Optimal exercise training modalities for metabolic syndrome: endurance vs. resistance vs. combined exercise training
- Responders/non-responders: is the impact of exercise genetically or environmentally determined?
- Childhood origins of adult disease: the impact of exercise
- Cardiovascular Risk Modification by Testosterone and Exercise

**Dr Louise Naylor** (louise.naylor@uwa.edu.au)

- The role of exercise training in improving health in the following clinical populations: Obesity, Type 2 diabetes, Metabolic syndrome, Heart disease and heart transplant patients, Survivors of childhood cancer.
- Understanding the effect of exercise training in healthy individuals
  - Exploring the effect of activity restriction (inactivity) on the function of small and large arteries
  - Cardiac and vascular changes to different types of exercise (athletes heart)
  - Exploring the health benefits of active video gaming in children

**Dr Elisa Robey** (elisa.robey@uwa.edu.au)

- The impact of exercise training on cognitive function, memory and the relationship with cerebrovascular function (The Preventia Study)
- Sleep in elite athletes
- Sleep monitoring in different populations

**Assoc/Prof Kay Cox & Dr Barb Maslen** (kay.cox@uwa.edu.au & barbara.maslen@uwa.edu.au)

- Exercise training for the prevention of dementia

**Dr Howard Carter and Dr Kurt Smith** (howard.carter@uwa.edu.au; kurt.smith@uwa.edu.au)

- Understanding the mechanisms underlying vascular changes: shear stress & vascular health
- Effects of exercise training on survival, quality of life & symptoms in men with prostate cancer
- Effects of heat on skin blood flow regulation and mechanisms controlling skin blood flow
- Effect of increasing physical activity levels on survival in patients with coronary disease and heart failure
- Effect of increasing physical activity on success of transplantation in patients with heart failure

Dr Ilkka Heinonen (ilkka.heinonen@uwa.edu.au)

- ‘Brain Breaks’ Study - how exercise and breaking up sitting time could benefit brain function
- Dual tasking - Can the combination of exercise and ‘brain training’ optimise cerebrovascular function and cognition in the aging brain?

For more information, or to discuss these projects in more detail, please do not hesitate to contact us via email.

HEALTH BEHAVIOUR AND PERFORMANCE PSYCHOLOGY

ASSOCIATE PROFESSOR JAMES DIMMOCK AND DR BEN JACKSON

James and Ben are running various lab- and field-based studies that would be suited to an Honours project, including the following:

a. Snacking while studying: Why does your motivation for the latter influence the former?

b. Persuasion techniques for exercise promotion: How to get people to begin exercise and how to keep them in exercise.

c. Subconscious influences on health and exercise behaviour: Can environmental features influence our food choices, drinking patterns, and exercise preferences without our awareness, as well as our interpersonal behaviour and responses to peer pressure in those situations.

d. Self-presentation issues in exercise: Understanding how the presence of others might influence our exercise motivation and behaviour, and might impact our confidence in social situations.

e. “It’s tiring being the best (or worst) on the team”: How do youth athletes’ interactions with (and perceptions about) their teammates influence their participation in sport, and do status perceptions influence ego-depletion in sport?

f. “Feeling like you belong” in sport and exercise: Promoting relatedness perceptions and studying affective and behavioural outcomes.

g. Exercising to avoid health problems or to achieve health benefits? Manipulating approach/avoidance goals and examining resultant effects on exercise behaviour.
For more information, please do not hesitate to contact James on 6488 1384 (james.dimmock@uwa.edu.au) or Ben on 6488 4625 (ben.jackson@uwa.edu.au)

PROFESSOR SANDY GORDON

Project title: Random Control Trial (RCT) of peer coaching among high school students.

Background: A local private girl’s high school wishes to evaluate outcomes of Yr 11 peer coaching of Yr 10 students as part of the school’s Leadership initiatives. Yr 11 coaches will receive 4 x 2 hour coach training sessions and pre-/post-program measures will include Positive Psychology inventories and the Goal Focused Coaching Skills Inventory. Yr 10 coachees will receive 6 coaching sessions 2-3 weeks apart and pre-/post-program measures will include academic assessments (English, Maths, Science) as well as Positive Psychology inventories (State Hope Scale, Personal growth Initiative Scale, DASS 21, WEMWBS). Yr 11 and 10 study groups (n=30) and wait-list controls (remaining Yr 11 and 10 students) will participate in the study from late March – September 2016. An Honours student will have the opportunity to co-present and also observe the coach training program and workshop activities, as well as administer and manage the data collection.

For further information and to register interest in this project students are invited to contact Assoc. Prof. Sandy Gordon. Office: 6488 2375 Email: sandy.gordon@uwa.edu.au

ASSOCIATE PROFESSOR REBECCA BRAHAM and ASSOCIATE PROFESSOR MICHAEL ROSENBERG

Technology based Sport Science and Health

Technological advances in the measurement of physical activity have created new opportunities to understand and influence how people engage in regular physical activity. Our research group has been involved in the development of several innovative technologies that have the potential to significantly improve the health of the population. If you have an interest in technology and its use in novel ways the following research opportunities might be of interest to you. We are always happy to discuss these and other research opportunities.

Study 1: The use of RFID technology to determine the effect of a simple experiment

Remote Frequency Identification (RFID) technology provides accurate information on whether a person is inside or outside an established boundary (Such as their house). The RFID system can also tell the amount of time a person spends within the boundary in certain locations (lounge room). We have developed the first available ad-hoc RFID system to determine the length of time people spend in a boundary and the amount of energy expended.

For an honours project we are interested in understanding the impact of simple household modifications to the way screen based activities, such as Fixed and portable screen use influences family sedentary behaviours. For example, does removing screen use before sunset influence activity levels and where people locate within
their house, or outside? There is surprisingly little objective evidence to help answer these questions, as until now the technology has been unavailable.

**Study 2: FITBIT (tracking of children’s physical activity)**

Advances in relatively inexpensive user-friendly wearable activity trackers like the Fitbit® mean it is now realistic to continuously measure movement patterns of children over several months, without considerable participant burden. This level of data offers previously unavailable insights into daily, weekly, monthly and seasonal variations in physical activity (PA). Children’s PA and sedentary behaviours influence a range of health, social and academic outcomes and children’s development in the early years may influence the development of disease in later life. To date, patterns of PA have either relied on self-report surveys, or objective monitoring over at most two-weeks at any one time. **Therefore, we propose to measure PA continuously over a six month period to develop the most comprehensive description of children’s PA to date. If you want to be involved in internationally leading research around children’s physical activity, please come and discuss this topic with us.**

**Study 3: Music based motor control development**

The link between music and physical movement is both entrained and observable in neurological development. There is perhaps no stronger behaviour to unite humans than coordinated rhythmic movement. This is because humans have the capacity to become entrained with one another or an external stimulus. Entrainment is a powerful adaptive process that indicates a mutual perceptual and social experience from the sharing in time and space of music and rhythm. Evidence of the benefits of music entrainment in the development of motor control in children and in rehabilitation is plentiful. Recent advances in wearable sensor technology have transformed rhythmic entrainment into a self-sustaining biofeedback mechanism.

We have developed the first music based rhythmic entrainment mobile phone app that incorporates Bluetooth enabled wearable sensors to provide real time feedback. This breakthrough technology uses a range of Bluetooth enabled accelerometers, Stretch Sense material and force place sensors in socks to entrain the user to move rhythmically. It is like learning to dance or run with wearable sensors that give you feedback on how to achieve this goal.

We are looking for interested students to conduct a range of experience with this new technology on typically developing children, children with delayed coordination, and children undergoing rehabilitation.

**Study 4: Classification of movement during active video gaming**

For several years we have been capturing children’s movement during active video game play. Our research team has developed software to classify fundamental movement skills of children to parse game play data and count the number of movements children perform within a 15 minute game play situation. The advancement of this system requires several experiments using the Vicon System to match movements captured by our system and the gold-standard Vicon System. If you are interested in this study, or any research related to the health impact of active video gaming please speak with us.
Uni-Active (Children’s Fundamental Movement Proficiency Interventions)

UniActive is a pre-school based intervention that promotes the development of fundamental movement skills in children. The program is delivered through Schools year round with about 250 students each term. UniActive is an evidenced based program, although the evidence for the effectiveness of these types of programs is limited. There are significant opportunities for honours projects to utilize this community program. The following five topics are suggestions for research areas.

1. Comparison of the Fundamental Movement Skill proficiency of Welsh and Australian primary school aged children
2. Does participation in an 8 week FMS program improve children’s movement proficiency?
3. Are children ready to move when they start school? Describe the current prevalence of children’s FMS before they start Year 1
4. Validation of the Uni-Active assessment
5. Can children’s mental health and wellbeing be improved as part of an 8 week physical activity program

Risk Perception in Children’s Sport

We are partnering with Kidsafe to investigate the risk perception from a parental and coaches perspective of injury in sport. There is the potential to complete projects in a variety of areas around this core topic. If you are interested in injury surveillance, prevention and children in sport, then please come and speak to us.

THE CENTRE FOR THE BUILT ENVIRONMENT AND HEALTH

The Centre for the Built Environment and Health undertakes policy-relevant research that builds capacity and influences planning and urban design policy and practice to create healthy and sustainable communities. We have a strong focus on the translation of research into policy and practice across health, urban design, town planning, sport and recreation, transport and other relevant sectors. We are seeking a motivated Honours student to investigate nutrition and physical activity environments within and around the workplace. Current projects include:

The PLAYCE Study: Play Spaces & Environments for Children’s Physical Activity and Health

Team of potential supervisors: Asst/Prof Hayley Christian, A/Prof Michael Rosenberg, A/Prof Leanne Lester, Ms Clover Maitland.

Background: There is growing interest in environmental interventions targeted at increasing children’s physical activity because of their potential reach and impact on the health and well-being of future generations. In the last decade there has been a 20% increase in the number of 0-4 year olds in WA with 63% of WA 2-3 year olds attending some type of child care. The child care setting is where children spend a considerable portion of their time, thus it is an important setting in which children should have the opportunity to accumulate physical activity and other forms of unstructured physical play to facilitate their health and development.

Outline: The PLAYCE (Places Spaces & Environments for Children’s Physical Activity) program of research investigates the influence of the physical, social and policy environment on young children’s physical activity, sedentary behaviour, eating behaviour, weight status, sun exposure and development across different behaviour settings (childcare, home and the neighbourhood). PLAYCE aims to provide information on how
best to create healthy environments for young children and families to enable them to lead healthy and fulfilling lives. A range of PLAYCE research projects are available. Some of these include: ‘Using GPS to understand where and how young children move around their home and neighbourhood’; ‘Qualitative research with children, parents, staff and key stakeholders in the childcare setting’; ‘Interventions to improve physical activity levels and health of children attending childcare’. Students are welcome to arrange a time to meet and discuss potential research topics.

 Suitable for Honours/12 or 24 point Masters dissertation or project/Masters by Research thesis/Phd or able to be tailored to any of these.

**How does contact with nature facilitate young children’s health and development?**

Supervisor: Asst/Prof Hayley Christian, A/Prof Michael Rosenberg, A/Prof Leanne Lester, Ms Clover Maitland.

Background: Contact with nature (plants and animals) is associated with children developing a sense of identity, autonomy, psychological resilience, self-regulation, gross motor skills and learning healthy behaviours. However, while the pathways through which contact with nature facilitates child health and development have been examined in older children, studies to date have not examined the effect of nature contact on young children’s health and development.

Outline: This project will involve collaboration with industry partner Nature Play WA. The project will evaluate the impact of Nature Play WA’s education program aimed at providing early childhood education and care staff with the knowledge and skills to create nature play spaces within the childcare setting. The student will conduct a literature review on the effects of nature contact on young children’s health and development. The student will undertake a follow-up survey of early childhood education and care staff to ask them about changes to their childcare centre (e.g., changes to the outdoor physical environment, program content, care and teaching practices) post taking part in the Nature Play WA program. Visits to childcare centres to objectively assess changes to the childcare environment and its effect on young children’s health and development can also be done.

**Benefits of Family Dog Ownership for Children’s Physical Activity and Health**

Supervisor: Asst/Prof Hayley Christian, A/Prof Michael Rosenberg, Ms Clover Maitland, Dr Westgarth-University of Liverpool-UK

Background: Physical inactivity and rising levels of overweight and obesity are a public health concern. Dog ownership is associated with higher levels of physical activity in adults but few studies have examined the physical, social and emotional health benefits associated with dog ownership in children.

Outline: The aim of this study will be to examine the association between dog ownership and physical activity, sedentary behaviour and overweight/obesity in children. The relationship between family dog ownership and dog-facilitated physical activity from active play with a family dog or walking with a dog will be examined for different child age groups (e.g., early years, primary school and adolescents). The influence of socio-demographic, social and physical environment factors on these relationships will be considered. There is scope for qualitative research with parents and children on the motivators and barriers to dog walking and
dog-centred play as well as intervention research to determine strategies for improving the child health benefits of family dog ownership.

**Physical Activity Intervention Targeting Dog Owners**

**Supervisors:** Asst/Prof Hayley Christian, A/Prof Michael Rosenberg, Ms Clover Maitland, Dr Westgarth-University of Liverpool-UK

**Background:** There is growing awareness about the importance of dog ownership to physical and emotional human health. Almost half of all Australian households own a dog. Dog owners do more walking and are more physically active compared with non-owners. Importantly, dog walking has been shown to be a potentially viable strategy for increasing the proportion of the community who are sufficiently active for health benefit.

**Outline:** This project will involve intervention research to examine the potential of dog walking to contribute to owners overall level of physical activity and increase the proportion of people who meet the recommended level of physical activity. There is scope for interventions targeting adults and or children. The project is likely to have significant implications for health promotion policy and practice and will involve working closely with industry partners.

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**PHYSICAL AND HEALTH EDUCATION**

If you wish to undertake your Honours project with *Dr Peter Whipp and Mr Martin Anderson*, please do not hesitate to contact them on 6488 2793 or peter.whipp@uwa.edu.au and 6488 3918 or martin.anderson@uwa.edu.au

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**EXERCISE REHABILITATION**

**CLINICAL EXERCISE PHYSIOLOGY**

1. **Efficacy of a community based aquatic exercise program on achieving health outcomes for people with T2DM**
   - **Research Team:** Dr Bonnie Furzer (AEP), Dr Ben Jackson, Dr Nat Benjanuvatra, Dr Louise Naylor (AEP), Dr James Dimmock
   - **Collaborators:** Swimming 365 (Swimming WA)
   - **Contact:** bonnie.furzer@uwa.edu.au

2. **Investigation of the efficacy of an exercise intervention incorporating synchronous online delivery on the health outcomes of cancer patients**
   - **Research Team:** Dr Bonnie Furzer, A/Prof Ben Jackson, A/Prof James Dimmock, Dr Louise Naylor

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3. Design and implementation of a physical activity program for residential and transition youth within the Drug and Alcohol Youth Service (DAYS)

- **Research Team:** Dr Bonnie Furzer, A/Prof Ben Jackson, Dr Ashleigh Thornton
- **Collaborators:** Drug and Alcohol Youth Service (Mission Australia & Next Step)
- **Contact:** bonnie.furzer@uwa.edu.au

PAEDIATRIC EXERCISE HEALTH & REHABILITATION

**2016 Research Team incl.:**
- Dr Bonnie Furzer – Clinical Exercise Physiology
- Dr Ashleigh Thornton – Motor Control, Learning & Development
- Dr Ben Jackson – Exercise, Health & Sport Psychology
- Dr Brendan Lay – Motor Control, Learning & Development
- Ms Claire Willis (PhD Candidate) – Clinical Exercise Physiology
- Ms Kemi Wright (PhD Candidate) – Clinical Exercise Physiology

1. Effect of different training styles on physiological outcome measures in children with low motor proficiency [*Ex Phys – Motor Control*]
2. Impact of sleep variables on motor performance in children [*Motor Control - Ex Phys*]
3. Validation of the Behavioural Regulation in Exercise Questionnaire (BREQ-3) in children [*Motor Control – Psych*]

**Contact:** bonnie.furzer@uwa.edu.au or ashleigh.thornton@uwa.edu.au

**DR JAY EBERT**

Dr Ebert is currently involved in a range of research projects aimed at evaluating specific aspects of orthopaedic and musculoskeletal rehabilitation/biomechanics, pertinent to the improvement of current clinical practice. Should these research projects (or components of these projects) be of interest to you at Hons, Masters or PhD level, please do not hesitate to contact Dr Ebert on 9386 9961 or jay.ebert@uwa.edu.au.

- Anterior cruciate ligament (ACL) injury and reconstruction
  - Limb strength/functional symmetry following ACL reconstruction: implications for the return to sport and risk of re-injury
  - Evaluation of varied ACL surgical graft constructs with respect to post-operative recovery
Accelerated rehabilitation after double bundle remnant sparing anterior cruciate ligament (ACL) hamstring reconstruction: a prospective randomised controlled trial investigating functional recovery and return to sport

Late stage rehabilitation in the enhanced recovery and reduced re-injury rate in patients after ACL reconstruction

- Gluteal tendon surgical repair and rehabilitation
  - Evaluation of patient outcomes following gluteal tendon repair surgery
  - Development of rehabilitation protocols after gluteal tendon repair surgery
  - 2D biomechanical analysis during gait and single limb stance in patients before and after gluteal tendon repair surgery

- Knee and hip osteoarthritis and joint replacement surgery
  - Investigation of patient and prosthetic outcomes following different prosthetic designs
  - Development of post-operative rehabilitation protocols
  - Investigation of adjunct methods for osteoarthritis (i.e. knee bracing)

BIOMECHANICS, MOTOR CONTROL AND LEARNING

Dr NAT BENJANUVATRA

Research Themes

1) Swimming & Aquatic Exercise Research

- Biomechanics, Motor Learning & Control
  - Temporal coordination in breaststroke
  - Timing of the dolphin kick in the breaststroke pull out
  - Coaching expertise: what do expert coaches see that novice coaches don’t?

- Clinical Exercise Physiology
  Efficacy of a community based aquatic exercise program on achieving health outcomes for people with T2DM
  Research Team: Dr Bonnie Furzer (AEP), Dr Ben Jackson, Dr Nat Benjanuvatra, Dr Louise Naylor (AEP), Dr James Dimmock

2) Strength and Conditioning for Performance

- Strength asymmetry and motor performance
- Role of muscular strength in swimming

For more information, please do not hesitate to contact Nat on 6488 2437 or nat.benjanuvatra@uwa.edu.au