**HMS NEWSLETTER**

**NEW UQ HEALTH FACULTIES**

The University of Queensland has established two new health-related faculties: Health and Behavioural Sciences (HABS) and Medicine and Biomedical Sciences (MiBS). The Faculty of Health and Behavioural Sciences will focus on the health professions, while the Faculty of Medicine and Biomedical Sciences will aim UQ’s efforts focussed on pre-clinical and medical sciences.

The School of Human Movement Studies is now part of the new Faculty of Health and Behavioural Sciences.

“The formation of the new Faculty of Health and Behavioural Sciences provides an exciting opportunity to take a fresh look at how to best harness the tremendous teaching, research and clinical engagement talent that UQ possesses in the health sciences, in the behavioural sciences, and at the critical interface between these two,” Professor Bruce Abernethy, Executive Dean of the Faculty of Health and Behavioural Sciences, said.

For more information on the new Faculty of Health and Behavioural Sciences, please visit www.uq.edu.au/health-and-behavioral-sciences-

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**HMS EDUCATOR WINS UQ TEACHING EXCELLENCE AWARD**

Congratulations to Dr Craig Engstomme, HMS Lecturer in exercise science and sports physiology, who was awarded a 2019 UQ Award for Teaching Excellence in the UQ Awards for Excellence in Teaching and Learning and Internationalisation.

Dr Engstomme received the award as acknowledgment of his outstanding history of teaching excellence and his significant provision of outstanding multidisciplinary learning resources for students.

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**UQ School of Human Movement Studies**

Researchers have been awarded $136,000 for two innovative ideas designed to get people off their seats to combat ‘chair disease’.

‘Chair disease’, or sitting for too long at work or home, increases the risks of heart disease, diabetes, obesity, back, neck, wrist and shoulder injuries. Two Heart Foundation grants to UQ will support the feasibility testing of two innovative concepts in health services.

They are the only two such grants awarded in Queensland this year.

Dr Nicholas Gibson was awarded $73,190 to test a ‘Sitting Pad’ device that uses a prompt to alert workers to stand up more regularly.

“The Sitting Pad was designed and developed by our UQ team, and this project will enable us to test the intervention capabilities of the device on office workers in a workplace setting,” Dr Gibson said.

“Fitted to office chairs, the device will provide second-by-second, day-by-day, real-time feedback to prompt breaks in prolonged periods of desk-based sitting.

“A feedback mechanism built into the sitting pad is attached to a sensor which can be set to sound an alarm if a person has been sitting for a predetermined amount of time.

“We are aiming to accurately measure and understand occupational sitting behaviour in order to introduce effective and individually tailored prevention methods to improve employee health, wellbeing and workforce productivity.”

UQ Faculty of Health and Behavioural Sciences Associate Dean (Clinical) Professor Gerald Holtmann said the project involved an innovative research concept.

“The funding is a significant achievement that will assist our researchers to address the effects of sitting down for too long, which can include heart disease, diabetes, obesity and back, neck, wrist and shoulder injuries,” Professor Holtmann said.

“It is exciting to see our pioneering researchers leading the way in Queensland with their innovative concepts that will ultimately improve the health of our community.”

For more information, please visit www.hms.uq.edu.au/news

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**HMS ADVANCEMENT BOARD**

**HMS celebrates annual Alumni Awards**

UQ School of Human Movement Studies researchers have lead the first study to show how foot muscles help support the arch of the foot, which could have implications for the design of running shoes and treatment of foot conditions.

The findings may also help in the design of efficient prosthetic and robot limbs and improve understanding of how humans came to walk and run efficiently on two feet.

Dr Glenn Lichtwark said everyone knows muscles are very important in moving our legs, but muscles in the foot have been relegated to a less important role.

“Ligaments in the foot have generally been regarded as the main support for the foot arch which helps us walk and run by acting as a spring,” Dr Lichtwark said.

“As you compress the arch it stretches the bottom of the arch and that causes some tension in the ligaments that stores elastic energy, which can be released when you push off.”

“Anatomical research suggests that muscles in the foot may also be important in supporting the arch of the foot as well and we were really interested in whether or not these muscles had any capacity to assist this function of the foot.”

Two experiments were conducted to investigate the role of muscles in the foot; the first experiment required participants to have a weight applied to their knee while the researchers studied activation of foot muscles, using needle electrodes.

“We found that after a certain amount of force was applied, these muscles started to activate and the more weight we applied, the more these muscles turned on,” Dr Lichtwark said.

In a second experiment researchers electrically stimulated the foot muscles under different loads.

“We found that as the muscles were stimulated, they caused the arch of the foot to rise actively supporting the arch,” Dr Lichtwark said.

“The muscles were basically acting as a parallel support to the ligaments effectively stiffening the foot.”

The researchers believe the findings may have implications for the design of running shoes.

“Running shoes should be designed to complement the function of the muscles rather than work against them,” he said.

“There is evidence these muscles respond to how much load you put them, if you put in some kind of cushioning effect on one side of the foot for instance, then that might slow the response of these muscles in being able to adjust to different surfaces or uneven terrain.”

The findings may also have implications for rehabilitation of muscular skeletal injuries and may lead to exercise programs to strengthen foot muscles where there are problems with the arch.

The project was funded as part of PhD research by Luke Kelly, supervised by Dr Glen Lichtwark and Professor Andrew Cresswell who works as a Sports Podiatrist in collaboration with Aspitar Orthopaedic and Sports Medicine Hospital, Doha, Qatar.

The findings were published recently in the Journal of the Royal Society Interface.

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**CRExPAH awarded Kidney Health Australia grant**

Professor Jeff Coombes and Ms Kassia Weston from the School of Human Movement Studies have been awarded a $43,200 Kidney Health Australia grant to determine the most effective type of exercise training for people with chronic kidney disease.

Exercise training can have an important role in the management of chronic kidney disease. Exercise can improve physical functioning and general health and reduce the risk of cardiovascular disease, which is a common cause of death among people with kidney disease.

High intensity interval training involves alternating between maximum intensity and less vigorous exercise during the same session. It is an effective means to improve cardiovascular health and muscle function in people with heart disease, diabetes, and obesity.

Professor Coombes and Ms Weston will compare the effectiveness of high intensity interval training and continuous moderate intensity exercise in people with chronic kidney disease.

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**Short bursts of exercise may reduce risk of heart disease**

**Heart Foundation awards funding to prevent ‘chair disease’**

**A new UQ School of Human Movement Studies study has found higher intensity and shorter duration exercise provides better results than the more conventional 30 minutes of daily exercise. Researchers are looking at the benefits of high intensity interval training as the most effective way of reducing the risk of heart disease in people with metabolic syndrome.**

**Metabolic syndrome is a disease suffered by 30% of the Australian population that consists of people being overweight or obese, and having either high blood pressure, high cholesterol, or diabetes. Professor Jeff Coombes said the trial was still in early stages; however, results so far have been promising.**

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**Breakthrough foot study may impact shoe design**

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Kidney patients may gain from less salt

Reducing salt consumption may help prolong the lives of patients with chronic kidney disease, a study from The University of Queensland has found.

The study suggests that a salt-reduced diet improves the heart and kidney health of chronic kidney disease patients, potentially reducing the risk of disease progression by 30 percent.

UQ School of Human Movement Studies PhD student Emma McMahon monitored 20 people with chronic kidney disease on a high-salt diet and 20 on a low-salt diet.

The high-salt diet consisted of 4600 milligrams of sodium per day for two weeks and the low-salt diet consisted of 1800 milligrams of sodium per day for two weeks.

Mrs McMahon said the study measured various factors related to heart and kidney health, including change in body fluid volume, blood pressure, and protein in the urine.

“We found that low salt intake reduced excess extra-cellular body fluid, a risk marker for heart disease and worsening kidney health, by 1 litre, on average,” Mrs McMahon said.

“At lower blood pressure by 10/4 millimetres of mercury (mm Hg) and cut protein excretion in the urine, without causing significant side effects. “These are clinically significant findings, with this magnitude of blood pressure reduction comparable to that expected with the addition of blood-pressure lowering medication.”

HMS student sets three world records at the World Transplant Games

Human Movement Studies student Montague Summers has set three world records at the World Transplant Games in South Africa, despite having a bone marrow transplant after treatment for leukaemia.

Mr Summers was one of 1800 athletes from 49 countries at the games. All were organ or tissue transplant recipients.

He won silver in the 5km road race, bronze in the team 5km road race (Australia A) and gold in each of the track events.

He broke world records in the three track events - by seven seconds in the 1500m and four seconds in the 800m - as he equaled his own 2011 world record in the 400m.

These effects are larger than what you would expect in people without chronic kidney disease,” she said.

Principal investigator Dr Katrina Campbell said the study found that salt restriction could be an inexpensive, low risk and effective way to reduce heart and kidney risk in patients with chronic kidney disease.

“Relating current findings to the practice of the General Practitioner, Dr Katrina Campbell said that this study found that salt restriction could be an inexpensive, low-risk and effective way to reduce heart and kidney risk in patients with chronic kidney disease.

The study is scheduled for publication in the Journal of the American Society of Nephrology.

New Head for UQ Human Movement Studies

Professor Andrew Crosswell, also the President of the International Society of Biomechanics and current Past President of the Australian and New Zealand Society of Biomechanics, commenced his new role in January.

The School has recently been commended within a review process for its research excellence, high quality teaching and extensive industry engagement, particularly in clinical, education and practice work placements.

Professor Crosswell praised the School’s outstanding reputation for basic and applied research in the Human Movement and Nutrition Sciences, and was delighted that Human Movement and Sports Science is highlighted among UQ’s 30 research strengths.

“I look forward to working with my colleagues on further strengthening the School’s research profile and continuing to develop the School’s undergraduate and postgraduate programs.”

“I am confident that the recently established Faculty of Health and Behavioural Sciences will yield significant opportunities for the School and I am delighted to lead the School within this new structure.”

The staff and students of the School sincerely thank former Head of School, Professor Douro Macdonald, for her outstanding leadership and guidance during her 10 year term as Head.

“Those who participated in the exercise program may have been fitter and less likely to fall than those in the non-participating group.

Differences in physical functioning were accounted for in the analyses, but it cannot be ruled out that this may have biased the findings.”

Ms Carmela Lagasca, Churches of Christ Queensland Research Facilitator, who arranged the partnership, said the team was excited about the results and the possibility of expanding the study.

For more information, please visit www.hms.uq.edu.au/news

News of interest to all active students and staff of the School:

COAST TRIATHLETE GRADUATES TOWARDS MEDICAL CAREER

William Maish, formerly of the Sunshine Coast, has his sights set on a medical career that will ultimately combine his passion for exercise, nutrition and medicine.

Mr Maish graduated from the School of Human Movement Studies with a Bachelor of Exercise and Nutrition Science (Biomed) degree, providing him a strong knowledge base from which to launch his next challenge - becoming a medical student.

“I found knowing the courses offered would provide me the best opportunity for success with the GAMSAT (Graduate Australian Medical School Admissions Test) and future studies,” Mr Maish said.

“There aren’t very many programs from which to launch his next big challenge - becoming a medical student. “I enrolled knowing the courses offered would provide me the best opportunity for success with the GAMSAT (Graduate Australian Medical School Admissions Test) and future studies,” Mr Maish said.

“My first and second year anatomy lectures amazed me with what they knew and how they taught such complicated content,” Mr Maish said.

“This led me to tutoring other students for the remainder of my studies which is something I immensely enjoyed.”

Mr Maish hopes one day to combine his knowledge of exercise, nutrition and medicine to provide a holistic approach to the treatment and prevention of disease.

To find out more about Montague’s story visit: www.everydayhero.com.au/transplant_australia_

To contact Montague please email his name to: obituaries@hms.uq.edu.au

“Also in 1999, Thanks to the generosity of Mark Howel, former Head of School who died 3 February 2014 surrounded by family and friends. We honour Max for his contribution to the Human Movement studies field and the School.”

OBITUARY

Professor Max Howell 1927 – 2014

The School of Human Movement Studies was saddened to hear of the death of Professor Max Howell, former Head of School who died 3 February 2014 surrounded by family and friends. We honour Max for his contribution to the Human Movement studies field and the School.

To find out more about Montague’s story visit: www.facebook.com/MontagneWorldTransplantGames