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PhD students Dr Au Bich Thuy and Costan Magnussen with project coordinator Dr Rob Granger. Photo courtesy of The Sunday Tasmanian

Project to address emerging epidemic in Viet Nam

The Menzies Research Institute has been awarded US \$2 million in funding from the Atlantic Philanthropies to establish a system to monitor the growing problem of non-communicable diseases (NCDs) in Viet Nam.

In developing nations such as Viet Nam, the burden of NCDs has taken over from traditional problems of infectious diseases like malaria and tuberculosis, and disorders due to under-nutrition and deficiencies.

Project coordinator Dr Robert Granger says that in the Western Pacific region, seven out of every ten deaths are currently due to NCDs.

"Cardiovascular mortality, cancer and diabetes are the leading causes of death in Viet Nam, alongside death from injury," Dr Granger said.

The Menzies Research Institute will establish a country-wide system for measuring the impact of NCDs such as cardiovascular disease, stroke, diabetes, and cancer.

Evidence shows that a few major risk factors, namely smoking, unhealthy diet, physical inactivity and alcohol, cause more than three out of four cases of chronic NCDs.

NCDs are increasing as a result of changing lifestyles and changing economies in developing countries. These changing ways of life are obvious on the streets of Viet Nam: where streets used to teem with bicycles, most people's mode of transport today is a motorcycle.

"Diabetes rates have doubled in both urban and rural Viet Nam. Around 23 per cent of urban primary school children in Ho Chi Minh City are now overweight and 10 to 12 per cent are obese. This significantly elevates their risk of future diabetes, hypertension, stroke, and other NCDs," Dr Granger said.

The establishment of a system for measuring rates of NCDs and related risk factors in Viet Nam is an essential prerequisite to taking action to address the problem.

"Viet Nam's current situation is similar to that of Australia around 60 years ago. This is a critical moment where intervention will have a significant impact on the future health and prosperity of the country," said Dr Granger.

The Menzies Research Institute will work in collaboration with the World Health Organisation (WHO) and the Viet Nam Ministry of Health on this project.

Vietnamese medical professional, Dr Au Bich Thuy has recently come to Tasmania to undertake studies for a PhD at the Institute. Training is an important part of building Viet Nam's capacity for dealing with the problem of NCDs.

"When I return to Viet Nam at the end of my studies, I will be able to use the skills I have developed to continue the Institute's work in this area," said Dr Thuy.

Research for the health of future generations

This edition of *The Bulletin* features exciting research initiatives by the Menzies Research Institute in the area of children and young people.

New project examines the problem of fractures in children

Fractures in children are a very common but understudied problem. Fracture incidence peaks between the ages of 10 and 15 years in both boys and girls, with three times as many fractures in this age group each year than those due to osteoporosis in older people.

A new and unique population-based study at the Menzies Research Institute, FRISBEE (Fracture Risk Study in Bones of Early Existence), is taking the long view in order to better understand this significant public health problem. FRISBEE is a novel long term study in 1,000 Tasmanian children aged 10-11 years, examining bone development and risk factors for fractures.

In previous studies, fractures have been consistently linked with bone mineral density. Other factors which are thought to influence fracture risk include obesity, television watching, non-sports related physical activity, coordination and risk taking behaviour. Cola beverages have also been linked to fractures in children in some studies.

Studies of influences on fracture risk which take place after a fracture event can be prone to bias. The FRISBEE study is unique in that it will follow children through a period of five years and collect data regularly, prior to a fracture occurring.

Participating children will have a range of measurements taken yearly. Bone mass will be measured by densitometry and MRI, and fracture incidence by questionnaire.

Physical activity will be measured with new state-of-the-art accelerometers, devices which are specially designed to collect detailed information on



Bone mass is measured by bone densitometry

frequency, intensity and duration of activity.

Other measurements include height, weight and other body measurements, diet, sunlight exposure, balance, risk taking behaviour and bone age.

This study has the potential to significantly improve our understanding of fractures in both young and old age. It is known that many factors in childhood, such as bone mineralisation, are important for prevention of osteoporosis in later life. It is hoped that results from this study will inform public health policy and lead to improved recommendations on healthy lifestyles for bone development.

FRISBEE builds on the strong track record of the Institute's musculoskeletal researchers, led by Professor Graeme Jones. Seed funding has been provided by the Royal Hobart Hospital Research Foundation, and ongoing funding of up to \$1.2 million is being sought to ensure the long term viability of the project.

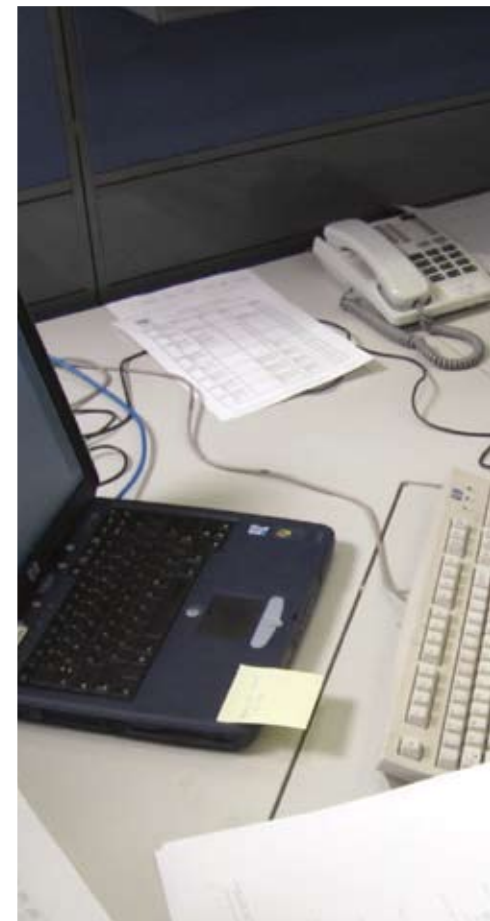
Program nurtures researchers of tomorrow

A new program at the Menzies Research Institute is providing opportunities for undergraduate students at the University of Tasmania to participate in biomedical research.

Five students have been selected from a high quality field of applicants to participate in the Undergraduate Research Opportunities Program (UROP), in which students undertake a project that is part of a research program at the Institute.

Luke Manestar, a third year science student majoring in mathematics and biochemistry, is examining the hypothesis that children with high levels of fitness have higher levels of literacy and numeracy. Other students are undertaking projects in the areas of musculoskeletal research, multiple sclerosis and genetics.

They are supervised by a research



UROP student Luke Manestar

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scientist in a mentoring role, and learn alongside other research staff and students in the team for up to 12 months. Projects are started during a six week placement in the summer vacation and students continue their projects for one day a week for the remainder of the year.

It is hoped that the program will encourage students to consider medical research as a career, and to continue their association with the Menzies Research Institute as they undertake postgraduate studies. The University has provided funds to support two UROP students in 2006. The Institute has also recently made an arrangement with the University to enrol students in an Honours program. This is another key step in increasing the number of postgraduate students at the Institute.



Menzies on the move

The Menzies Research Institute is moving! Staff from the Menzies Building in Liverpool Street are packing up and moving to a temporary location this year to make way for new building works.

The Institute will be located at Level 2, 199 Macquarie Street, Hobart from May 2006. Our postal address and phone numbers will not change.

The Menzies Building will soon be demolished and work will start on a new state of the art research facility, which will house the entire Institute as well as parts of the University's Faculty of Health Science, including the Schools of Medicine and Pharmacy.

The building is scheduled to be completed by the start of the teaching year in 2008. Watch this space for updates!

Project with a vision for literacy



Some children with normal intelligence have trouble reading because of problems coordinating both eyes to read visual images. The Literacy Pathways project, which started in 2005, is screening for vision coordination problems among children with low literacy in participating southern Tasmanian schools.

The project is using an innovative computerised vision program which allows children to be tested not only for eyesight but also for binocular vision, the ability of the eyes to work together. The program has been used in other countries such as the United Kingdom, and has been conducted in 50 schools in Tasmania so far with a total of 285 children tested.

Children who are found to have problems with their binocular vision are being invited to participate in an educational randomised controlled trial in 2006. Those in the trial will be assigned to one of three subgroups, each using a different intervention designed to improve their reading.

This trial will enable researchers to evaluate and identify new pathways to help children with visual eye coordination problems and low literacy. The study team has recently grown to welcome three project officers who



will work with children in the trial to administer the interventions.

The Literacy Pathways project is part funded by the Australian Research Council, but is seeking additional funding to enable detailed independent assessment of several measures of eye functioning and literacy before and after children's participation in the trial. This detailed independent assessment is critical to ensure the trial results are informative and valid, and allow researchers to make recommendations on new treatments for poor literacy.

This collaborative project involves researchers from the University's Faculty of Education and Faculty of Health Science, along with the Tasmanian Department of Education, the Murdoch Childrens Research Institute and the Centre for Eye Research Australia at the University of Melbourne.



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Golfers tee off for osteoarthritis research

Over \$23,000 was raised for osteoarthritis research at the Menzies Research Institute's thirteenth annual Golf Classic on 3 March.

The event was a great success. One hundred and twenty eight golfers took advantage of the unexpectedly tropical weather to network and develop new relationships, participate in physical activity by walking around the scenic golf course, and raise valuable funds to support the work of the Institute. "Team Roberts", made up of Neil Roberts, Peter Barnett, Jacky Mildred and Stewart Stirling, kept their cool in the 36°C heat to win the Corporate Express Office Equipment Golf Classic Cup. The team from Statewide Lockups took out the Collex runners-up prize.

Fourteen celebrity caddies also participated in the day and were auctioned off to teams in the lead up to the event. Over \$2,300 was raised from this activity and lots of fun was had by these prominent Tasmanian personalities who generously donated their time to support the Institute.

The Cascade Bradman Award for the highest team score was 'won' by "Team Menzies" Number Two. A team from Eyelines took out the Best Mixed Team Award.

Dr Peter Larkins, one of Australia's most prominent sports physicians and Channel Nine AFL commentator, gave an interesting account of his experiences in treating sporting injuries and joint damage at the VIP

breakfast. Award winning journalist and sports presenter Tony Jones was the entertaining Master of Ceremonies.

The 2006 Golf Classic raised funds for research into osteoarthritis through the Tasmanian Older Adult Cohort (TasOAC) study.

Project leader Professor Graeme Jones says that osteoarthritis is a major cause of disability in elderly Australians, with almost one in three people over 65 affected by the condition.

"TasOAC is believed to be the world's largest magnetic resonance imaging (MRI) research project focusing on osteoarthritis," he said.

"Results from the study are contributing to a more complete understanding of the role of factors influencing the development and progression of osteoarthritis, and should lead to new treatment strategies and targets."

Funds raised from the 2006 Golf Classic will support crucial biochemical testing of 1,000 TasOAC participant blood samples.

Golf Classic attendees enjoyed delicious food and beverages and great hospitality. Thanks must go to all of the sponsors, caddies, supporters, volunteers and participants who contributed to the success of the day.

The 2007 event is sure to be even bigger and better - the Menzies Research Institute Golf Classic is fast becoming one of Hobart's premier corporate fundraising events!



Special guest Dr Peter Larkins (far right) enjoyed a round on the course with TASOAC researcher Professor Graeme Jones (left) and colleagues

Footy fever raises funds for research

Collex has continued its support of the Menzies Research Institute, hosting the Collex Menzies Premiers Lunch on Friday 3 March in Launceston. The event marked the launch of the 2006 season of AFL in Tasmania and featured a fundraising auction and raffle, with the proceeds supporting research at the Institute.

Epilepsy research mentioned in Senate

In a speech delivered to the Australian Senate in October, Tasmanian Senator Stephen Parry stated that Tasmania is leading the world in epilepsy research. The Tasmanian Epilepsy Register, housed at the Menzies Research Institute, is the largest community-based register in the world, with over 1,000 people now enrolled.

Epidemiological studies have contributed to a better understanding of the frequency and causes of epilepsy and seizures, resulting in improved diagnosis and management of individuals with seizures. However, there have been few studies on the natural history and impact of a diagnosis of epilepsy on the lives of individual patients. The Tasmanian Epilepsy Register Study, established in 2002, is gathering important information on health service utilisation, epilepsy severity, the relationship of epilepsy to other diseases and injuries in relation to this condition.



David Osborne from Corporate Express Office Equipment (second from the left) presents the Golf Classic Cup to captain of the winning team, Neil Roberts

Publications

**Charlesworth J, *Stankovich J, Mackey D, Craig J, Haybittel M, Westmore R, Sale M. Confirmation of the adult-onset primary open angle glaucoma locus GLC1B at 2cen-q13 in an Australian family. Ophthalmologia 2006;220(1):23-30.*

Primary open-angle glaucoma (POAG) is genetically heterogeneous, with 6 named POAG loci GLC1A-F mapped and genes myocilin (MYOC) and optineurin (OPTN) identified at 2 of the loci. Using penetrance-model-free methods, we screened the POAG loci GLC1A-F in an extended Australian pedigree, using 3-5 markers within each locus. Results from our study provide supportive evidence for the GLC1B locus on chromosome 2cen-q13 and verify the existence of POAG susceptibility gene in this region, increasing the likelihood of gene identification.

**Ding C, Cicuttini F, Scott F, *Boon C, *Jones G. Association of prevalent and incident knee cartilage defects with loss of tibial and patellar cartilage: A longitudinal study. Arthritis and Rheumatism 2005;52(12):3918-27*

This study aimed to describe the association between prevalent and incident knee cartilage defects and loss of knee cartilage in male and female adults. Three hundred and twenty five subjects were evaluated at baseline and again approximately two years later. Knee cartilage volume, cartilage defect scores, and joint surface area were determined using MRI. Height, weight, and radiographic evidence of osteoarthritis were also measured. It was concluded that prevalent knee cartilage defects are predictive of compartment-specific cartilage loss over two years. Both increases and decreases in knee cartilage defects are associated with changes in knee cartilage volume, which implies a potential for reversal of knee cartilage loss.

*Dunstan D, Salmon J, Owen N, Armstrong B, Zimmet P, Welborn T, Cameron A, *Dwyer T, Jolley D, Shaw J. Associations of TV viewing and physical activity with metabolic syndrome in Australian adults. Diabetologia 2005;48(11):2254-61*

We analysed a sample of Australian adults to determine the strength of associations of TV viewing and participation in physical activity with the metabolic syndrome. This

population-based cross-sectional study included 6,241 adults aged 35 years or older who were free from diagnosed diabetes mellitus and self-reported ischaemic disease and were not taking lipid-lowering or antihypertensive drugs. Participants self-reported TV viewing time and physical activity time for the previous week. It was found that increased TV viewing time was associated with an increased prevalence of the metabolic syndrome, while physical activity was associated with a reduced prevalence. Population strategies addressing the metabolic syndrome should focus on reducing sedentary behaviours such as TV viewing, as well as increasing physical activity.

*Wang Y, *Ding C, Wluka A, Davis S, Ebeling P, *Jones G, Cicuttini F. Factors affecting progression of knee cartilage defects in normal subjects over 2 years. Rheumatology 2006;45(1):79-84*

Cartilage defects are present in subjects with knee osteoarthritis (OA). Although they are often present in healthy subjects, there is little data on the natural history of cartilage defects. The aim of this study was to examine the change in cartilage defects over 2 years and to identify factors associated with this change. One hundred and twenty-four healthy subjects underwent magnetic resonance imaging of their dominant knee at baseline and follow-up. Cartilage defects were scored at five sites. Bone size was determined at medial and lateral tibial plateau and patella. Height, weight, body mass index and physical activity were also measured. Although knee cartilage defects progressed over time in the majority of normal subjects, those of the highest severity tended to regress. Male gender and baseline cartilage defect score were the main factors associated with the progression of cartilage defects. Larger studies will be required to identify factors associated with the progression and regression of lesions.

Grants

The following grants have been awarded to the Menzies Research Institute since the last issue of the Bulletin.

NHMRC Equipment Grant.
**Venn A, *Foote S, *Dickinson J, *Jones G.*
Serum bank for the Childhood Determinants of Adult Health (CDAH) Study - Sanyo VIP series ultra low temperature upright freezer for storage of serum and blood samples. \$18,590

Ian Potter Foundation.
**Foote S, *van der Mei I, *Dickinson J.*
Identification of genes that influence MS progression by pathways that involve UV exposure: A prospective cohort study. \$100,000

Masonic Centenary Research Foundation.
**Srikanth V, Reutens D, Phan T.*
Tasmanian Cognition and Gait Study (TASCOG) \$19,350

Atlantic Philanthropies
**Granger R, *Srikanth V, Thrift M, Galea G, Duong V.*
Viet Nam National Non-Communicable Disease Surveillance System. \$US 2,000,000

Perpetual Trustees
**Dickinson J, *Foote S.*
The Tasmanian Leukaemia and Other Haematopoietic Malignancies Research Study. \$40,000

UTAS Institutional Research Grants.
**Ding C.*
Are bone turnover biomarkers associated with knee structural change assessed by magnetic resonance imaging in the elderly? \$7,000

Tasmanian Community Fund.
**Ding C, *Jones G.*
Are serum inflammatory markers predictive of knee structural changes and bone loss in the elderly? The Tasmanian Older Adult Cohort (TasOAC) Study. \$50,000

NHMRC Australian-based Training Fellowship.
**Winzenberg T. Supervisor: *Jones G.*
GP Training Fellowship: Chronic disease prevention – a series of observational and interventional studies aimed at determining ways to increasing bone mass and reduce fracture risk in older adults, and increase bone mass and prevent obesity in children.

Arthritis Australia.
**Ding C, *Jones G.*
Vitamin D status, knee structural change, fall risk and change in bone density. \$10,000

Cancer Council Tasmania
**Venn A.*
Exposure to high dose estrogens in adolescence: Long term effects on mammographic breast density. \$3,000

Royal Hobart Hospital Research Foundation.
**Jones G, *Hynes K, *Blizzard L.*
A longitudinal study of bone development and fracture risk in the early pubertal years. \$13,636
**Menzies researchers.*