The Trauma and Orthopaedic Research Unit (TORU), and particular researchers from within TORU, recently won several prestigious awards.

In June 2010, the TORU team won the ACT Health team award for research at the Canberra Health Annual Research Meeting (CHARM).

In October, Dr Jennie Scarvell, TORU’s Clinical Research Co-ordinator, was awarded the ACT Health Allied Health Award for Research Excellence. Dr Scarvell was also recently awarded one of ANU’s Top Supervisor’s Awards. These awards are made to supervisors for their commitment and dedication to the supervision of higher degree students.

In November, Ms Angie Fearon, one of TORU’s PhD students, won the Wendy Ey Women in Sport Award for her conference paper at the ASICS Conference of Science and Medicine in Sport.

Congratulations TORU!

TORU and Shandong University MOU

On 19 October 2010, TORU signed a Memorandum of Understanding (MOU) with the Department of Orthopaedics of Shandong Provincial Hospital affiliated with Shandong University in China. The MOU was signed by A/Prof Paul Smith, Director of TORU, and Professor Zhou, Dean of the Department of Orthopaedics of Shandong Provincial Hospital affiliated with Shandong University and the President of the Shandong Orthopaedic Association.

The MOU formalises an arrangement between TORU and Shandong University to work on joint initiatives of mutual benefit in the areas of postgraduate student exchange, research project development and research grant applications.

The collaboration is expected to deliver a range of benefits to both TORU and Shandong University including:

- professional development, mentoring and intellectual stimulation for academic staff and postgraduate students;
- project development in areas of shared interest such as fracture healing, osteoporosis and joint implantation;
- specific research grant opportunities such as those provided through the Australia and China Special Grant Program and the ARC Linkage Project Grant Program.

While the MOU is not a legally binding document, it reflects the intentions of both TORU and Shandong Provincial Hospital affiliated with Shandong University to put in place formalised arrangements for specific joint initiatives in the future.
Canberra Joint Replacement Outcomes Project

Christine Hanrahan, Database Manager for the Canberra Joint Replacement Outcomes Project and A/Prof Paul Smith,

The number of total joint replacements performed in Australia is increasing each year. With the increasing proportion of patients over 65 years of age, the relative burden of arthritic conditions is rising (Australian National Joint Replacement Registry 2008), and this is contributing to the increase in joint replacements. Since the ANJRR started in 2003, the number of hip replacements has increased by 21.1% and the number of knee replacements has increased by 37.6%. In just one year (2007-2008) the number of hip replacement procedures increased by 5.8% and the number of knee replacements increased by 8.5%. Combined, 72,000 replacements were performed in 2008.

As the impact of musculoskeletal conditions escalates, there is a growing imperative to ensure that patients are provided with optimal, effective treatment. This includes a need to follow up on the survival of the implants (as the ANJRR does) as well as outcomes in terms of function, patient satisfaction and quality of life post surgery. This type of follow up assists in monitoring the success of the implants and the surgery, as well as highlighting the need for any improvements.

The Canberra Joint Replacement Outcomes Project collects patient outcome data in terms of function and quality of life, pre-operatively, and at 1, 4, 7 and 10 years post surgery. Data collected includes:

- Demographic data - i.e., age, sex
- Medical examination data – i.e., aspects of the medical examination as recorded on the Harris Hip Score, Knee Society Score, and Charnley D‘Aubigne Postel Score forms
- Radiological evaluation
- Clinical Outcomes data – i.e., SF-12, Oxford knee, Oxford hip and WOMAC questionnaires.

Adverse events data is also collected and entered into the database. This data can then be reviewed in exploring how implants are performing at any point in time.

A/Prof Paul Smith, Dr Philip Aubin, Dr Alexander Burns and Dr Damian Smith are the surgeons involved in the Canberra Joint Replacement Outcomes Project at this time. Other surgeons are looking to become involved in the future as the project is expanded to include upper limb replacement outcomes. Dr Jennie Scarvell, Clinical Research Coordinator of TORU and Dr Bruce Shadbolt, PhD Epidemiology and Director of Clinical Epidemiology at Canberra Hospital, make up the project management team. Christine Hanrahan is the project database manager and ably follows up the patients and controls the quality of the data.

This project is supported by Global Orthopaedic Technologies. We are looking forward to collaborating with other industry partners interested in collecting outcome data on their implants in a similar way in the future.

ACT Bone Bank—2010 Highlights and Future Plans

Changes to some ACT Bone Bank (ACTBB) processes have resulted in a record number of 122 femoral head donations being made to the ACTBB so far this year. Working with information provided by surgeons’ consulting rooms, Maria Hartley, manager of the ACTBB, contacts elective total hip replacement patients and invites them to become bone donors. If they wish to donate Maria then conducts the eligibility screening interview and consent process. With a background in nursing and clinical trials, Maria also attends theatre and assists with the donation procedure.

Maria reports that the overwhelming response from donors is excitement at the prospect of being able to help other people by donating their femoral head to the bone bank. Surgeons can assist in further increasing the number of femoral head donations by encouraging their patients to consider bone donation during their pre-op consultation.

As part of the ACT Health restructure, the ACTBB has been relocated from Surgical Services and become part of the DonateLife Network. This move is in line with measures in the Federal Government’s national reform package to establish a nationally coordinated approach to organ and tissue donation for transplantation.

Looking toward 2011, the ACTBB plans to:

- maintain the current high level of femoral head donations;
- maintain the high standards required to retain the TGA Manufacturing License;
- develop closer working relationships with DonateLife ACT; and
- progress the cadaveric musculoskeletal tissue retrieval program proposal.
TORU and the R-Cardiac Trial

Under the guidance of TORU Director, A/Prof Paul Smith, TORU has recently commenced a cardiac surgery trial in collaboration with cardiac surgeons, cardiologists and anaesthetists from Canberra Hospital (Dr Peter Bissaker, Dr Peter Subramaniam, Dr Walter Abhayaratna and Dr Thomas Brussel), and researchers from ANU (Dr Steven Weiss). The aim is to produce a prospective, randomised double-blinded study to assess the effect of Riluzole during cardiac surgery.

As coronary artery bypass graft (CABG) surgery is performed with no blood flow through the vasculature of the heart, the myocardium becomes hypoxic and is therefore at risk of damage and subsequent arrhythmias. Laboratory and large animal studies have suggested that the benzothiazole drug Riluzole protects the myocardium against the effects of hypoxia.

Riluzole is currently indicated for the treatment of amyotrophic lateral sclerosis (ALS or Lou Gehrig’s disease). It works by blocking the opening of persistent sodium channels. During periods of ischaemia persistent sodium channels open, allowing an influx of sodium into the cells of the myocardium. This is followed by an influx of calcium into the cells, causing a depletion of ATP and subsequent cell death. This causes areas of scarring in the myocardium, which can act as foci for the propagation of potentially fatal arrhythmias. By blocking the opening of the persistent sodium channels, Riluzole stops this process from occurring.

The incidence of arrhythmias post-CABG is high (post CABG atrial extra systoles being almost ubiquitous) and contributes to the overall morbidity and mortality post surgery. Ischaemic damage to the myocardium is also demonstrated biochemically through increasing Troponin levels. By monitoring the electrical stability as well as the Troponin levels in control and treated patients, we hope to demonstrate that Riluzole prevents ischaemic damage to the myocardium in humans during CABG surgery.

The trial has received ACT Human Research Ethics Committee and Therapeutic Goods Administration approval (CTN 2010/0295), and it is listed on the Current Controlled Trials Registry (ISRCTN30506717).

Recruitment of CABG patients for this study has just commenced.

First International Conference on Translational Medicine

The First International Conference on Translational Medicine (the 13th Frank and Bobbie Fenner Conference) was held at the John Curtin School of Medical Research, ANU, on 1-4 November 2010.

Two TORU papers entitled “Prevention of Fat Embolism Using a Computer-assisted Reaming with Suction (CARS): A Femoral Fracture Model in Sheep” and “Influence of Nanoparticles on Dendritic Cell Activation as an Important Consideration In the Design of Future Surgical Deive” were presented at the conference, and the director of TORU, A/Professor Paul Smith, chaired the afternoon session on Wednesday 3 November.

The overall aim of the conference was to bring together leaders of different translational medicine initiatives which focus on particular aspects or dimensions of translational medicine. It was the first international discussion on the intersection of the fields of medical discovery, translational medicine, and the application of translational medicine to day-to-day healthcare.

Among the speakers were Dame Sally Davies of the National Health Service (UK), Dr. Anthony Hayward of the National Institutes of Health (USA), Dr. Juan Carlos Lopez of Nature Medicine (editor), Warwick Anderson of the National Health and Medical Research Council (Australia), and the Deans of Medicine from Oxford University, Imperial College London, University College Dublin, Hebrew University Jerusalem, Duke-National University of Singapore, Sydney University, Melbourne University and Monash University. Also present were the Directors of Translational Institutes at UCSF, Indiana, USC, QUT, Shanghai Jiao Tong University, and Dresden (Germany), and the Executive Director of the BGI-China.

The conference provided a first class opportunity to learn, network and advance translational medicine internationally. An important outcome of the conference will be guidelines aimed at facilitating pathways from fundamental discovery through translational science to tangible initiatives aimed at improving global health.
Often when car crashes are mentioned we think about the devastating consequences of multiple trauma, the loss of life and the effect on both the victims of the crash and their family and friends. While those are undoubtedly significant and tragic consequences, there are a large number of crashes that result in relatively minor injury. But despite this minor injury, the societal and financial costs associated with recovery can be substantial. The cost of minor injuries caused by road traffic crashes (RTCs) in Australia is conservatively estimated to be over $950m per annum. In the ACT, more than 800 personal injury claims are lodged each year with the compulsory third party insurer, at a cost of more than $70m. Human costs such as rehabilitation, long-term care, decreased quality of life and work place disruption account for over 55% of the total cost of RTCs. Successful early rehabilitation has the potential to speed recovery and decrease the costs associated with minor injuries caused by RTCs. Effective post-crash treatment and rehabilitation strategies are therefore essential in minimising the economic burden of RTCs in Australia.

The Accident Care Evaluation (ACE) Study sought to understand some of the things that influence the way people recover from minor car crashes. The study investigated the effect of an early intervention programme on recovery from minor injuries following a crash. The programme consisted of specialist medical assessment and treatment coordination clinic. The focus was on early mobilisation and return to normal activities, pain management and providing reassurance of an expected favourable outcome. Participants were encouraged to self-manage, to take control of their own recovery. Patients who presented to the emergency departments of Canberra and Calvary hospitals following a road traffic crash between September 2006 and May 2008 were invited to participate in the study. In total 193 participants were recruited, 98 attended the ACE Clinic and the remainder underwent usual care. Each participant was followed for 12 months and physical and psychological health outcomes (SF-36, Functional Rating Index and Hospital Anxiety and Depression Scale) were recorded.

While the treatment programme trended towards a better outcome for some people, the interesting finding was that people who claimed compensation for their injury had a poorer health outcome at twelve months compared to those who did not claim compensation. This was despite there being no differences in the severity of their injuries or the type of crash they had. The influence of the compensation system in recovery from crash injuries has been well documented – i.e., claiming compensation has consistently been associated with poor recovery (Cassidy et al., 2000, Gabbe et al., 2007, Harris et al., 2009). It is difficult to isolate exactly what part of the compensation system contributes to the poor outcome. Claims management processes, influence of health providers, involvement of lawyers, attitudes of insurers, access to financial compensation for ‘pain and suffering’ and the adversarial nature of the system have all been implicated. Interestingly this study demonstrated that delivering a model of care which fast-tracked the patient to specialist musculoskeletal physicians for evidenced-based assessment, diagnosis and treatment plan development had no influence on hastening recovery. The implications of this for policy development in the area of compensation scheme design and implementation are significant.

No one wants to have a car crash, but in the event of one, we want to know that all injured people are provided with best practice evidence-based treatment which gives them the greatest chance of a full and speedy recovery from any injury. If the current compensation system hinders that then it is a factor which needs to be addressed.

Susannah Littleton is a PhD student with TORU. Her PhD explores pathways for people with musculoskeletal injuries following road accidents.
Thoracic hyperkyphosis is strongly related to increasing age and there is good evidence to suggest that hyperkyphosis can often be present in the absence of osteoporosis (Schneider, von Muhlen et al. 2004), and that pre-existing hyperkyphosis can lead to osteoporotic vertebral collapse (Briggs, Greig et al. 2007). Acute vertebral collapse is a very painful and debilitating condition which often requires hospitalization (Silverman 1992). Although there are surgical options which have been recently developed to restore the shape of the vertebrae, these procedures are costly and are not without risk. For this reason a number of studies aiming to investigate the relative effectiveness of various non-operative treatment modalities to reduce age-related hyperkyphosis have recently been undertaken (Greendale, McDivit et al. 2002; Gold, Shipp et al. 2004; Katzman 2006; Emery, De Serres et al. 2010). To date, most of these studies have involved time-consuming multi-modal intervention programmes and none have been randomized and controlled.

Over the past four years we have undertaken a project which has aimed to investigate thoracic kyphosis in adults over the age of 40 years and how it responds to two of the most commonly used intervention modalities. In order to examine the specific effect of isolated interventions we selected only two of the main intervention types which were identified in a survey of Australian physiotherapists: postural re-education and back extensor strengthening (Perriman, Scarvell et al. 2009).

The primary measurement method used to evaluate the subjects in this study was flexible electrogoniometry which we validated for use in the thoracic spine (Perriman, Scarvell et al. 2010). Flexible electrogoniometry has the unique advantage of being able to measure angular movement accurately outside the laboratory environment. In this way the data collected represents functional ranges rather than “best behavior”.

The data collection phase for the randomized controlled trial (RCT) is now complete and the analysis is underway. A 2 X 2 factorial design was used for the RCT. This enabled us to analyse the effects of the interventions both in terms of their individual effects as well as their combined effect. This is important since, clinically, interventions are most often combined.

The results of this work are contained within a soon to be completed thesis entitled “The Dynamic Measurement and Conservative Treatment of Thoracic Hyperkyphosis”, which will be submitted for publication in the peer reviewed literature in the coming year.

Past studies have primarily used the prone lying position to measure and strengthen the back extensors (Itoi and Sinaki 1994), but we have conducted a number of studies which have indicated that the sitting position (with scapular retraction) better targets the thoracic erector spinae resulting in more thoracic extension and better alignment of the cervical spine as well as enhanced force production.

Diana Perriman is a PhD student with TORU. Her PhD involves an investigation of kyphotic thoracic posture in normal adults and people with stroke.
Greater trochanteric pain syndrome (GTPS) is a problem that presents as pain on the lateral side of the hip, and which predominantly affects women over the age of forty. It can be very debilitating and painful. As this condition is frequently misdiagnosed and poorly treated, my PhD set out to refine the diagnostic criteria and produce some assessment tools that may aid clinicians in the diagnostic process and in monitoring the progress of people with this condition. In addition, I aimed to further the understanding of the underlying pathology of GTPS via histology and histopathology studies. In order to achieve these goals I undertook a broad range of studies including clinical studies, imaging and risk factor studies, as well as developing and evaluating new assessment techniques, evaluating the underlying histopathology of GTPS, and undertaking a review of surgical outcomes. The following is a brief description of some of the very exciting findings that resulted from these studies.

The first study I undertook was to examine the outcomes of gluteal tendon reconstruction surgery in people who had severe GTPS that was unresponsive to conservative management. This form of surgery is not common and the few reports of such surgery in the literature lacked the use of standardised outcome scores. I clinically reviewed 19 out of a possible 24 patients who had undergone this surgery. At the time of their post surgery review the patients completed the Harris Hip Score and the Oswestry Disability Index. They also underwent strength testing and were asked how satisfied they were with the surgery. In addition, I was able to report on the positive predictive value of ultrasound imaging. With one exception, all patients reported a marked reduction in pain post surgery. All patients also reported high levels of function and most reported high levels of satisfaction with the surgery. Ultrasound was found to have a positive predictive value of one. This study laid the groundwork for the prospective study in addition to providing the medical community with confidence in the surgical procedure and in ultrasound as a method of assessment. The results of this study have been published in the Journal of Clinical Orthopaedics and Related Research, which marks my first publication.

The clinical presentation study was a prospective case controlled study that included samples of people with greater trochanteric pain syndrome (GTPS), severe osteoarthritis of the hip (OA), and an asymptomatic control group. The Harris Hip Score, the Oswestry Disability Index, the Functional Co-morbidity Index, the Australian Quality of Life Assessment Tool, and a question regarding work status were used to evaluate the participants. The results were startling. On these measures, people with GTPS were, for the most part, indistinguishable from people with OA of the hip. In addition, the people with GTPS had the highest rate of co-morbidities, and, adjusting for age differences, this group had the lowest probability of being in full time work, compared to either of the other two groups. In other words, severe functional compromise is common in people with GTPS, resulting in poorer quality of life, increased rates of chronic disease, and increased risk of financial hardship.

I then undertook a histology study to document the incidence and severity of tendinopathy and bursa pathology in two different populations having surgery about the hip. In this case controlled study, people undergoing gluteal tendon reconstruction surgery made up the cases, and people undergoing total hip arthroplasty surgery made up the control group. I found no evidence of...
inflammatory cells in either tissue from either group. In addition I found that tendinopathy and bursa degeneration was a common finding in both groups. I found group differences in the structure of the bursa which were consistent with people with tendon tears having prior increased compression and shear about the greater trochanter.

Identifying risk factors for the development of injuries assists clinicians to make diagnoses. Few risk factors have been identified for the development of GTPS. Clinicians and text books report that women with GTPS are wider about the hips, suggesting that this is a risk factor for developing GTPS. However, no evidence is cited to support this contention. Measuring various pelvic morphological features from x-rays of people undergoing GTR, or total hip arthroplasty surgery, and those with GTPS, and an asymptomatic control group, I found that people undergoing GTR had a more acute femoral neck shaft angle than the other three groups. This neck shaft angle is associated with increased pressure of the iliotibial band on the greater trochanter, providing a mechanism for compression on the bursa and tendons. This is consistent with the histology findings, and provides a plausible mechanism for the development of post total hip arthroplasty GTPS.

The two studies that I am currently analysing deal with the clinical assessment of GTPS. This has two aspects and will make up two chapters of the thesis. The first aspect evaluates the clinical signs associated with GTPS, in particular the evaluation of a specific step test that may provide clinicians with a readily accessible tool to differentiate the diagnosis of GTPS from osteoarthritides of the hip and low back pain. The second aspect is a paper based tool that may enable researchers and clinicians to evaluate the severity of the condition. The GTPS assessment tool asks patients about their functional level with respect to lying on their side at night, negotiating stairs or a ramp, walking after sitting, and working about the house or garden. In addition, it asks patients to nominate how much weight bearing activity they undertake. This last question is vital, if somewhat difficult, as it assesses how much load a person is actually putting on their tendon. Tendinopathy is particularly sensitive to variation in load.

I have also undertaken studies that include an imaging study that compares magnetic resonance imaging to ultrasound, a twelve month natural history study, and a tenocyte gene expression study.

The experience of undertaking a PhD has been great and one I would repeat in a flash. The Trauma and Orthopaedic Research Unit (TORU) has been a supportive and stimulating place to undertake research training. I have had wonderful support from all my supervisors and colleagues. I am indebted to many people for their assistance in this project including: Jane Twin, Jane Dalhstom, Sarah Stevens, Jill Fearon, Elaine Bean, Mary Abby and the staff at NCDI. Having just won a best paper award at a national conference, and having a post doc position at the University of British Columbia to look forward to, I think the future is looking bright. I anticipate a fun and fulfilling research career, and look forward to continuing to collaborate with the people at TORU, in addition to other smart and interesting researchers.
Conference Papers (selected papers 2010-2008)


Littleton, S., Cameron, I., Poustie, S.J., Smith, P.N., 'Early Access to Specialist Medical Providers Improves Health Outcomes for People with Musculoskeletal Injury Following Road Traffic Accident: A Prospective Controlled Study'. Australian Orthopaedic Association Annual Scientific Meeting, Adelaide 2010.


Li RW*, Smith PN. 'Heparanase –as a Drug in Bone Remodeling.' The 7th Annual Congress of International Drug Discovery Science and Technology, Shanghai, China, Oct, 2009 (Invited speaker and section chair).


Ferram AM, Scarvell JM, Cook JL, Smith PN, 'Fat female and over forty', Australian Orthopaedic Association Annual Scientific Meeting, ACT 2009.

Ferram AM, Stephens S, Scarvell JM, Cook JL, Smith PN, 'When eyeballing x-rays is not good enough', Australian Orthopaedic Association Annual Scientific Meeting, ACT 2009.

Ferram AM, Stephens S, Scarvell JM, Cook JL, Smith PN, 'When eyeballing x-rays is not good enough', ACT RACS, ACT 2009.


Ferram AM, Smith PN, Cook JL, Scarvell JM, 'Gluteal tendon reconstruction, what can we tell our patients? APA Conference, Sydney 2009.


Journal Articles  (selected papers 2010-2008)


Fearon AM, Scarvell JM, Cook JL, and Smith PN 2010. Does Ultrasound Correlate with Surgical or Histologic Findings in Greater Trochanteric Pain Syndrome? A Pilot Study *Clinical Orthopaedics & Related Research* Published first on line Nov 2009.


A/Prof Paul Smith, BMBS FRACS (Ortho). Director

Associate Professor Smith is an orthopaedic surgeon at the Canberra Hospital and at Calvary John James Hospital in Canberra. He is also Co-Director of the Trauma and Orthopaedic Research Unit at the Canberra Hospital. Assoc. Prof Smith is also president of the Arthroplasty Society of Australia, and Clinical Director of Orthopaedic surgery at the Canberra Hospital.

A/Prof Smith received his medical and surgical training in Adelaide before specialising in hip and knee joint reconstructive and replacement surgery. He was a Royal Australasian College of Surgeons Travelling Fellow in 1996 and 1997 with Fellowships in joint replacement surgery at the University of Western Ontario in Canada and at The Princess Elizabeth Orthopaedic Hospital in England. He has recently been honoured by The Knee Society, receiving the inaugural John N Insall Travelling Fellowship in knee surgery and has been appointed as Associate Professor in Orthopaedic Surgery at the ANU Medical School. A/Prof Smith's particular clinical interests are in reconstruction and replacement surgery of the hip and knee, complex revision joint replacement surgery and management of pelvic and acetabular injuries.

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Dr Damian McMahon, MB BS FRACS. Director

Dr McMahon is the Director of the Shock Trauma Service, Senior Staff Specialist in surgery and Co-Director of the Trauma and Orthopaedic Research Unit at the Canberra Hospital. In addition, Dr McMahon is the Director of the Clinical Skills Centre and Senior Lecturer in surgery at the Australian National University Medical School.

Dr McMahon received his medical and surgical training in Melbourne where he specialised in Trauma Surgery. He became Trauma Service Coordinator at Preston and Northcote Community Hospital in 1993 and from 1994 until 1997 he worked as Trauma and Surgical Critical Care Fellow and Attending Traumatology surgeon at the Hospital of the University of Pennsylvania, Philadelphia PA. In 1997 Dr McMahon took up his position as co-joint academic/senior staff specialist at the Canberra Hospital.

Dr McMahon was instrumental in establishing the Snowy SouthCare Helicopter retrieval service to service the region with medical and specialist support. He achieved recognition for the hospital as the first accredited Trauma Centre in Australia.

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A/Prof Rachel Wei Li, MD, PhD. Laboratory Research Co-ordinator

Associate Professor Li obtained a Bachelor of Medicine from China Medical University in 1982 and worked as a surgeon and senior infectious diseases specialist at China Medical University from 1982-1996. Her Master project was on immune responses to viral infection. She led a number of clinical trials in anti-viral and anti-inflammatory drugs and successfully transferred an intellectual property to pharmaceutical industry. In 2002 A/Prof Li completed her PhD in pharmacology at Southern Cross University and gained her postdoctoral research experience in molecular pharmacology in the University of Hawaii School of Medicine.

A/Prof Li returned to Australia in 2006 joining TORU and has established TORU laboratory with a focus on osteoimmunology. She has developed a range of laboratory capabilities to determine the effects of therapeutic, surgical and physiotherapeutic treatments on biomedical markers using human primary cell culture and large animal models.

In addition to her research work, she is an Adjunct Associate Professor at the University of Canberra teaching and supervising the students in Master of Pharmacy Program.

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Dr Jennie Scarvell, PhD. Clinical Research Co-ordinator

B(App)Sc Physiotherapy (Sydney), Grad Cert Higher Ed, (Canberra) Cert Health Economics (Monash) PhD (Sydney).

Dr Scarvell’s recent research studied the incidence of osteoporosis in people over 40 with minimal trauma fractures. A career as clinical physiotherapist lead Dr Scarvell to a PhD on knee kinematics and the role of aberrant motion in degenerative change using a model of ACL injury. Exciting projects currently in train include collaborations with Mark Pickering at UNSW@ADFA in 2D fluoroscopy to 3D CT image registration for kinematic analysis to provide 3D modelling of motion, and with Heiko Timmers for radioisotope labeling of polyethylene to measure wear in total knee replacement. Dr Scarvell was one of the inaugural Master of Physiotherapy program staff at the University of Canberra 2004-2007. She wrote and taught curriculum, and developed the clinical education program. Dr Scarvell is a registered physiotherapist and convener of the APA ACT Symposium. She is an affiliate Senior Lecturer at University of Canberra and at ANU.

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Angela Fearon
BAppSci(Physio), MPHysio. Angela completed her Bachelor of Physiotherapy at Lincoln Institute of Health Sciences and her Master’s degree in 2001. She has been a clinical physiotherapist since 1986 and established her own practice in Canberra. Angela’s PhD thesis looks at tendinosis, enthesopathy and Greater Trochanteric Pain Syndrome. Contact: angie.fearon@anu.edu.au

Diana Perriman
BAppSci(Physio), MSc. Diana attained her physiotherapy degree from Sydney University in 1982 and her Master’s degree at the University of East London (UK) in 1995. Her Masters research investigated the effect of orthotics on the hemiplegic ankle using electrogoniometry. Diana’s PhD thesis at ANU involves an investigation of kyphotic thoracic posture in normal adults and people with stroke. Diana is an NH&MRC Dora Lush Biomedical scholar. Contact: diana.perriman@anu.edu.au

Jonathon Slater
MBBS/PhD student at ANU. His thesis looks at side impact motor vehicle collisions.

Mingming Chen
BSc, PhD. Mingming is an NH&MRC scholar investigating osteoclast and osteoblast co-culture at JCSMR and TCH labs. Contact: Mingming.Chen@anu.edu.au

Corinne Coulter
B(App)Sc, Physiotherapy. Corinne is doing her research Master’s degree with an RCT to explore efficient and effective rehabilitation post total hip replacements. Contact: Corinne.coulter@act.gov.au

Ben Serpell
BHsc, B(App)Sc OT (hons), B(App)Sc Human Movement (hons). Ben’s PhD asks “Is there a relationship between hamstring and quadriceps strength, and the knee joint kinematics which predict anterior cruciate ligament injury?” We look forward to collaboration with the AIS and UC.

Camilla Smith
B. Medicine B. Surgery (MBChB): Camilla graduated from the University of Cape Town in December 2009. She is currently working on the R-Cardiac Trial; researching cardiac surgery patients undergoing coronary artery bypass grafting.

John Warmenhoven
BA (Hons), M Ex Sci (Strength and Conditioning). John is studying the kinematics of rowers. He is a recipient of the AIS prize, and has a keen interest in swimming. John manages the TORU pelvic fractures database and assists with data management of the total knee and hip replacement study. Contact john.warmenhoven@act.gov.au Phone 6244 3602

Elizabeth Bennett
BA (Hons), M Ex Sci (Strength and Conditioning). Elizabeth did her BA (Hons) at the Australian National University and her Masters in Exercise Science at Edith Cowan University. Part of her Masters research focussed on plyometrics for marathon runners. Elizabeth is the TORU research officer for the Journey knee replacement study and the R3 hip replacement project. She also manages the bone retrieval database and prepares TORU research papers for publication. Contact: elizabeth.bennett@act.gov.au

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Volume 3, Issue 2
TORU is affiliated with the Australian National University and works closely with UNSW@ADFA and University of Canberra as well. Prospective higher degree students are encouraged to consider possible research opportunities at TORU in 2011. Contact TORU or prepare a 1-2 page research proposal for TORU to consider. TORU is committed to progressing research in trauma and orthopaedics, and to developing young researchers.

One of the major themes for the weekend was translation of research into practice. Prof Licinio described 6 steps (T0-6) in translation from idea to laboratory, from clinical trials to changing current practice, and finally from policy changes to global impact on health. TORU is active in laboratory and clinical research, as well as working on changes to practice and policy in health care. We decided as a group to move forward in translational medicine by following projects through from one stage to the next especially moving lab projects into clinical trials, and towards changing practice and improving health outcomes in particular.