

# Trauma and Orthopaedic Research Unit Newsletter

## Canberra Hospital

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## The Fractured Neck of Femur Outcomes Project

Sue Duggan, Sarah Majeed, Paul Smith, Alex Fisher

The Fractured Neck of Femur (#NOF) Outcomes project commenced in 2001 with a brief to improve care of these fragile elderly patients. Approximately 275 people each year are treated for a #NOF at TCH, increasing yearly. During 2007-08 over 62% of cases were 80 years or over. The number of cases 90 years or over, increased from 15% to 20% since 2005.

The care and outcomes for the fracture of the neck of femur patients have been maintained following the implementation of the multi disciplinary protocol in 2002.

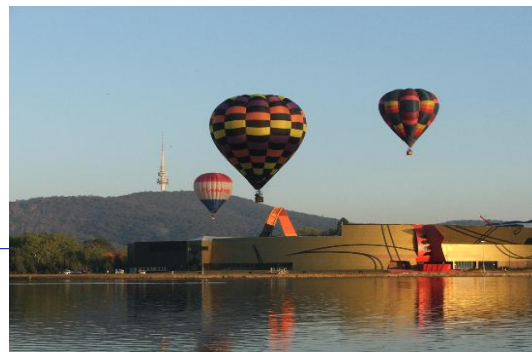
The improvement in appropriate IVI hydration in the first 24 hours was sustained (July 07 to June 08). Medical reviews of unstable and complex co morbidity cases pre operatively has improved from 11% in 2001, to 18% in 2005 to currently 25% of cases, requiring investigation and medical stabilisation prior to surgery.

The average time to theatre has increased during July 07 to June 08 reflecting the medical complexity of cases and the demand for orthopaedic trauma surgery. This was rectified by prioritising

the #NOF cases.

Mortality rates have improved, as has average acute length of stay, as a result of improved planning and team work.

Implementation of this project has meant that up to date data is available to audit the quality of care. It has also been possible to conduct risk analysis for blood transfusion and for discharge destination (soon to be published).



## TORU Laboratory Research Students & Learning

After being successful in obtaining 2008 grants funded by Australian Orthopaedic Association, Private Practice Fund (Major), Bone Growth Foundation, TCH Infrastructure Support and NHMRC-PhD Scholarship, TORU Laboratory led by Associate Professor Paul Smith and Dr Rachel Li has relocated to the new building of John Curtin School of Medical Research at Australian National University (ANU JCSMR). Professor Chris Parish, Professor Chris Goodnow and Mr Dennis Coombes at JCSMR gave enormous support to the relocation of TORU Laboratory with providing lab space, office area and tissue culture room.

TORU Laboratory provides research-based training and clinical problem-driven approach to research. We particularly emphasize identification of clinical problems, development of creative and innovative solutions and publish research results in peer-reviewed journals and conferences. Students in TORU Laboratory are benefiting from strong mentoring and close interac-

tion on a daily basis within a collaborative research environment that prepares each student for a rewarding research career. Ms Florina Lo, TORU's first laboratory research Master graduated in 2008 has been recruited to the Ludwig Cancer Research Institute, a world-class research institute.

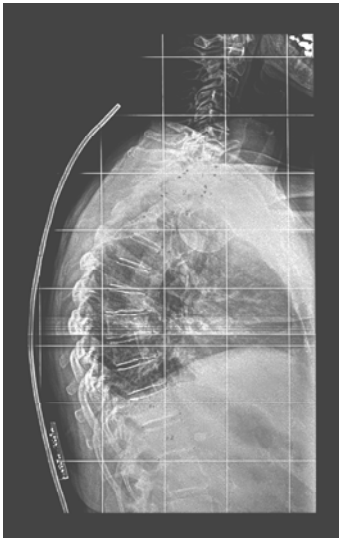
TORU Laboratory is interested in exceptional PhD students with diverse backgrounds ranging from very theoretical to very experimental and highly focused within Medical Science to highly interdisciplinary e.g., osteo-immunology and molecular pharmacology. We also accept highly qualified undergraduates interested in Honours research. Ms Mingming Chen, our laboratory researcher, has been awarded a NHMRC-PhD scholarship. Mingming's enrolment is currently in process and she will soon commence her research on molecular regulation of bone remodelling with us. Mr Ji Di, a successful PhD scholarship recipient of our Bone Growth Foundation

*March in Canberra sees the celebration of autumn and the balloon festival.*

scholarship, will start his research on activation of bone remodelling in May 2009. Neha Pal, the first recipient of our Reginald Kitchen scholarship, is working on mechanisms of peri-prosthetic osteolysis in failing joint replacements.

TORU Laboratory welcomes prospective graduate students interested in clinical-problem-driven laboratory research.

## The Posture Project



*Kyphosis of the thoracic spine measured by flexible electrogoniometry and Cobb Angle*

Diana Perriman, Paul Smith, Jennie Scarvell, Andrew Hughes, Christian Lueck

Thoracic kyphosis is the name we give to the curve of the back between the neck and the lower back. As we age this curve increases and in conditions like stroke it can become quite pronounced. Increased thoracic kyphosis can cause pain and dysfunction in other regions of the spine and in the shoulders as well as respiratory compromise. It can also contribute to loss of stability and subsequent falls in more elderly people and reduced function in people with disability. For these reasons physiotherapists and other health professionals emphasize upright posture for their patients. The main strategies used to improve postural alignment are education and strengthening.

The posture study aims to

investigate whether strengthening and/or education is effective in reducing thoracic kyphosis in the normal population and in people with stroke. The study is a randomized controlled trial which investigates the effect strengthening, and posture education.

The study has been running for 8 months and in that time we have recruited over 50 healthy subjects and 5 subjects with stroke so the emphasis is now very much on increasing our stroke cohort. We aim to recruit 80 healthy and 40 subjects with stroke. The primary measurement tool is the flexible electrogoniometer which is capable of measuring movement continuously for up to 10 hours, during normal daily activities. Results using this tool will reflect actual postural change if it occurs and not just "best behaviour" as might be seen in a laboratory. Other

measurements include functional walking tests and strength measurement, quality of life scales and pain scales.

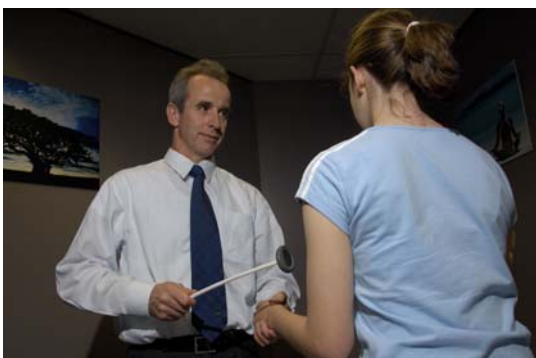
The strengthening intervention involves a 12 week gym program so our volunteers have to be very dedicated, but the response has been very positive with many people reporting very high satisfaction and reduction of pain with both the strengthening and education interventions. The results of this study should be completed by early 2010.

The study would not have been possible without financial support from the NH&MRC, The TCH Private Practice Fund, AO Spine; and assistance from The Southern Cross Club Gym, the ANU Health and Fitness Centre, Tim Maher and Associates Physiotherapy and Corinna Physiotherapy.

## The Accident Evaluation Project—ACE



*Dr David Hughes examines a road accident-injured patient.*



The Accident Care Evaluation (ACE) study is a joint community initiative between the Australian National University (ANU), the University of Sydney and the NRMA-ACT Road Safety Trust.

The study is focusing on whether receiving specialist medical attention within days of a crash will improve the recovery outcome for patients.

It is also reviewing best practice in the treatment and rehabilitation of road crash victims as the basis for education programs for medical and allied health providers.

Recent data shows there are around 8,000 collisions on ACT

roads every year. These crashes result in over 800 injury compensation claims at a cost in excess of \$70 million. The majority of motor accident victims suffered soft tissue and musculoskeletal damage.

Factors that influence recovery can include the physical and psychological characteristics of the patient, the treatment regime offered by medical providers and processes in the compensation system, including requirements on both the injured party and medical providers.

The study will look at the influence of these and other factors, on the recovery and long term well being of traffic crash victims.

It is important to understand if the prompt assessment and early intervention of specialist treatment and evidence based

strategies mean patients recover more quickly than if they have less coordinated treatment.

The outcome of the research has the potential to influence how people injured on the road and also at work or at home are treated in the future. There is also potential to impact on reduced treatment costs and pressures on the health system.

This project team comprises Susannah Littleton, PhD candidate, Stephanie Poustie, Research Fellow ANU, Professor Ian Cameron at Rehabilitation Studies Unit, University of Sydney, A/Prof Paul Smith of TORU, Professor James Butler of ANU and Dr Brett Robinson of Insurance Australia Group. It is funded by the NRMA-ACT Road Safety Trust and Insurance Australia Group.

## Are side curtain airbags industry best-practice in motor vehicle side impact?

Side impact crashes have been attracting increased attention due to their high intrusion and high risk of serious injury or mortality compared with frontal impacts (Chipman, 2004). Jonathan's research at the School of Public and Preventive Medicine at Monash University examined real-world side impact crashes in Australia and the United States during 1998-2008 to

identify the most effective type of side impact protection system. Particular focus was given to side impact airbags that protected occupants in high speed side impacts and when the striking vehicle was a four-wheel-drive, due to the increasing number of four-wheel-drives on roads and the forecasted changes to the fleet (Johnston, 2002). The study compared curtain

side airbags and inflatable tubular structures (ITS) and the alterations to their effectiveness where the striking vehicle was a four-wheel-drive. The findings suggest that Curtain airbags outperform other types of head/thorax side airbags but may inflate too slowly to best protection in high speed or four-wheel-drive crashes.

Jonathan has transferred from Monash to complete his medical degree and his PhD at ANU.

## Greater Trochanter Pain Syndrome: Clinical, Imaging and Histological Findings

Angie Fearon, Jennie Scarvell, Jill Cook (Deakin University), Wes Cormack (Nuclear Medicine), Paul Smith

If you know more than five women over the age of 40 then the chances are you know some one with GTPS. This is not some new deadly disease although in it's severe form is can be very debilitating, affecting how well someone sleeps, how much they can exercise and the ability to carry out activities of daily living such as shopping and getting in and out of a car.

Greater Trochanteric Pain Syndrome, GTPS, is more commonly know as "Bursitis", or more specifically "Trochanteric Bursitis". People (mostly older women) complain of pain on the side of the hip which can be pinpointed to the region of the greater trochanter. The pain can radiate down the leg as far as the ankle.

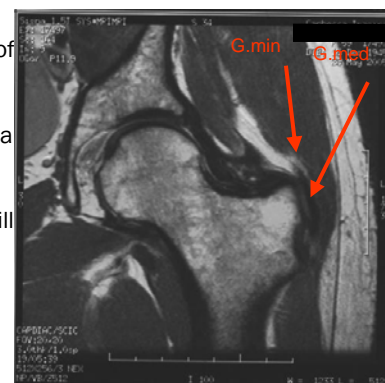
Before sophisticated imaging such as US and MRI were available, pain that was isolated to the hip area was confidently diagnosed as bursitis and it was treated with a range of methods such as steroid injections, massage and physical therapies for the presumed bursitis. Pain that extended down the leg was confidently diagnosed sciatica and this was treated with a

range of methods such as medication, massage, physical therapy and even surgery for lumbar disc problems.

Over the past 20 years there has been gathering evidence that we might not have been getting these diagnoses quite right. Between 20 - 35 percent with people diagnosed with sciatica actually have GTPS [Tortolani 2002, Collee 1990], raising clinically significant questions about the effective treatment of people diagnosed with sciatica. Increasing sophistication of imaging, MRI and US, has provided clinicians with better tools to aid in diagnosis. The first report of bursitis on MRI was in 1994 [Caruso 1994], with a small series reported in 1999 [Kingzett-Taylor 1999]. Since the early 2000s US imaging has also been used [Connell 2003]. As a result of this improved imaging, we now think we know that GTPS has a significant tendinopathy component. These imaging findings have not been corroborated by pathology comparisons between the tendon and the bursa. The gold standard for imaging has not been established as no one has determined the relationship between MRI, US and Surgery. Whilst the sensitivity and specificity for MRI has been reported, this is not the case for US.

In severe cases of GTPS tears of the tendons of gluteus medius and minimus have been reported. Of the small number of published papers reporting surgical outcomes from repairs, only one is a prospective study. Both this study and one other have small samples sizes and limited use of validated outcome tools [Kagan 1999, Lequesne 2008]. No one has yet reported a reliable and valid measure of disability in this population, nor is there a clinical tool that will allow clinicians to confidently diagnosis this problem, or a tool to assess the degree of severity of the problem.

This PhD research aims to test the sensitivity and specificity of MRI and ultrasound for GTPS. There will be a comparison of tendon and bursa pathology to test the diagnosis of tendinopathy. Guidelines for clinicians to aid in the differential diagnosis of GTPS and a tool that will provide a measure of severity will be produced. A prospective study will evaluate the incidence of tendinopathy in concurrent hip osteoarthritis, and the outcomes of gluteal tendon repairs.



*Coronal MRI reveals gluteus minimus and medius tears*

## Conference Papers



**Li RW, Smith PN, Lo PH, Chen M, Freeman C.** Angiogenic and osteogenic therapy in bone remodelling. Australian Pharmaceutical Science Association Conference, Canberra, December 6-9, 2008

**Littleton S, Poustie S, Cameron ID, Smith PN, Robinson B, Butler J, Hughes D.** Improving outcomes after musculoskeletal injuries in motor vehicle crashes: a controlled trial. Better Choices Better Health Conference, Adelaide, Nov 2008.

**Sample RR, Smith PN, Leditschke A, McMahon D, Chinnan NK, Li RW.** Prevention of fat embolism using intramedullary suction system (ISS) on fractured long bone sheep model. ANZORS. Brisbane, November 2008

**Pickering MR, Scarvell JM, Smith PN.** A new technique for registration of 2D x-ray fluoroscopy to 3D CT data for the analysis of knee kinematics. ANZORS. Brisbane, November 2008

**Gladkis LG, Li RW, Scarvell JM, Smith PN, Timmers H.** Direct characterisation of UHMWPE wear particles using atomic force microscopy. ANZORS. Brisbane November 2008

**Nair A, Scarvell JM, Stachurski Z, Smith PN.** Biomechanical analysis of fracture fixation in tibial pilon fractures anterolateral locked plate versus bicolonn non locked plates. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Dey A, Scarvell JM, Duggan S, Smith PN.** Risk factors for postoperative blood transfusion in hip fracture patients. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Gladkis LG, Timmers H, Li R, Scarvell JM, Smith PN.** Implantation of radioisotope tracers into knee joint materials. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Smith PN, Thomas B, Duggan S.** The effect of co-morbidities on the hospital length of stay and post operative discharge destination of home residential elderly patients after a fracture of neck of femur. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

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**Smith PN, Thomas B, Duggan S.** The effect of co-morbidities on the hospital length of stay and post operative discharge destination of home residential elderly patients after a fracture of neck of femur. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Ward T, Serpell B, Gillespie M, Burns AWR, Scarvell JM, Smith PN.** Bi-cruciate stabilised total knee replacements reproduce pre-operative sagittal plane kinematics - preliminary results of a randomised controlled trial. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Tsai N, Perriman D, Gray A, Sample RR, Ashman B.** Scheuermann's Disease - Diagnosis and Measurement of Kyphosis. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Chandrasekaran S, Hader A, Scarvell JM, Burns AWR, Smith PN.** Vacuum assisted closure therapy for fasciotomy wounds of the leg reduces the requirement for split skin grafting. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Rae H, Smith PN, Kulisiewicz G, Scarvell JM.** Complication rates, stem survivorship and patient outcomes from the use of a porous coated, distally slotted, fluted femoral stem in revision hip arthroplasty; a ten year review. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Chandrasekaran S, Scarvell JM, Smith PN.** MRI kinematics of the PCL deficient knee: initial results. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Chandrasekaran S, Duggan S, Scarvell JM, Ashman B, Smith PN.** Does anticoagulation medication alter blood loss and transfusion requirements in patients undergoing emergency surgery for fractured neck of femur. AOA ACT Branch Scientific meeting. Canberra, Nov 2008

**Fearon AM, Smith PN, Scarvell JM.** Minimum one year outcomes and satisfaction following gluteal tendon reconstruction. 68th Australian Orthopaedic Association Annual Scientific Meeting. Hobart, October 2008

**Pickering MR, Scarvell JM, Smith PN.** A new technique for registration of 2D x-ray fluoroscopy to 3D CT data for the analysis of knee kinematics. 68th Australian Orthopaedic Association Annual Scientific Meeting. Hobart, October 2008

**Li RW, Lo PH, Freeman C, Smith PN.** Heparanase up-regulates osteogenic gene expression: a potential biological reagent for bone remodelling. T68th Australian Orthopaedic Association Annual Scientific Meeting. Hobart, October 2008

**Li RW, Lin D, Douglas T, Theriault A, Smith PN.** Green tea protects fat gain and bone loss. National Institute of Complementary Medicine Collaborative Centre Networking Forum, Sydney, October 2008

**Perriman DM, Scarvell JM, Hughes A, Lueck CJ, Ashman B, Smith PN.** Measurement of flexion and extension of the thoracic spine with the flexible electrogoniometer. 68th Australian Orthopaedic Association Annual Scientific Meeting. Hobart, October 2008

**Perriman DM.** The Classification of Sagittal Spinal Posture. ACT Branch APA Symposium. ACT, Sept 2008

**Perriman DM, Scarvell JM, Hughes A, Lueck CJ, Smith PN.** Which is the best exercise to Train the thoracic Erector Spinae. A surface EMG Study. ASMR Young Investigators Forum. ACT, June 2008

**Duggan S, Thomas B, Smith PN.** The effect of co-morbidities on the hospital length of stay and post operative discharge destination of home residential elderly patients after a fracture of neck of femur. ACT Aged Care Forum in May 2008

**Smith PN, Thomas B, Duggan SM.** The effect of co Morbidities on the hospital length of stay and post operative discharge destination of home residential elderly after a fracture of neck of femur. Aged Care Forum, ACT, May 2008

**Foster A, McMahon D.** Field surgery for Trauma – Hasten Quickly. Annual Scientific Congress, Royal Australasian College of Surgeons, Hong Kong, May 2008

**McMahon D.** Emergency Surgery as a Career. Austrama 2008 Sydney February 2008

**Henson R, McMahon D, McInerney C, Peady C.** Field Surgery for Trauma. Rural Critical Care Conference 2008  
Abstract published Australian and New Zealand Journal of Surgery 2008; 208: 140

## Journal Articles (selected papers 2007-2008)

Coulter C, Weber J, Scarvell J. Group physiotherapy provides similar outcomes for participants after joint replacement surgery as one to one physiotherapy: a sequential cohort study. Archives of Physical Medicine and Rehabilitation. In Press, 8 April 2009.

Rojas A, Robson S, McMahon D. Gastric perforation complicating laparoscopy. Australian and New Zealand Journal of Obstetrics and Gynaecology, 2008; 48:222-223

Fisher AA, Southcott EN, Goh SL, Srikusalanukul W, Hickman PE, Davis MW, Potter JM, Budge MM, Smith PN. Elevated Serum Cardiac troponin I in older patients with hip fracture: incidence and prognostic significance, Archives of Orthopaedic and Trauma Surgery 128 (10):1073-9, 2008

Gladkis LG, Li RW, Scarvell JM, Smith PN, Timmers H. Exploration of the size, shape and abundance of UHMWPE wear particles using atomic force microscopy. Wear – special edition. In Press 2008

Li RW, Freeman C, Yu D, Hindmarsh EJ, Tymms KE, Parish CR, Smith PN. Dramatic Regulation of Heparanase Activity and Angiogenesis Gene Expression in Synovium From Patients With Rheumatoid Arthritis. Arthritis and Rheumatism 58 (6):1590-600, 2008

Smith PN, Leditschke LA, McMahon D, Sample RR, Perriman DM, Prins A, Brüssel T, Li RW. Monitoring and Controlling Intramedullary Pressure Increase in Long Bone Instrumentation: a Study on Sheep. Journal of Orthopaedic Research 26 (10):1327-1333, 2008

Cahill JL, Shadbolt B, Scarvell JM, Smith PN. Quality of life after infection in total joint replacement Journal of Orthopaedic Surgery 16 (1): 58-65, 2008

Lin GD, Li RW, Myers SP, Leach DN. A Method of Selecting Plants with Anti-Inflammatory Potential for Pharmacological Study. Natural Product Communications. 3(1), 71-76, 2008

Smith PN, Perriman DM, Sample RR, Gissane J, Li RW. A Method of Monitoring and Controlling Intramedullary Pressure Increase during Long Bone Instrumentation. Injury Extra. 38:422-426, 2007

Fisher AA, Southcott EK, Srikusalanukul W, Davis MW, Hickman PE, Potter JM, Smith PN. Relationships between Myocardial Injury, All-cause Mortality, Vitamin D, PTH, and Biochemical Bone Turnover Markers in Older Patients with Hip Fractures. Annals of Clinical & Laboratory Science 37:222-232, 2007

Scarvell JM, Smith PN, Galloway H, Refshauge KM. Magnetic Resonance Imaging Analysis of Kinematics in Osteoarthritic knees. Journal of Arthroplasty 22 (3), 383-393, 2007

Morrison TE, Fraser RJ, Smith PN, Mahalingam S, Heise MT. Complement contributes to inflammatory tissue destruction in a mouse model of Ross River virus-induced disease. Journal of Virology. 81(10):5132-43, 2007

Seely D, Kennedy DA, Myers SP, Cheras PA, Lin D, Li RW, Cattley T, Brent P, Mills E, Leanard B. In Vitro Analysis of the Herbal Compound Essiac. Anticancer Research (27) 3875-3882, 2007

## Grants Successes

Australian Orthopaedic Association Research Grant

Royal Australian College of Surgeons, CONROD Fellowship

Bone Growth Foundation

Private Practice Fund of The Canberra Hospital

Synthes, Stryker and Smith and Nephew  
NHMRC Dora Lush Biomedical Scholarship,  
3 years: Ms Diana Perriman

NHMRC PhD Scholarship, 3 years: Ms Mingming Chen



*Jennie Scarvell, Mark Pickering, Susannah Littleton, Paul Smith, Tom Ward, Diana Perriman, Roxanne Miller, Laura Gladkis, Rachel Li*

## TORU's People

### Assoc Prof Paul Smith, BMBS FRACS (Ortho), Director



Assoc. Prof 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.

Assoc. 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. Assoc. 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.

Contact:

[smithadmin@co.net.au](mailto:smithadmin@co.net.au)

### 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 Co-ordinator 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.

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



**Dr Rachel Li leads the team for TORU at the John Curtin School of Medical Research at ANU, and at Canberra Hospital labs.**

A/Prof 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 pharmaceu-

lectual property to pharmaceutical industry. In 2002 she completed her PhD in pharmacology at Southern Cross University and gained her post-doctoral 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 osteoimmunol-

ogy. She has developed a range of laboratory capabilities to determine the effects of therapeutic, surgical and physio-therapeutic 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 Mas-

## 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 began her involvement with the Trauma and Orthopaedic Research Unit in 2000 when she commenced a PhD on the kinematics of the knee using Magnetic Resonance Imaging and the process of degeneration using anterior cruciate ligament injured knees as a model.

Dr Scarvell taught Muscu-

loskeletal and Paediatrics units of the inaugural Master of Physiotherapy program at the University of Canberra 2004-2007.

Dr Scarvell is a registered physiotherapist, actively involved in the profession. Dr Scarvell has been convener of the APA ACT Branch Symposium the past 3 years.

Dr Scarvell took up the position of Clinical Research Coordinator in November 2007. Dr Scarvell's research interests include many aspects of Ortho-

paedics and Rheumatology, particularly knee kinematics and the development of osteoarthritis in the injured knee. Exciting projects currently in train include collaborations with UNSW@ADFA in 2D to 3D image registration for kinematic analysis, and in measurement of wear in polyethylene.

Dr Scarvell is adjunct Senior Lecturer at ANU and at Uni of Canberra.

Contact: [jennie.scarvell@act.gov.au](mailto:jennie.scarvell@act.gov.au)



Dr Jennie Scarvell, Clinical Research Coordinator

**Roxanne Miller**, B.Human Movt Sc. (Hons). Roxanne gained her degree from Southern Cross University in 2003. Her research was an investigation into colostrum supplementation in the elderly. Roxanne has been managing administration and events coordination for the unit, including the Australian Orthopaedic Association ACT Branch meeting each November. Roxanne manages the pelvic fractures database and joint implant retrievals. Contact: [Roxanne.miller@act.gov.au](mailto:Roxanne.miller@act.gov.au)

**Jane Wilson**, BAppSc (hons). Jane comes to TORU following research in Ross River virus pathology and viral arthritis at University of Canberra. Jane's background in sports science and human physiology will be a useful addition. Jane will be looking after the Journey knee and the Stryker Triathlon knee projects.

**Mingming Chen**, BSc, PhD. Mingming will soon be commencing as an NH&MRC scholar in bone tissue at JCSMR and TCH labs.

**Angela Fearon**, BAppSc(Physio), MPhysio. Angie 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.

Ms Fearon's PhD thesis looks at tendinosis, enthesopathy and Greater Trochanteric Pain Syndrome. Contact: [angie.fearon@anu.edu.au](mailto:angie.fearon@anu.edu.au)

**Diana Perriman**, BAppSc(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](mailto:diana.perriman@anu.edu.au)

**Susannah Littleton**, M.Public Health, Cert. Critical care nursing, RN. Susannah has been a member of TORU through her work on the Accident Care Evaluation study, sponsored by the NRMA ACT Road Safety Trust. This year Susannah commenced her PhD program, on the clinical pathways for people with mus-

culoskeletal injuries following road accidents. Contact: [susannah.littleton@acec.biz](mailto:susannah.littleton@acec.biz)

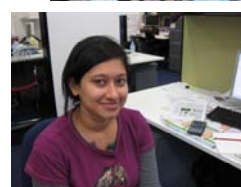
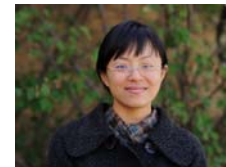
**Jonathan Slater**, BSc (hons). Jonathan is enrolled at ANU to complete his MBBS/PhD which was commenced at Monash. His thesis looks at side curtain airbag deployment in side impact motor vehicle accidents.

**Anil Nair**, MBBS. Anil is an orthopaedic registrar at the Canberra Hospital, and is completing his Master of Surgery at ANU in ankle fracture fixation.

**Sivashankar Chandrasekaran**, MBBS. M.Sports Med. Siva is undertaking a Master of Surgery at TORU through ANU, while an orthopaedic registrar at Canberra Hospital. His research is on PCL-injured knee kinematics.

**Neha Pal**, Neha is an honours student in Biomedical Sciences at the ANU.

**Kylie McKay and Rachel Judd**, are the Office Managers for TORU. Contact 02-6244 3858





CANBERRA  
HOSPITAL

[www.health.act.gov.au/research](http://www.health.act.gov.au/research)

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## Preventing the Second Fracture

This month the Fracture Clinic project will be launched. Dr Melanie Van Twest will present the project at the Trauma and Orthopaedic Research Unit Breakfast meeting 29th April.

The project aims to implement the Australian best practice guidelines on early identification and management of osteoporosis. The Canberra Hospital now has facilities for DEXA bone mineral density scanning in the Bone Mineral Service of Medical Imaging, a Bone Clinic with Endocrinologist Dr Sonia Stanton, and the Orthogeriatrics co-care team and TORU with a track record in osteoporosis interventions in the elderly.

The project will identify people in Fracture Clinic who have minor trauma injuries and are aged over 40. These people will be screened for osteoporosis and followed up in Bone Clinic or by their own GP. Information and support has been provided by Osteoporosis Australia and the Arthritis Foundation of the ACT (incorporating Osteoporosis Australia). A retrospective audit of incidence of fractures, and the prospective study to audit the implementation of best practice, will provide baseline data from which to initiate some excellent future research in the ACT on osteoporosis management.



THE AUSTRALIAN NATIONAL UNIVERSITY

## The ProSim Knee Simulator has arrived!

The Trauma and Orthopaedic Research Unit at Canberra Hospital is collaborating with the School of Physical, Environmental and Mathematical Sciences, University of New South Wales at the Australian Defence Force Academy on a project looking at the characterization of wear particles produced by the polyethylene bearings in total knee replacement.

To progress this research from bench-top models to industry standard, Simulation Solutions (Pty Ltd, UK) have been com-

missioned to build a knee simulator for this research.

The knee simulator has arrived and is now operational! This research links the combined expertise of the ANU Medical School, TORU and UNSW@ADFA.

Earlier research using a constant load force actuator has been presented at "Wear" Las Vegas, April 2009, and published in the journal *Wear* (in press).

The purchase of the knee

simulator is thanks to the John James Memorial Foundation. This research is supported by an ARC Linkage grant, and by a grant from Johnson & Johnson.



**ANU, TORU and UNSW@ADFA collaborate on the knee wear simulation project.**  
**From the left, Dr Laura Gladkis, Dr Jennie Scarvell, Research Officer Barbara Burns, A/Prof Paul Smith and Dr Heiko Timmers**

