

talkBACK

newsletter March 2010

"2009 Freshies"



Congratulations to CCRE SPINE Post-doctoral researcher Dr. James Elliott who was named one of 18 "Freshies" in the Fresh Scientist Awards for 2009. The Awards are for early career researchers who demonstrate peer-reviewed results and are able to show what they have achieved, not what they are planning to achieve. Dr. Elliott's entry was entitled "Whiplash: who won't get better. A new test reveals the problem cases" and is based on his research demonstrating long term whiplash sufferers have increased fatty deposits in their neck muscles. This is a significant find and one which they hope can one day be used in the diagnosis of such problems in an area that costs Queensland alone \$530million annually.

Symposium of international leaders

November proved to be a busy month for activities within the CCRE SPINE. The first venture was the hosting of our inaugural Symposium "Spinal Control 2009: Biomechanical and neurophysiological aspects of control of the spine and their relevance for pain and disability" at Couran Cove. The forum brought together 17 of the world's leading scientists in the area of motor control of the spine to discuss the current state of convergence and divergence within the field and develop a road map forward for research strategies. The event proved to be a great success and outcomes include a book comprising individual chapters from each delegate and summary chapters in the areas of proprioception, sub-grouping, deep muscles, modelling and low back pain - cause or change? The book is being published by Elsevier and is provisionally titled "Spinal Control: the Rehabilitation of Back Pain". Release is scheduled for the end of this year and further information will be posted on the CCRE SPINE Website as soon as it is available.



CCRE SPINE Takes to the Road

Immediately following the symposium, the CCRE SPINE travelled to Australian capital cities with a series of presentations on biomechanics and neuromuscular control of the spine. Clinicians from a variety of disciplines in Brisbane, Perth, Adelaide, Melbourne and Sydney had the opportunity to hear from world renowned experts on the latest cutting edge research as well as discussions regarding the current convergence and divergence of opinion in the field from the Couran Cove symposium. Professor Jaap van Dieen (Netherlands), Professor Jacek Cholewicki (U.S.A.), Professor Paul Hodges (Australia) and Associate Professor Greg Kawchuk (Canada) undertook the mammoth task of five presentations in five days which provided clinicians with first hand insight into current research.

Due to the importance of these translational activities to the clinical community, further feedback sessions are planned in Europe and North America in 2010. For further information, please visit the CCRE SPINE website at www.uq.edu.au/ccre-spine



PROGRAM GRANT SUCCESS!



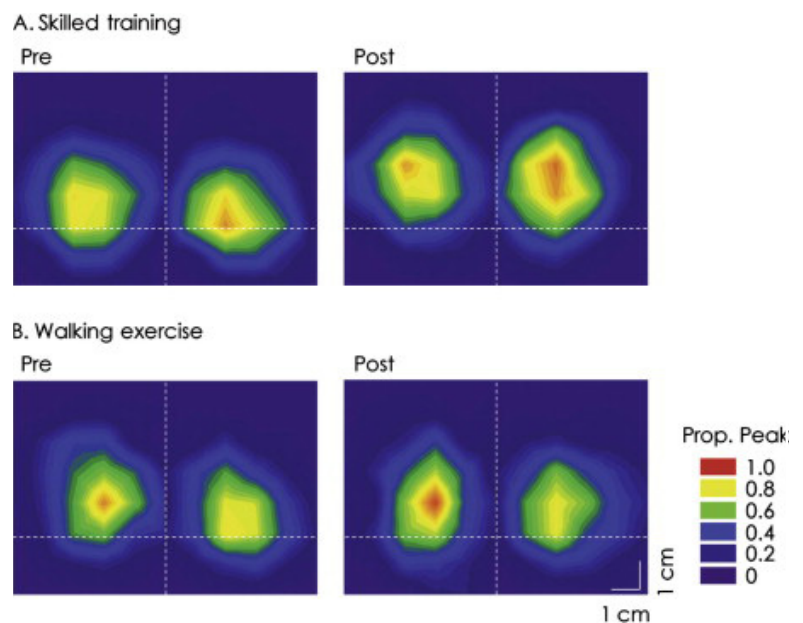
The CCRE SPINE has received a huge boost to its research activities having been awarded a prestigious National Health and Medical Research Council Program Grant. The aim of the Program Grants scheme is to provide support for teams of high calibre researchers to pursue broad based, multi-disciplinary and collaborative research activities. Teams of researchers are expected to contribute to new knowledge at a leading international level in important areas of health and medical research.

The grant, valued at \$7,570,000, was awarded to three researchers from the CCRE SPINE - Professor Paul Hodges, Professor Gwendolen Jull, Professor Bill Vicenzino and Professor Kim Bennell from the University of Melbourne. The five year grant titled: "Musculoskeletal pain, injury and health: improving outcomes through conservative management" provides the opportunity to expand further on the current CCRE SPINE research objectives into areas including general musculoskeletal disorders and osteoarthritis, both of which currently have a huge social and financial impact on the health and well-being of the Australian public.

NEW RESEARCH SHOWS THAT TRAINING CAN CHANGE THE BRAIN IN BACK PAIN

New research by the CCRE SPINE team has shown that the brain can be changed in people with low back pain (1).

The sensory and motor systems can reorganise following injury and learning of new motor skills. Recently we observed adaptive changes in motor cortical organisation in patients with recurrent low back pain (LBP), which are linked to altered motor coordination (2). Although changes in motor coordination can be trained and are associated with improved symptoms and function, it remains unclear whether these training-induced changes are related to reorganisation of the motor cortex. This was investigated using the model of a delay in postural activation of the deep abdominal muscle, transversus abdominis (TrA) in 20 individuals with recurrent LBP. Subjects were allocated to either motor skill training that involved isolated voluntary contractions of TrA, or a control intervention of self-paced walking exercise for 2 weeks. Electromyographic (EMG) activity was recorded from TrA bilaterally using intramuscular fine-wire electrodes. The cortex of the brain was mapped by stimulating over the skull with a magnetic pulse (transcranial magnetic stimulation) at different points and placed on a grid. Postural activation associated with single rapid arm movements were investigated before and after training. Motor skill training induced an anterior and medial shift in motor cortical representation of TrA, towards that observed in healthy individuals from our previous study. This shift was associated with earlier postural activation of TrA. Changes were not observed following unskilled walking exercise. This is the first observation that motor training can reverse reorganisation of neuronal networks of the motor cortex in people with recurrent pain. The observed relationship between cortical reorganisation and changes in motor coordination following motor training provides unique insight into potential mechanisms that underlie recovery.



Normalized transcranial magnetic stimulation (TMS) maps of transversus abdominis (TrA) representation at the motor cortex before (left panel) and after (right panel) skilled training (A) and walking exercise (B). Dotted lines represent the frontal and sagittal planes, and intersect at the vertex.

1) Tsao H, Galea MP, Hodges PW. Driving plasticity in the motor cortex in recurrent low back pain. Eur J Pain. doi:10.1016/j.ejpain.2010.01.001

2) Tsao H, Galea MP, Hodges PW. Reorganization of the motor cortex is associated with postural control deficits in recurrent low back pain. Brain. 2008 Aug;131(Pt 8):2161-71

The Centre of Clinical Research Excellence in Spinal Pain, Injury & Health and
The Centre of National Research on Disability & Rehabilitation Medicine
presents:

CERVICAL SPINE

LATEST RESEARCH INFORMING CLINICAL PRACTICE

Practical and theoretical components presented by:

- ◆ Professor Gwendolen Jull ◆ Assoc. Professor Michele Sterling
- ◆ Dr. Shaun O'Leary ◆ Dr. Jim Elliott ◆ Dr. Julia Treleaven
- ◆ Dr. Venerina Johnson ◆ Hiroshi Takasaki

MAY 22ND, 2010 9AM - 4:30PM & MAY 23RD 9AM - 3PM
University of Queensland St Lucia Campus

- Early bird registration prior to April 30th, 2010 - \$250 After April 30th - \$300
- Fulltime Student \$150

Registration forms and full program information is available at
www.uq.edu.au/ccre-spine or please contact r.jackson2@uq.edu.au



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

ccre spine
centre of clinical
research excellence

Spinal Pain,
Injury & Health
NIIMRC funded centre



CONROD
CENTRE OF NATIONAL RESEARCH
ON DISABILITY AND
REHABILITATION MEDICINE

WHIPLASH:

EVIDENCE BASED INFORMATION RESOURCE

Launched in early 2008 the Whiplash Evidence Based Website continues to provide consumers with the most up-to-date treatment options for those suffering a whiplash injury.

The website is the first of its kind related to Whiplash and is a joint venture between the Centre of National Research on Disability and Rehabilitation Medicine and the CCRE SPINE. Despite hackers disabling the entire School of Medicine portal in late 2009 where the site is currently hosted, the Whiplash Website is now back and running at full capacity.

The aim of the website is to empower patients with information regarding treatment options to ensure they can be an active participant in their own rehabilitation. The evidence review that forms the content of the website was conducted by an independent group from the University of South Australia who also provide regular updates on new treatments and existing evidence.

The site currently offers 42 different treatment options ranging from "Act as usual" to surgical interventions and offers a user friendly ranking system based upon whether treatment has been shown to be effective or not in clinical trials.



The site can be accessed via CONROD's Website at www.uq.edu.au/conrod or the CCRE SPINE www.uq.edu.au/ccre-spine.

The CCRE SPINE has commenced work on a similar website specifically focusing on Low Back Pain which is due for completion during 2010.

HELP US REVIEW 'WHIPLASH INJURY RECOVERY: A SELF-MANAGEMENT GUIDE'

Physiotherapists from The University of Queensland in conjunction with the Motor Accident Insurance Commission are reviewing the publication 'Whiplash Injury Recovery: A Self-Management Guide' in preparation for producing the 2nd edition of the publication. To ensure the Guide is meeting the information needs of people with whiplash, we are inviting people with whiplash to participate in the review.

The review process will provide information relating to two important questions:

- ◆ What is the best way to provide people with information about whiplash?
- ◆ Does the Guide provide the information about whiplash that people want?

If you are over 18 years of age and have a whiplash injury, there are two ways of participating in the review:

1. If you live in Brisbane, we are holding group discussions of approximately one and a half hours duration, at the UQ St Lucia Campus. Brisbane participants will be reimbursed \$20 for travelling costs.
2. If you live in rural Queensland, we are keen to gain your views and we will conduct telephone interviews.

Discussion groups will be held during March 2010. To register your interest in participating in the study and/or to obtain more information, please contact Amanda Nielsen, telephone (07) 3365 4529





STATE-OF-THE-ART IN SPINAL CONTROL

A SYMPOSIUM OF INTERNATIONAL LEADERS

There are many different views about spinal control, how this changes in spinal pain and the best options for rehabilitation. This field is evolving rapidly, as are the different opinions. This symposium brings together research leaders from Australia, Europe and North America to present the latest in spinal biomechanics and neuromuscular control. The aims of the session is to:

- 1) Consider spinal control from different perspectives;
- 2) To consider the convergence and divergence in the field;
- 3) Consider the implications for rehabilitation; and
- 4) Demonstrate contemporary clinical management strategies for spinal pain.

This is an opportunity to hear from and speak to people who are driving the field internationally.

PROF. PAUL HODGES (AUSTRALIA) PROF. JACEK CHOLEWICKI (USA) A/PROF SIMON BRUMAGNE (BELGIUM)
A/PROF PETER N. REEVES (USA) PROF. JAAP VAN DIEEN (NETHERLANDS) *PRESENTING IN AMSTERDAM ONLY

DUBLIN - University College Dublin - Friday June 11th 9am - 3pm
AMSTERDAM - Vrije University - Saturday June 12th 9am - 3pm
EDINBURGH - University of Edinburgh - Sunday June 13th 9am - 3pm
LONDON - Roehampton University - Monday June 14th 9am - 3pm

Early bird (prior to May 14th)-AUD\$225 After May 14th-AUD\$275 Fulltime Student - AUD\$150
(all prices quoted in Australian Dollars - currency conversion available on registration portal)

Online registration and full program information is available at www.uq.edu.au/ccre-spine or please contact r.jackson2@uq.edu.au

ccre spine
centre of clinical
research excellence

**Spinal Pain,
Injury & Health**
NIHMRC funded centre



**THE UNIVERSITY
OF QUEENSLAND**
AUSTRALIA

Awards in 2009

PhD's

Henry Tsao
Supervisor - Paul Hodges & Mary Galea

Ginny Uthaikhup
Supervisor - Michele Sterling & Gwen Jull

Andrew Claus
Supervisor - Paul Hodges, Julie Hides & Lorimer Moseley

Nikki Mok
Supervisor - Sandy Brauer & Paul Hodges

Ruth Sapsford
Supervisor - Paul Hodges, Carolyn Richardson & Chris Maher

Andy Chen
Supervisor - Michele Sterling & Gwen Jull

Best Paper/Poster Awards
Justin Kenardy & Michele Sterling
Best Paper Spine Soc. of Australia

Michele Sterling
Best Poster Kinetic Control
Best Paper R/U Pain Society

Andrew Claus & Bill Vicenzino
Best Paper Be-Active Conference

Bill Vicenzino
Best Paper Australian Sports
Physiotherapy Assoc 4th Int. Ankle
Symposium, 9th Foot Biomechanics

Graham Galloway
Best Paper Australian Institute of
Radiography

Luke Connelly
Axel Ingelman Prize

Shaun O'Leary, Deborah Falla, James Elliott & Gwendolen Jull
JOSPT George J. Davies - James A. Gould Excellence in Clinical Inquiry Award

Miscellaneous Awards

Paul Hodges
Emerging Leaders (Health)
"Australian Magazine"

Excellence in Post Grad. Supervision
The University of Queensland

Jim Elliott
Fresh Scientist
"Fresh Science Awards"

Dave MacDonald
Runner Up Three Minute Thesis
The University of Queensland

Peter Brooks
Member of the Order of Australia

Congratulations to Professor Paul Hodges and Dr. Kylie Tucker on being awarded the 2009 Klein-Vogelbach-Prize. This international award is valued at 10,000 Swiss francs (\$AU10,500) and is awarded to outstanding scientists for work published in prestigious journals related to work in neuroscience, orthopaedics and anatomy that is directed to better understanding principles of human movement and its rehabilitation. Paul and Kylie received the award for their work investigating changes in motoneurone discharge with pain.

Further information

CCRE SPINE

School of Health and Rehabilitation Sciences
Phone: 07 3365 4567
Fax: 07 3365 4567
Email: ccrespine@uq.edu.au

www.uq.edu.au/ccre-spine

