

Invited Lectures by:**Michele Sterling, Professor, PhD, MPhty, BPhty, Grad Dip Manip Physio, FACP**

Recover Injury Research Centre, NHMRC Centre of Research Excellence in Road Traffic Injury
Recovery, The University of Queensland, Australia

And:**Deborah Falla, Professor, BPhty, PhD**

Centre of Precision Rehabilitation for Spinal Pain (CPR Spine), School of Sport, Exercise and
Rehabilitation Sciences, College of Life and Environmental Sciences, University of Birmingham,
United Kingdom

Time: 31 October 2017 at 09.00-11.00**Place: Aalborg University, Fredrik Bajers Vej 7, room no. B3-104****Abstract by Professor Michele Sterling****Central Sensitisation and Stress after Whiplash Injury: Implications for Physiotherapy Practice**

Up to 50% of patients with acute whiplash associated disorders (WAD) do not fully recover and continue experiencing multiple symptoms such as chronic neck pain, fatigue, dizziness, concentration difficulties and headaches. Radiological findings or cervical impairments do not account for the development of chronic WAD. On the other hand, there is increasing evidence that WAD are characterized by dysfunctional stress response systems and hyperexcitability of the central nervous system. The former include a dysfunctional hypothalamus-pituitary-adrenal axis and altered autonomic reactivity, and the latter imply dysfunctional endogenous analgesia (in response to nociceptive stimuli and exercise), decreased spinal reflex thresholds, increased temporal summation of pain, and widespread hyperalgesia. The stress response system can influence pain through several neurophysiologic mechanisms. This is supported by the findings that stress related symptoms and physiological stress processes have predictive value in the transition from acute to chronic WAD. Severe stress also leads to diminished availability of several key central nervous system neurotransmitters, possibly explaining the inability of patients with WAD to activate top-down endogenous analgesia. Physiotherapy treatments such as some forms of exercise can modulate these processes and evidence will be presented outlining these effects. In addition, six month outcomes of a recent randomised controlled trial investigating the effects of stress modulation techniques integrated with usual physiotherapy and delivered by physiotherapists for acute whiplash will be presented. show promise in preventing chronic pain after whiplash injury. The results show promising effects in preventing chronic pain, disability and psychological distress. Physiotherapists can effectively deliver these techniques and found them a useful addition to their clinical practice.

Abstract by Professor Deborah Falla

Variability of Neuromuscular and Biomechanical Adaptations Accompanying Spinal Pain

Spinal pain is a leading cause of years lived with disability, with massive associated socioeconomic costs. More than half of those affected by an acute episode of pain still report pain and disability one year later. Assessment and management of chronic spinal pain disorders is an international challenge and comes at great individual and societal cost. Most conservative treatments for spinal pain often rely on a “one size fits all” approach and show only small to moderate treatment effects, with one treatment showing little superiority over another. Importantly, these minimal gains rarely last in the long term and it is this lack of long term effectiveness which impacts on return to work or optimal function. Effective and early management of pain and neuromuscular function via exercise is promoted as a critical element of management for spinal pain, recommended by clinical practice guidelines internationally. Yet, like other conservative treatments for non-specific pain, the effects of exercise are typically only small to moderate with little evidence of superiority of one exercise program over another.

A number of studies have revealed the complexity and individual variability of neuromuscular and biomechanical adaptations accompanying pain, and the heterogeneity between patients with respect to the contribution of physical features to their chronic pain disorder. Recent evidence of biomechanical and neurophysiological adaptations in people with spinal pain will be presented in this lecture which collectively supports the assumption that the outcome of exercise interventions can be optimized when better targeted towards each individual. By the end of the lecture participants will be able to recognize the variability of movement and neuromuscular changes associated with spinal pain and appreciate the scope and limitations of exercise for the relief of pain and for restoration of optimal physical function.

All interested are welcome!

Yours sincerely,

Lars Arendt-Nielsen

Professor, dr.med.sci., Ph.D.

And

Steffan Wittrup Christensen

Physiotherapist, PhD, MPhty, B.Pt