

## **The Dynamic Role of Central Sensitisation and Neurogenic Inflammation in the Pathophysiology of Myofascial Trigger Points and Clinical Manifestations of Myofascial Pain Syndrome (Part 2)**

Keynote Sessions

Faculty:

John Srbely

Are myofascial trigger points (MTrPs) the cause or effect of chronic MPS? According to the Integrated Hypothesis, MTrPs are the primary source of nociception (cause) in MPS and result from either an acute or chronic local injury to the muscle, leading to dysfunctional motor endplates and local muscle contracture.

However, emerging research suggests that neurogenic mechanisms play a foundational role in the formation of MTrPs and manifestations of MPS without direct local injury to the muscle. The Neurogenic Hypothesis proposes that the clinical manifestations of MPS are initiated, amplified, and perpetuated by central sensitisation without the need for mechanical injury to the muscle. Instead, MTrPs may form secondary to central sensitisation (effect) evoked by persistent nociceptive input from a distinct primary pathologic source (either somatic or visceral) in the common neuromeric field and/or dysfunction of descending pain modulation.

Central sensitisation is a hyperactive state of the CNS. It can be localised to a specific spinal segment or more widespread, affecting supraspinal structures. It is caused by the persistent bombardment of nociceptive impulses from a primary pathologic source (somatic and/or visceral in origin). Central sensitisation may evoke neurogenic inflammation, characterised by the antidromic release of neuropeptides into peripheral tissues.

Strong neuro-inflammatory responses occur in neuro-segmentally linked muscles and joint cartilage following both naturally occurring and experimentally induced spine osteoarthritis models. Enhanced understanding of the underlying neuro-inflammatory/segmental mechanisms in muscle elucidates potential physiologic mechanisms contributing to the dynamic clinical manifestations of chronic MPS and has profound implications for optimising patient management.

### **About Our Speaker:**

John Srbely

Dr John Z Srbely DC PhD graduated from the Canadian Memorial Chiropractic College (1992) and was certified in Clinical Acupuncture (2000). He received his PhD in biomechanics and neurophysiology in 2008 from the University of Guelph. He is a full-time Associate Professor with the Department of Human Health and Nutritional Science (HHNS), College of Biological Sciences, University of Guelph (Guelph, Ontario, Canada). He held a Canadian Chiropractic

Research Foundation Research Chair in Spine Mechanics and Neurophysiology (2008-2013). He is currently the Director of the HHNS Neuromuscular Health and Chronic Pain clinical research facility. He is pursuing his primary research interest in studying the neurophysiologic mechanisms and management of chronic pain. The central theme of his research program is the study of central sensitisation and neurogenic inflammation and their role in the clinical manifestation of chronic musculoskeletal disease, including myofascial pain, osteoarthritis, and chronic degenerative joint/spine disease.