The Dynamic Role of Central Sensitisation and Neurogenic Inflammation in the Pathophysiology of Myofascial Trigger Points and Clinical Manifestations of Myofascial Pain Syndrome (Part 1)

Keynote Sessions

Faculty:
Jay Shah

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:

Jay Shah

Jay P. Shah, MD is a physiatrist and clinical investigator in the Rehabilitation Medicine Department at the National Institutes of Health in Bethesda, Maryland. His interests include the pathophysiology of myofascial pain and integrating physical medicine techniques with promising complementary approaches in managing chronic myofascial pain and dysfunction. He also

completed the one-year UCLA Medical Acupuncture course and a two-year Bravewell Fellowship at the Arizona Center for Integrative Medicine.

Jay and his co-investigators have utilised novel microanalytical and ultrasound imaging techniques that have uncovered the unique biochemical milieu and viscoelastic properties of myofascial trigger points and surrounding soft tissue. They have also measured the beneficial effects of dry needling on pain, range of motion, pain pressure threshold, and on sleep, mood, disability, etc., in addition to the viscoelastic properties of the local myofascial tissues. He has given many invited lectures and hands-on courses nationally and internationally for physicians, physical therapists, massage therapists, and acupuncturists, among other professional groups. His presentations integrate the fascinating knowledge emerging from the basic and clinical pain sciences in order to optimise evaluation and management approaches to chronic myofascial pain and dysfunction.