Category: FES, Brain Stimulation and Neurophysiology

Workshop Title: Take home messages for successful implementation of FES therapy in your clinic: What to do and not to do

Workshop Organizer(s): Matija Milosevic

In person Speaker(s):

- Popovic, Milos, KITE Toronto Rehab & University of Toronto
- Desai, Naaz, Krembil Research Institute-UHN
- Kei Masani

Virtual Speaker(s): Marquez-Chin, Cesar, KITE Toronto Rehab

Workshop Time: 13:45 - 15:15

Attendee Engagement:

We will do a demonstration of the FES therapy session where attendees can talk to the speakers and take the role of the therapist themselves. In addition, the attendees will be encouraged to ask questions and lead a discussion on any topics of their interest related to the workshop.

Abstract:

Functional electrical stimulation (FES) was initially used as an assistive device for movement after neurological injury. Recently, FES and spinal cord stimulation (SCS) have also been applied successfully to improve voluntary motor function in individuals who had sustained a spinal cord injury or stroke. Although remarkable recovery of sensorimotor function was demonstrated in the literature and many promising studies published, some essential factors must be considered for the successful implementation of electrical stimulation therapy in clinical settings. Our expert speakers will provide the workshop audience with take-home messages and “recipes for success” to help the attendees improve their clinical practice to implement electrical stimulation therapy. We will use scientific evidence from neurophysiological studies to demonstrate the importance of:

1. Involvement of voluntary intention during therapy.

2. Using appropriate protocols to target functional deficits and combining these protocols strategically during therapy.

3. Targeting of muscles and nerves to optimize sensory recruitment during activity activity-depended functional therapy.

In a demonstration, we will show the audience how to setup their therapy session to apply precisely timed and activity-depended exogenous reinforcement of movement completion using appropriate stimulation protocols. Moreover, we will show the audience scientific evidence proving that such protocols can affect neural control centers and improve voluntary motor function after neurological injuries such as spinal cord injury, stroke, and traumatic brain injury. Emphasis will be on both the technology and the implementation of the therapy.