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Category: Neuromodulation

Workshop Title: Electrical Stimulation Exercise is Medicine for Individuals with Spinal Cord Injury

Organizer(s): Ashraf Gorgey

Speaker(s): Gorgey, Ashraf, Richmond VA Medical Center, Spinal Cord Injury C Disorders Service, USA

Rademeyer, Hope Jarvis, MPT, PhD, School of Rehabilitation Science, College of Medicine, University of Saskatchewan

Bersch-Porada, Ines, Swiss Paraplegic Center Nottwil, Switzerland; Dolbow, David, William Carey University, Hattiesburg, MS, USA

Workshop Time: 10:30 - 12:00

Attendee Engagement: Our workshop will provide the followings

1. Video case studies of individuals with SCI undertaking FES-exercise training for improvement of their aerobic fitness will be presented, supplemented with video footage of their exercise program and their commentary.
2. The individual's outcomes in the important health domains following exercise prescription will be presented in light of known outcomes drawn from the proposed Clinical Guidelines and a systematic review. During the workshop, Ashraf Gorgey and Ines Bersh will provide hand on demonstration by using portable electrical stimulation units on how to target the upper extremity and lower extremity muscles. How to accurately place the electrodes and activate the target muscles.
3. All Attendee will receive print out of the stimulation parameters based on the CPG to be able to use for clinical practice and overcome several medical problems after SCI. This part of the workshop will be dedicated to the practical translation of scientific evidence into clinical practice.
4. Laurie Magerfleisch will provide clinical demonstration on existing FES systems and how they can be used to translate the CPG into activity based training for persons with SCI.

We will aim to achieve the following objectives

- 1- The workshop will distinguish among different electrical stimulation exercise approaches to enhance function and level of physical activity after SCI.
- 2- This workshop will present latest evidence-based practice of the use of electrical stimulation by presenting different people with SCI, who have used electrical stimulation and have experienced improvement in their lives using this intervention.

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3- Also, the evidence-based interventions and parameters to use electrical stimulation as a prescribed medicine, highlighting the improvements in musculoskeletal health (including spasticity) and SCI comorbidity. The audience can use this information to plan sessions in the clinical practice based on specific goals determined for persons with SCI.

Abstract: Spinal cord injury (SCI) leads to several health-related consequences often linked to reduced levels of physical activity and function. Evidenced-based Clinical Practice Guidelines (CPG) for functional electrical stimulation (FES)-cycling were recently developed arising out of an international consensus-building approach, called AGREE-II. The guidelines have developed after organizing several scientific meetings among experts in the field of FES-cycling and SCI. FES-cycling guidelines will be summarized in the health domains of aerobic fitness, muscle strength and quality, and other outcomes after SCI. Direct muscle stimulation has moderate to very good scientific evidence in the fields of prevention, functional support and improvement in neuro-rehabilitation. Electrical stimulation has shown promising results on reduced voluntary activation of the muscles below the level of the lesion. Nevertheless, the standard integration of this method into clinical treatment is not yet established. Therefore, development of CPGs is an essential step to ensure successful reach to clinical practice, clinicians and stakeholders. The achievement of this goal has to involve detailed synthesis of FES-recommendations based on the published evidence. The panel has relied primarily on existing evidence from randomized controlled clinical trials, systematic reviews, case-control reports to build these statements.

After developing statements, Delphi survey was used to provide general consensus about the developed statements. The current workshop will provide detailed preview of step-by-step procedure of developing the FES-CPG to establish the fact the Electrical Stimulation is Medicine for persons with SCI.