Functional Electrical Stimulation (FES) in Pediatrics: The science is strong, the clinical practice not yet

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The mechanisms that govern the application of non-invasive functional electrical stimulation (FES) have been delineated and clearly described in numerous evidenced-based research publications. The aim of this program is to summarize the primary, multi-system effects of non-invasive FES on the musculo-skeletal system, the peripheral vascular system, and the central nervous systems. The presentation will relate these effects to multiple efficacious clinical studies in neuro-rehabilitation including pediatrics. The presentation will include discussion of the latest technological advancement in wearable FES systems and their critical role in achieving functional recovery following damage to the brain. The presentation will also offer an advanced practice model guided by the latest trend in the medical field focusing on patient-centered, personalized intervention in the management of children with damage to the brain, altered motor development, brachial plexus injury and primary muscular disease. The presentation will include multiple case presentations highlighting the benefits of using FES.

Learning Objectives:

1. Describe the latest developments in non-invasive electrical stimulation, focusing on wearable wireless functional electrical stimulation FES systems
2. Offer an advanced practice model guided by the latest trend in the medical field to focus on patient-centered, personalized intervention
3. Discuss the different stimulation requirements needed to treat children of different ages and different diagnosis including but not limited to brain, brachial plexus, spinal cord and muscle damage
4. Prescribe the most effective treatment plans to manage upper extremity, torso and locomotion deficits of the covered pediatric population


Outline:

- What clinicians must know about functional electrical stimulation (FES)
- The principles of the Personalized Rehabilitation Programs (PRP)
- Implementation of FES as integral component of the PIP to enable daily function of children with damage to the brain, brachial plexus, spinal cord and skeletal muscles
- Afternoon Hand-on laboratory experience using FES in Pediatrics