Improving Adherence & Outcomes for Patients with Parkinson's Disease - Exploring a Novel Motion Capture System

Date: Saturday, October 1, 2016
Time: 3:55 PM - 5:55 PM
Session ID & Location: 8D: MtgRm7
CEU Eligibility: 0.20
Presented by: Charlotte Chatto, PT, PhD, NCS

Session Description: In this session, we will review the evidence supporting exercise and neuroplasticity and application to patients with Parkinson’s Disease. This evidence will provide the foundation for describing the development of a Microsoft Kinect-based tele-rehabilitation system to assist with patient with home exercise programs. Pilot study findings for outcomes and adherence, as well as details of development to-date will be presented.

Each member of our interdisciplinary team of had an important role in the success of this project so far. We will describe the responsibilities of the researchers, software developers, entrepreneurs, a physical therapist and a patient advocate. Participants will be encouraged to provide feedback for future versions of the technology, engage in discussion of application to other patient populations, and brainstorm potential interdisciplinary teams in their own settings.

At the end of the session, participants will:

1. State at least 3 principles of motor learning that promote neuroplasticity in patients with neurologic disease or injury.
2. Describe the evidence for incorporating high-intensity, high amplitude exercise for patients with Parkinson’s Disease.
3. List at least 3 key features of a tele-rehabilitation system that will encourage adherence
4. Hypothesize of ways an interdisciplinary team could enhance development of projects and products that would encourage patient adherence to home exercise programs.

Presenter Bio(s): Charlotte A. Chatto, PT, PhD - Assistant Professor, Department of Physical Therapy, College of Allied Health Sciences, Augusta University, Augusta, GA - received her PhD in Applied Neuroscience from the Union Institute and University, Master of Science in Neurologic Physical Therapy from Medical College of Georgia and a Bachelor of Science in Physical Therapy from Boston University. Charlotte Chatto is a Neurologic Clinical Specialist and an assistant professor in the Department of Physical Therapy at Augusta University. She is clinically active at Augusta University Health’s ALS clinic, Christ Community faculty-student pro-bono clinic, and with
Global Therapy Group in Haiti. In her clinical practice of 28 years and her teaching of entry-level physical therapy students and clinicians in the last 21 years, her emphasis has been on ways to help people learn and ways to encourage neuroplasticity in patients recovering from neurological injury or disease, with the ultimate goal of improving their quality of life. Her current clinical research is funded by the CSRA Parkinson Disease Support Group.
Handouts were not provided for this session. If made available, the handouts will be provided onsite and/or in a post meeting supplement of this book.
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Objectives: By the end of the session, participants will:

1. State theoretical basis to incorporate high-intensity, high-amplitude movements for persons with Parkinson’s Disease.
2. Discuss the impact of adherence to home exercise programs on outcomes
3. Identify key components of a home-based motion capture system that could potentially improve outcomes
4. Discuss the importance of incorporating principles of neuroplasticity and motor learning

Pre-test/Post-test

1. Define the impact of a deficit in sensory calibration in a patient with Parkinson’s Disease.

2. From the evidence which of the following exercise techniques would most likely help drive neuroplasticity in a patient with Parkinson’s Disease?
   a. Proprioceptive Neuromuscular Facilitation
   b. Neuro-developmental Treatment
   c. High amplitude, high intensity functional movements
   d. High intensity weight lifting

3. What are the principles of motor learning that would be most beneficial to incorporate into any tele-rehabilitation home exercise program?
   a. Accurate feedback
   b. Encouragement to the patient to use his or her highest effort
   c. Clear goals of the movement
   d. All of the above

4. What is the difference between summary feedback and bandwidth feedback?

5. Which area of the basal ganglia degenerates in Patients with Parkinson’s Disease?
   a. Substantia Nigra
   b. Caudate Nucleus
   c. Subthalamic Nucleus
   d. Putamen