



Neural Prosthesis Seminar

January 9, 2009

8:30 AM to 9:30 AM

Biomedical Research Building - BRB 105
Case Western Reserve University

“Assisted movement with enhanced sensation (AMES) improves motor function by strengthening sensorimotor connections”



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Abstract:

The recent discovery of cortical plasticity in adult humans has led to the development of new therapeutic approaches to rehabilitation that attempt to exploit this plasticity. We have developed a new therapeutic approach to rehabilitation of motor disability following stroke (AMES) that combines robotic ranging of paretic joints with assisted movement, biofeedback, and proprioceptive stimulation. There are 2 underlying hypotheses to the AMES approach: (1) coupling functionally related motor output and sensory input repetitively and synchronously strengthens sensorimotor connections and (2) strengthening functional sensory-to-motor connections in the brain can lead to recovery from spastic hemiparesis. In a recent study of low-functioning (<30% strength) chronic stroke patients (>1 yr post-stroke) who treated themselves with an AMES robotic device in the home, 70% of the patients achieved significant and sustained improvements in motor function (Cordo et al. 2008). Currently, we are conducting a multicenter trial on the treatment of sub-acute stroke patients with AMES. Preliminary results from other patient groups that have been tested will also be discussed as well as enhancements to the current treatment paradigm to restore movement to chronic stroke patients with a plegic hand or foot.

Hosted by:

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This seminar is sponsored by the FES and the APT Centers - For more information, please contact Cathy Walker at 216-231-3257

The Cleveland FES Center is a consortium in Functional Electrical Stimulation technology including the Louis Stokes Cleveland VAMC, Case Western Reserve University, and the MetroHealth Medical Center