

# THE biodesign INSTITUTE

ARIZONA STATE UNIVERSITY

## Seminar Hosted by **Center for Adaptive Neural Systems** (James Abbas and Ranu Jung)

**FRIDAY, MARCH 17, 2006**  
**BIODESIGN INSTITUTE Auditorium, BLDG B**  
**9:30AM - 10:30AM**

### “Practice-Dependent Plasticity of Cortical and Spinal Mechanisms Following SCI: Promoting Optimal Upper and Lower Extremity Function”

**Presenter:** Edelle Carmen Field-Fote, PhD, PT

**Abstract:**

Evidence suggests that spinal cord and brain mechanisms underlying the control of movement demonstrate activity-dependent plasticity. In individuals with upper motor neuron lesions, it is likely that the impact of training on the organization of the underlying neural circuitry, and on functional outcomes, differs depending on the form of training. Our locomotor training studies in individuals with incomplete spinal cord injury attempt to assess the relationship between functional measures and spinal cord reflex activity. Our upper extremity training studies assess cortical, spinal and peripheral changes associated with task-based upper extremity training. By examining the impact of training on neural organization we hope to understand the relationship between pathophysiology and function and thereby contribute to the development of optimally effective rehabilitation interventions.

**Biosketch:**

Edelle Carmen Field-Fote, PhD, PT, Associate Professor of Physical Therapy and Neurological Surgery, is director of the Neuromotor Rehabilitation Research Laboratory at The Miami Project to Cure Paralysis. Dr. Field-Fote is a physical therapist with doctoral training in spinal cord control of movement. Her doctoral concentration involved studies of central pattern-generated movement in an animal model of complete spinal cord injury (SCI). In her current work she applies the science of neural control of movement to developing interventions to improve movement function in individuals with spinal cord injury. Her main interests and research foci are geared toward understanding: 1) how training and practice contribute to functional adaptation of the neural circuitry underlying motor control, and 2) how best to promote favorable neural reorganization in the presence of central nervous system pathology. The ultimate goal is to use this information to develop optimally effective, individualized interventions for men and women with spinal cord injury.

**Friday, March 17, 2006 9:30-10:30 AM**

**Biodesign Bldg. B, Auditorium**