

Name of Organizer: Steven R. Zeiler

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Title of Symposium: Providing Very Early Rehabilitation after Acute Stroke: From Neurophysiology to Bedside Care

Description of submitted symposium (please limit to 2000 characters): Most recovery from motor impairment after stroke occurs in the first month and is largely complete by 3 months. In humans, data suggest that this improvement occurs independently of rehabilitative interventions, which predominantly target function through compensatory strategies. Thus, there is a powerful recovery mechanism that is currently not the focus of rehabilitative interventions. Animal models, which also show the existence of a post-stroke “sensitive period” (SP), provide the opportunity to better define as well as test approaches to augment and prolong this period of heightened recovery. There is an urgent need to develop innovative new approaches to rehabilitation because despite improvements in acute stroke care, up to sixty percent of stroke survivors suffer motor disability. Presenters will explore four areas using both animal and human data. First, we will explore data showing that almost all recovery from impairment occurs in the first months after stroke. Second, we will explore the effectiveness of post-stroke training with respect to impairment and how it diminishes as a function of time. Third, we will explore the associated molecular and physiologic mechanisms which define the SP. Finally, we will explore data suggesting novel approaches to take advantage of the SP. This last point will include the experimental notions that the SP may be prolonged and/or reopened at some later time.

Length of time required for symposium?: 90 minutes including 30 minutes of discussion

Additional Presenters (Limited to 4 additional presenters, list full name and email address) Please Note: Any Non-member speakers must receive prior approval from the Program Chair.: Tomoko Kitago (Columbia University - tk2229@cumc.columbia.edu) John Krakauer (Johns Hopkins - jkrakau1@jhmi.edu) Thomas Carmichael (UCLA - SCarmichael@mednet.ucla.edu)

What is the role of each presenter?: Steven R. Zeiler: Will introduce the idea of the SP and will present animal data showing that almost all recovery from impairment occurs in the first months after stroke
Thomas Carmichael: will explore the associated molecular and physiologic mechanisms which define the SP.
Tomoko Kitago: will present human data showing that almost all recovery from impairment occurs in the first months after stroke.
John Krakauer: will explore data suggesting novel approaches to take advantage of the SP. This last point will include the experimental notions that the SP may be prolonged and/or reopened at some later time.

Objective 1: There is a time-limited period of recovery after stroke which shows heightened responsiveness to motor training

Objective 2: There are distinct molecular and physiologic mechanisms which define the sensitive period.

Objective 3: We must develop better interventions to take advantage of the sensitive period.