

## **EEG Based Cortico-Muscular Connectivity During Standing Early Post Stroke**

Soha Saleh<sup>1</sup>

Michael Glassen, Gregory R. Ames, Guang Yue and Karen Nolan<sup>2</sup>

<sup>1</sup> Rutgers University

<sup>2</sup> Kessler Foundation

In this exploratory study we studied brain activation and Corticomuscular connectivity during standing in healthy individuals and persons with stroke within 40 days of cerebrovascular accident (CVA). EEG and EMG data were acquired during standing and analysis showed a trend of higher EEG power (hyper activation) in the stroke group. Direct corticomuscular connectivity between sensorimotor cortices and contralateral lower extremity muscles showed lower connectivity between affected motor, premotor, and sensory cortices and contralateral lower extremity peripheral muscles with moderate effect size. The preliminary data in this paper suggest re-organization in left sensorimotor cortex role in controlling contralateral lower extremity muscles during standing. Correlational analysis in stroke group within 40 days of CVA showed a relationship between higher Corticomuscular connectivity and better scores on balance assessments.