

that cognitive processes such as attention and executive function have a significant impact on gait function in older adults. However, the exact neural mechanisms underlying difficulties in the control of mobility in older adults remains an open question. We examine the changes in the executive control of mobility in older adults with mobility impairments using functional near-infrared spectroscopy, as operationalized by performance in the community balance and mobility scale (CB&M). We hypothesized that prefrontal cortical (PFC) activity increases would be higher in older adults with mobility impairments, compared with older adults without mobility impairment, as dual-task walking difficulty increased. Older adults with (n=10, mean±SD age: 77±8 years, 8 females, CB&M= 58±12) and without mobility impairment (n=14, mean±SD age: 63±9 years, 11 females, CB&M= 87±6) were recruited from the local community. Dual-task walking was performed at a comfortable pace, while the difficulty of the concurrent cognitive task was increased using the modified Stroop test. PFC activity was measured using measures of oxygenated hemoglobin across the PFC. Older adults with mobility impairments demonstrated disproportionate increases in PFC activity, in comparison to those without mobility impairments, as the difficulty of the concurrent cognitive task increased ($P<.001$), even after controlling for age. In conclusion, these data suggest that older adults with mobility impairments may require greater attentional resources than those without mobility impairments when concurrently performing thinking and walking tasks.

TARGETED TRANSCRANIAL DIRECT CURRENT STIMULATION IMPROVES DUAL-TASK WALKING PERFORMANCE IN OLDER ADULTS

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In older adults, the ability to walk while engaged in an unrelated cognitive task (i.e., dual tasking) depends upon activation of both motor and cognitive brain networks. Noninvasive transcranial direct current stimulation (tDCS) can facilitate the excitability of specific brain regions and their connected neural networks. In this multi-site, randomized controlled within-subject cross-over study, we tested the effects of single, 20-minute sessions of tDCS targeting 1) the primary motor cortex (M1), 2) the left dorsolateral prefrontal cortex (dlPFC, a primary region subserving cognitive function), 3) both M1 and left dlPFC, or 4) neither region (sham). Forty-eight older adults free of overt illness or disease (mean±SD age=75±6 years, 35 women) completed four study visits at least 72 hours apart, during which dual task gait was assessed before and after tDCS administration. Stimulation was delivered using the Starstim™ system (Neuroelectrics Corp) and the same array of six gel electrodes to ensure double-blinding. Participants were

successfully blinded to tDCS condition and reported no unexpected tDCS side effects. Repeated-measures ANOVAs adjusted for age and sex revealed that the dual task cost to gait speed was smaller (i.e., better and closer to zero) following tDCS that targeted both M1 and the left dlPFC, as well as the left dlPFC alone, compared to all other time points (condition-time interaction: $F=3.0$, $p=0.04$). The dual task costs following these two types of stimulation were similar. These results suggest that noninvasive facilitation of cognitive-motor brain network excitability leads to acute improvement in dual task performance in older adults.

TRANSITIONING HOME AFTER STROKE: IMPROVING PHYSICAL HEALTH AND PATIENT ACTIVATION

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While the majority of stroke patients will return home after being hospitalized, this transition is physically and emotionally challenging. We developed a social work based case management program to address these challenges. The Michigan Stroke Transitions Trial (MISTT), a pragmatic 3-arm clinical trial tested the effects of the case management program on its own and combined with technology against usual care in patients recovering from stroke. Patients from three Michigan hospitals were randomized to one of three groups upon discharge to home. The two treatment groups received services from a social work case manager via home visit and telephone. One treatment group also was given training and access to a curated stroke website developed for MISTT. The intervention lasted up to 90 days and data was collected via telephone at 7 and 90 days. Quality of life and patient activation were the primary outcomes, measured by the PROMIS Global 10, and the Patient Activation Measure (PAM), respectively. We compared treatment efficacy by comparing the change in outcomes between the three groups (N=265) using a difference-in-differences (D-in-D) analysis. The mean change in PROMIS scores for the social work + technology group was significantly higher than both the social work only group (difference= +2.4; 95%CI=0.46, 4.34; $p=0.02$) and usual care (difference= +3.4; 95%CI=1.41, 5.33; $p<0.001$). The mean change in PAM scores for the social work + technology group was significantly higher than the social work only group (+6.7; 95%CI=1.26, 12.08; $p=0.02$) and marginally higher than usual care (+5.0; 95%CI=-0.47, 10.52; $p=0.07$).

SESSION 4025 (SYMPOSIUM)

GOING FOR THE WIN-WIN-WIN: HARNESSING THE POWER OF SENIOR VOLUNTEERISM TO ADDRESS DEMENTIA CARE AND PROMOTE HEALTH

Chair: Quincy M. Samus, *The Johns Hopkins University, Baltimore, Maryland, United States*

Co-Chair: Joseph E. Gaugler, *University of Minnesota - School of Public Health, Division of Health Policy and Management, Minneapolis, Minnesota, United States*