

Abstract

Title: Assistive Device Training for Functional Mobility and Connectivity in MS

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3 MeSH terms: Multiple sclerosis, self-help devices, training

Objectives: This study will determine, in people with MS, if assistive device training improves functional mobility compared to the current standard of no device training. This study will also determine, in people with MS, if assistive device training reduces falls compared to the current standard of no device training. In addition, this study will determine whether assistive device training is associated with improved functional neural connectivity of the locomotor network.

Plan: We will randomly allocate people with MS who use an assistive device for ambulation to receive assistive device training or be wait listed. We will compare changes in functional mobility, falls and functional neural connectivity of the locomotor network between those who did and those who did not receive assistive device training.

Methods: 39 subjects with MS who use assistive devices for ambulation will be randomly assigned to assistive device training or to a wait list. Assistive device training will be 6 weekly sessions of individual training by a physical therapist to include device selection, use on level and unlevel surfaces and stairs, turning and use in small spaces, and use with auditory and visual distraction. Functional mobility will be assessed at baseline, at 6 weeks (at completion of the training) and 3 months later using the Timed Up and Go (TUG) test, the timed 25 foot walk, the 2-minute walk tests and MS Walking Scale-12. The TUG will serve as the primary outcome measure. Falls and fall-related injuries will be counted prospectively by all subjects using paper fall calendars throughout the programs and for the following 3 months. Functional neural connectivity of the locomotor network will be assessed at baseline and at 6 weeks using resting state functional MRI. Changes in all measures will be compared between those who received assistive device training and the wait list controls.

Relevance to VA's Mission: The VA provides care to 16,000 Veterans with MS per year, about 6,000 of whom are service connected for MS. Currently the VA spends \$274 million dollars per year treating Veterans with MS at an average cost per patient per year of \$19,875. Many of these veterans use assistive devices to address impairments in functional mobility and fall risk but continue to have impaired mobility and fall frequently. This research will determine if assistive device training improves functional mobility and prevents falls in Veterans with MS who use assistive devices and will provide insight into mechanisms underlying these functional changes.