COMBINATION OF ROBOT-ASSISTED AND CONVENTIONAL BODY-WEIGHT–SUPPORTED TREADMILL TRAINING IMPROVES GAIT IN PERSONS WITH MULTIPLE SCLEROSIS: A PILOT STUDY.

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ABSTRACT

BACKGROUND AND PURPOSE: The majority of persons with multiple sclerosis (MS) experience problems with gait, which they characterize as highly disabling impairments that adversely impact their quality of life. Thus, it is crucial to develop effective therapies to improve mobility for these individuals. The purpose of this study was to determine whether combination gait training, using robot-assisted treadmill training followed by conventional body-weight-supported treadmill training within the same session, improved gait and balance in individuals with MS.

METHODS: This study tested combination gait training in 7 persons with MS. The participants were randomized into the immediate therapy group (IT group) or the delayed therapy group (DT group). In phase I of the trial, the IT group received treatment while the DT group served as a concurrent comparison group. In phase II of the trial, the DT group received treatment identical to the treatment received by the IT group in phase I. Outcome measures included the 6-Minute Walk Test (6MWT), the Timed 25-Foot Walk Test, velocity, cadence, and the Functional Reach Test (FRT). Nonparametric statistical techniques were used for analysis.

RESULTS: Combination gait training resulted in significantly greater improvements in the 6MWT for the IT group (median change = +59 m) compared with Phase I DT group (median change = -8 m) (P = 0.08) and FRT (median change = +3.3 cm in IT vs -0.8 cm in the DT group phase I; P = 0.03). Significant overall pre-post improvements following combination gait training were found in 6MWT (+32 m; P = 0.02) and FRT (+3.3 cm; P = 0.06) for IT and Phase II DT groups combined.

CONCLUSIONS: Combination of robot with body-weight-supported treadmill training gait training is feasible and improved 6MWT and FRT distances in persons with MS. Video Abstract available (see Video, Supplemental Digital Content 1, http://links.lww.com/JNPT/A62) for more insights from the authors.

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