



Neuroprosthetic effect of peroneal nerve stimulation in multiple sclerosis: a preliminary study.

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Abstract

OBJECTIVE: To determine the neuroprosthetic effect of a peroneal nerve stimulator on tasks of functional ambulation in multiple sclerosis (MS).

DESIGN: A single point-in-time assessment of functional ambulation tasks under the conditions of no device and peroneal nerve stimulator.

SETTING: Outpatient academic medical center.

PARTICIPANTS: Participants (N=11) with diagnosis of MS (>6mo), dorsiflexion weakness, and prior usage of an ankle-foot orthosis.

INTERVENTION: Surface peroneal nerve stimulator for ambulation. **MAIN OUTCOME MEASURES:** Timed 25-foot Walk portion of the MS Functional Composite; Floor, Carpet, Up and Go, Obstacle, and Stair components of the Modified Emory Functional Ambulation Profile.

RESULTS: Peroneal nerve stimulator-Stair performance was significantly enhanced ($P=.05$) versus no device, and statistical significance was approached for peroneal nerve stimulator-Obstacles ($P=.09$) versus no device. There were no significant differences between peroneal nerve stimulator and no device conditions in the remaining outcome measures.

CONCLUSIONS: The neuroprosthetic effect of the peroneal nerve stimulator is modest relative to no device in the performance of specific functional tasks of ambulation in MS gait. A longitudinal, controlled trial is needed to show effectiveness.

[Arch Phys Med Rehabil](#). 2009 Feb;90(2):362-5.