



Is transcutaneous peroneal stimulation beneficial to patients with chronic stroke using an ankle-foot orthosis? A within-subjects study of patients' satisfaction, walking speed and physical activity level.

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Abstract

OBJECTIVE: The aim of this study was to evaluate whether community-dwelling chronic stroke patients wearing an ankle-foot orthosis would benefit from changing to functional electrical stimulation of the peroneal nerve.

METHODS: In 26 community-dwelling chronic (> 6 months post-onset) patients after stroke, their ankle-foot orthosis was replaced by a surface-based functional electrical stimulation device (NESS L300). Comfortable walking speed over 10 m was measured at baseline with the ankle-foot orthosis and after 2 and 8 weeks with both ankle-foot orthosis and functional electrical stimulation. The level of physical activity was assessed with a pedometer, and patients' satisfaction was assessed with a questionnaire at baseline and at week 8 regarding ankle-foot orthosis and functional electrical stimulation, respectively.

RESULTS: Ankle-foot orthosis and functional electrical stimulation were equally effective with regard to walking speed and activity level. The participants were more satisfied with functional electrical stimulation than with their ankle-foot orthosis regarding the effort and stability of walking, quality of the gait pattern, walking distance, comfort of wearing and appearance of the device.

CONCLUSION: The patients judged functional electrical stimulation superior to their ankle-foot orthosis, but measurements of walking speed and physical activity could not objectify the experienced benefits of functional electrical stimulation. Other outcome measures focusing on the stability and effort of ambulation may objectify the perceived benefits of functional electrical stimulation in community-dwelling chronic stroke patients.

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