Researchers find foot drop stimulator beneficial in stroke rehab

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Kessler Foundation scientists have published a study showing that use of a foot drop stimulator during a task-specific movement for 4 weeks can retrain the neuromuscular system. This finding indicates that applying the foot drop stimulator as rehabilitation intervention may facilitate recovery from this common complication of stroke. "EMG of the tibialis anterior demonstrates a training effect after utilization of a foot drop stimulator," was published online ahead of print on July 2 by *NeuroRehabilitation*. The authors are Rakesh Pilkar, PhD, Mathew Yarossi, MS, and Karen J. Nolan, PhD, of Human Performance & Engineering Research at Kessler Foundation.

Foot drop, a common sequela of hemiplegia caused by stroke, decreases mobility and limits activities of daily living. "Compensatory strategies have a negative effect on gait pattern," noted Dr. Nolan, research scientist. "While use of an ankle-foot orthosis can improve speed and function, it is not designed to restore muscle function. We looked at whether stimulation of the peroneal nerve during walking would retrain the temporal activation of the tibialis anterior muscle."

Four participants more than 3 months post right-sided stroke completed 10 walking trials (5 with and 5 without stimulator) at baseline and after 4 weeks of using a commercial device (WalkAide, Innovative Neurotronics, Austin TX). "We found a potential training effect in all participants. These results indicate that use of the stimulator may facilitate recovery of muscle function."

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