



## **A randomized trial to investigate the effects of functional electrical stimulation and therapeutic exercise on walking performance for people with multiple sclerosis**

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**Background** Functional electrical stimulation (FES), is a means of producing a contraction in a paralyzed or weak muscle to enable function through electrical excitation of the innervating nerve.

**Objective** This two-group randomized trial assessed the effects of single channel common peroneal nerve stimulation on objective aspects of gait relative to exercise therapy for people with secondary progressive multiple sclerosis (SPMS).  
**Methods** Forty-four people with a diagnosis of SPMS and unilateral dropped foot completed the trial. Twenty patients were randomly allocated to a group receiving FES and the remaining 24 to a group receiving a physiotherapy home exercise program for a period of 18 weeks.

**Results** The exercise group showed a statistically significant increase in 10 m walking speed and distance walked in 3 min, relative to the FES group who showed no significant change in walking performance without stimulation. At each stage of the trial, the FES group performed to a significantly higher level with FES than without for the same outcome measures.

**Conclusion** Exercise may provide a greater training effect on walking speed and endurance than FES for people with SPMS. FES may provide an orthotic benefit when outcome is measured using the same parameters. More research is required to investigate the combined therapeutic effects of FES and exercise for this patient group.

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Key words: dropped foot; exercise; functional electrical stimulation; gait; multiple sclerosis; Physiotherapy