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## Effects of a pulsed electromagnetic therapy on multiple sclerosis fatigue and quality of life: a double-blind, placebo controlled trial

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### Abstract

**Context:** There is a growing literature on the biological and clinical effects of pulsed electromagnetic fields. Some studies suggest that electromagnetic therapies may be useful in the treatment of chronic illnesses. This study is a follow-up to a placebo controlled pilot study in which multiple sclerosis (MS) patients exposed to weak, extremely low frequency pulsed electromagnetic fields showed significant improvements on a composite symptom measure.

**Objective:** To evaluate the effects of a pulsed electromagnetic therapy on MS related fatigue, spasticity, bladder control, and overall quality of life.

**Design:** A multi-site, double-blind, placebo controlled, crossover trial. Each subject received 4 weeks of the active and placebo treatments separated by a 2-week washout period.

**Setting:** The University of Washington Medical Center in Seattle Wash, the Neurology Center of Fairfax in Fairfax, Va, and the headquarters of the Multiple Sclerosis Association of America in Cherry Hill, NJ.

**Subjects:** 117 patients with clinically definite MS.

**Intervention:** Daily exposure to a small, portable pulsing electromagnetic field generator.

**Main outcome:** The MS Quality of Life Inventory (MSQLI) was used to assess changes in fatigue, bladder control, spasticity, and a quality of life composite.

**Results:** Paired t-tests were used to assess treatment differences in the 117 subjects (81% of the initial sample) who completed both treatment sessions. Improvements in fatigue and overall quality of life were significantly greater on the active device. There were no treatment effects for bladder control and a disability composite, and mixed results for spasticity.

**Conclusions:** Evidence from this randomized, double-blind, placebo controlled trial is consistent with results from smaller studies suggesting that exposure to pulsing, weak electromagnetic fields can alleviate symptoms of MS. The clinical effects were small, however, and need to be replicated.

Additional research is also needed to examine the possibility that ambulatory patients and patients taking interferons for their MS may be most responsive to this kind of treatment.

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