

**STATIC MAGNETIC FIELD THERAPY FOR SYMPTOMATIC DIABETIC NEUROPATHY:  
A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL**

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**Abstract**

Weintraub MI, Wolfe GI, Barohn RA, Cole SP, Parry GJ, Hayat G, Cohen JA, Page JC, Bromberg MB, Schwartz SL, and the Magnetic Research Group. Static magnetic field therapy for symptomatic diabetic neuropathy: a randomized, double-blind, placebo-controlled trial. 2003;84:736-46.

**Objective**

To determine if constant wearing of multipolar, static magnetic (450G) shoe insoles can reduce neuropathic pain and quality of life (QOL) scores in symptomatic diabetic peripheral neuropathy (DPN).

**Design**

Randomized, placebo-control, parallel study.

**Setting**

Forty-eight centers in 27 states.

**Participants**

Three hundred seventy-five subjects with DPN stage II or III were randomly assigned to wear constantly magnetized insoles for 4 months; the placebo group wore similar, unmagnetized device.

**Intervention**

Nerve conduction and/or quantified sensory testing were performed serially.

**Main Outcome Measures**

Daily visual analog scale scores for numbness or tingling and burning and QOL issues were tabulated over 4 months. Secondary measures included nerve conduction changes, role of placebo, and safety issues. Analysis of variance (ANOVA), analysis of covariance (ANCOVA), and chi-square analysis were performed.

**Results**

There were statistically significant reductions during the third and fourth months in burning (mean change for magnet treatment, -12%; for sham, -3%;  $P < .05$ , ANCOVA), numbness and tingling (magnet, -10%; sham, +1%;  $P < .05$ , ANCOVA), and exercise-induced foot pain (magnet, -12%; sham, -4%;  $P < .05$ , ANCOVA). For a subset of patients with baseline severe pain, statistically significant reductions occurred from baseline through the fourth month in numbness and tingling (magnet, -32%; sham, -14%;  $P < .01$ , ANOVA) and foot pain (magnet, -41%; sham, -21%;  $P < .01$ , ANOVA).

**Conclusions**

Static magnetic fields can penetrate up to 20mm and appear to target the ectopic firing nociceptors in the epidermis and dermis. Analgesic benefits were achieved over time.