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A randomized, double-blind, placebo-controlled clinical trial using a low-frequency magnetic field in the treatment of musculoskeletal chronic pain.

[Thomas AW](#), [Graham K](#), [Prato FS](#), [McKay J](#), [Forster PM](#), [Moulin DE](#), [Chari S](#).

Bioelectromagnetics, Imaging Program, Lawson Health Research Institute, Department of Medical Biophysics, Schulich School of Medicine and Dentistry, University of Western Ontario, London, Canada.

Exposure to a specific pulsed electromagnetic field (PEMF) has been shown to produce analgesic (antinociceptive) effects in many organisms. In a randomized, double-blind, sham-controlled clinical trial, patients with either chronic generalized pain from fibromyalgia (FM) or chronic localized musculoskeletal or inflammatory pain were exposed to a PEMF (400 microT) through a portable device fitted to their head during twice-daily 40 min treatments over seven days. The effect of this PEMF on pain reduction was recorded using a visual analogue scale. A differential effect of PEMF over sham treatment was noticed in patients with FM, which approached statistical significance ($P=0.06$) despite low numbers ($n=17$); this effect was not evident in those without FM ($P=0.93$; $n=15$). PEMF may be a novel, safe and effective therapeutic tool for use in at least certain subsets of patients with chronic, nonmalignant pain. Clearly, however, a larger randomized, double-blind clinical trial with just FM patients is warranted. PMID: 18080043 [PubMed - indexed for MEDLINE]

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Original Articles Low-frequency Pulsed Electromagnetic Field Therapy in Fibromyalgia: A Randomized, Double-blind, Sham-controlled Clinical Study

Sutbeyaz, Serap Tomruk MD; Sezer, Nebahat MD; Koseoglu, Fusun MD; Kibar, Sibel MD



Abstract

Objective: To evaluate the clinical effectiveness of low-frequency pulsed electromagnetic field (PEMF) therapy for women with fibromyalgia (FM).

Methods: Fifty-six women with FM, aged 18 to 60 years, were randomly assigned to either PEMF or sham therapy. Both the PEMF group (n=28) and the sham group (n=28) participated in therapy, 30 minutes per session, twice a day for 3 weeks. Treatment outcomes were assessed by the fibromyalgia Impact questionnaire (FIQ), visual analog scale (VAS), patient global assessment of response to therapy, Beck Depression Inventory (BDI), and Short-Form 36 health survey (SF-36), after treatment (at 4 wk) and follow-up (at 12 wk).

Results: The PEMF group showed significant improvements in FIQ, VAS pain, BDI score, and SF-36 scale in all domains at the end of therapy. These improvements in FIQ, VAS pain, and SF-36 pain score during follow-up. The sham group also showed improvement were maintained on all outcome measures except total FIQ scores after treatment. At 12 weeks follow-up, only improvements in the BDI and SF-36 scores were present in the sham group.

Conclusion: Low-frequency PEMF therapy might improve function, pain, fatigue, and global status in FM patients.

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Exposure to a specific pulsed low-frequency magnetic field: a double-blind placebo-controlled study of effects on pain ratings in rheumatoid arthritis and fibromyalgia patients.

[Shupak NM](#), [McKay JC](#), [Nielson WR](#), [Rollman GB](#), [Prato FS](#), [Thomas AW](#).

Lawson Health Research Institute, St. Joseph's Health Care, London, Ontario N6A 4V2.

BACKGROUND: Specific pulsed electromagnetic fields (PEMFs) have been shown to induce analgesia (antinociception) in snails, rodents and healthy human volunteers. **OBJECTIVE:** The effect of specific PEMF exposure on pain and anxiety ratings was investigated in two patient populations. **DESIGN:** A double-blind, randomized, placebo-controlled parallel design was used. **METHOD:** The present study investigated the

effects of an acute 30 min magnetic field exposure (less than or equal to 400 microTpk; less than 3 kHz) on pain (McGill Pain Questionnaire [MPQ], visual analogue scale [VAS]) and anxiety (VAS) ratings in female rheumatoid arthritis (RA) (n=13; mean age 52 years) and fibromyalgia (FM) patients (n=18; mean age 51 years) who received either the PEMF or sham exposure treatment. RESULTS: A repeated measures analysis revealed a significant pre-post-testing by condition interaction for the MPQ Pain Rating Index total for the RA patients, $F(1,11)=5.09$, $P<0.05$, estimate of effect size = 0.32, power = 0.54. A significant pre-post-effect for the same variable was present for the FM patients, $F(1,15)=16.2$, $P<0.01$, estimate of effect size = 0.52, power =0.96. Similar findings were found for MPQ subcomponents and the VAS (pain). There was no significant reduction in VAS anxiety ratings pre- to post-exposure for either the RA or FM patients. CONCLUSION: These findings provide some initial support for the use of PEMF exposure in reducing pain in chronic pain populations and warrants continued investigation into the use of PEMF exposure for short-term pain relief.

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