

## PEMF for Joint diseases

[Panminerva Med.](#) 1992 Oct-Dec;34(4):187-96.

### **Therapeutic effects of pulsed magnetic fields on joint diseases.**

[Riva Sanseverino E](#), [Vannini A](#), [Castellacci P](#).

#### **Source**

Università di Bologna, Italy.

#### **Abstract**

The present paper describes the effects of pulsed magnetic fields (MF) on diseases of different joints, in chronic as well as acute conditions where the presence of a phlogistic process is the rule. Optimal parameters for MF applications were sought at the beginning of the study and then applied for 11 years; a technical modification in the MF generator was introduced 5 years ago to satisfy the requirement of a hypothesis advanced to understand the mechanism of MF treatment. 3,014 patients were treated by means of MF at extremely low frequencies and intensities. Patient follow-up was pursued as constantly as possible. Pain removal, recovery of joint mobility and maintenance of the improved conditions represented the parameters for judging the results as good or poor. The chi-square test was applied in order to evaluate the probability that the results are not casual. A general average value of 78.8% of good results and 21.2% of poor results was obtained. Higher (82%) percentages of good results were observed when single joint diseases were considered with respect to multiple joint diseases (polyarthrosis); in the latter, the percentage of good results was definitely lower (66%). The high percentage of good results obtained and the absolute absence of both negative results and undesired side-effects, together with the therapeutic advantage due to a technical modification in the MF generator, led to the conclusion that magnetic field treatment is an excellent physical therapy in cases of joint diseases. A hypothesis is advanced that external magnetic fields influence transmembrane ionic activity.

[PubMed - indexed for MEDLINE]

[Wien Klin Wochenschr.](#) 2002 Aug 30;114(15-16):678-84.

### **Pulsed magnetic field therapy for osteoarthritis of the knee--a double-blind sham-controlled trial.**

[Nicolakis P](#), [Kollmitzer J](#), [Crevenna R](#), [Bittner C](#), [Erdogmus CB](#), [Nicolakis J](#).

#### **Source**

Department of Physical Medicine and Rehabilitation, AKH Wien, University of Vienna, Vienna, Austria. Peter.nicolakis@akh-wien.ac.at

#### **Abstract**

##### **BACKGROUND AND METHODS:**

Pulsed magnetic field therapy is frequently used to treat the symptoms of osteoarthritis, although its efficacy has not been proven. We conducted a randomized, double-blind comparison of pulsed magnetic field and sham therapy in patients with symptomatic osteoarthritis of the knee. Patients were assigned to receive 84 sessions, each with a duration of 30 minutes, of

either pulsed magnetic field or sham treatment. Patients administered the treatment on their own at home, twice a day for six weeks.

#### **RESULTS:**

According to a sample size estimation, 36 consecutive patients were enrolled. 34 patients completed the study, two of whom had to be excluded from the statistical analysis, as they had not applied the PMF sufficiently. Thus, 15 verum and 17 sham-treated patients were enrolled in the statistical analysis. After six weeks of treatment the WOMAC Osteoarthritis Index was reduced in the pulsed magnetic field-group from 84.1 (+/- 45.1) to 49.7 (+/- 31.6), and from 73.7 (+/- 43.3) to 66.9 (+/- 52.9) in the sham-treated group ( $p = 0.03$ ). The following secondary parameters improved in the pulsed magnetic field group more than they did in the sham group: gait speed at fast walking [+6.0 meters per minute (1.6 to 10.4) vs. -3.2 (-8.5 to 2.2)], stride length at fast walking [+6.9 cm (0.2 to 13.7) vs. -2.9 (-8.8 to 2.9)], and acceleration time in the isokinetic dynamometry strength tests [-7.0% (-15.2 to 1.3) vs. 10.1% (-0.3 to 20.6)].

#### **CONCLUSION:**

In patients with symptomatic osteoarthritis of the knee, PMF treatment can reduce impairment in activities of daily life and improve knee function.

#### **Comment in**

- [Wien Klin Wochenschr. 2002 Nov 30;114\(21-22\):953; author reply 953.](#)  
[PubMed - indexed for MEDLINE]

[Indian J Exp Biol. 2009 Dec;47\(12\):939-48.](#)

## **Low frequency pulsed electromagnetic field--a viable alternative therapy for arthritis.**

[Ganesan K](#), [Gengadharan AC](#), [Balachandran C](#), [Manohar BM](#), [Puvanakrishnan R](#).

#### **Source**

Department of Biotechnology, Central Leather Research Institute, Adyar, Chennai 600 020, India.

#### **Abstract**

Arthritis refers to more than 100 disorders of the musculoskeletal system. The existing pharmacological interventions for arthritis offer only symptomatic relief and they are not definitive and curative. Magnetic healing has been known from antiquity and it is evolved to the present times with the advent of electromagnetism. The original basis for the trial of this form of therapy is the interaction between the biological systems with the natural magnetic fields. Optimization of the physical window comprising the electromagnetic field generator and signal properties (frequency, intensity, duration, waveform) with the biological window, inclusive of the experimental model, age and stimulus has helped in achieving consistent beneficial results. Low frequency pulsed electromagnetic field (PEMF) can provide noninvasive, safe and easy to apply method to treat pain, inflammation and dysfunctions associated with rheumatoid arthritis (RA) and osteoarthritis (OA) and PEMF has a long term record of safety. This review focusses on the therapeutic application of PEMF in the treatment of these forms of arthritis. The analysis of various studies (animal models of arthritis, cell culture systems and clinical trials) reporting the use of PEMF for arthritis cure has conclusively shown that PEMF not only alleviates the pain in the arthritis

condition but it also affords chondroprotection, exerts antiinflammatory action and helps in bone remodeling and this could be developed as a viable alternative for arthritis therapy.

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