

A Novel Pulsed Electromagnetic Field Device as Adjuvant Therapy after Surgical Treatment of Distal Radius Fractures: A Prospective, Double-Blind, Sham-Controlled, Randomized Pilot Study

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INTRODUCTION: This study aimed to determine whether the application of a novel pulsed electromagnetic fields (PEMF) generating device, the Fracture Healing Patch (FHP), immediately after open reduction and internal fixation (ORIF), results in faster healing of acute distal radius fractures (DRF), when compared to a sham treatment.

METHODS: Thirty-two patients with DRFs treated with ORIF were included. Patients were allocated to a PEMF group ($n = 15$) or a control (sham) group ($n = 17$). All patients were assessed with regard to functional (patient-rated wrist evaluation (PRWE) and SF12) and radiological outcomes (X-rays and CT scans) at 2, 4, 6, and 12 weeks postoperatively.

RESULTS: Patients treated with active PEMF demonstrated significantly higher extent of union at 4 weeks as assessed by CT (70% vs. 54%, $p = .05$). A function subscale of the PRWE was significantly better in PEMF treated group at 6 weeks after surgery (27.2 vs. 35.5, $p = .04$). No statistically significant differences were found in SF12.

DISCUSSION AND CONCLUSION: PEMF application after ORIF of DRFs is safe and may accelerate bone healing which could lead to an earlier return to daily life activities and work.

