

# Pulsed Electromagnetic Fields for Postsurgical Pain Management in Women Undergoing Cesarean Section: A Randomized, Double-Blind, Placebo-controlled Trial

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## Abstract

**Objectives:** To evaluate the efficacy of pulsed electromagnetic field (PEMF) in relation to reducing postoperative pain, analgesic use, and wound healing in patients undergoing Cesarean section (C-section).

**Methods:** This randomized, double-blind, placebo-controlled trial evaluated 72 women who underwent elective C-section. Thirty-six patients were assigned to the active-PEMF and 36 to the sham-PEMF groups. The participants were asked to report their pain intensity on a Visual Analog Scale (VAS) at 2, 4, 6, 12, and 24 hours and 2, 4, and 7 days after surgery. The amount of analgesics used was recorded. The surgical site was evaluated to assess the wound-healing process on the seventh postoperative day.

**Results:** Postoperative pain VAS scores were significantly lower in the active-PEMF group in all the measured periods within the early and the late postoperative periods.

Fewer women in the active-PEMF group experienced severe postoperative pain within 24 hours postoperatively (36% vs. 72%,  $P=0.002$ ). Analgesic use during the first 24 hours after C-section was 1.9-times lower in the active-PEMF group ( $1.6\pm0.7$  vs.  $3.1\pm1.2$ ,  $P<0.001$ ). The total analgesic use during the seventh postoperative days was 2.1-times lower in the active-PEMF group than in the sham group ( $1.7\pm0.7$  vs.  $3.7\pm1.1$ ,  $P<0.001$ ). Seven days postoperatively, patients in the active-PEMF group had better wound healing with no exudate, erythema, or edema ( $P=0.02$ ).

**Conclusions:** PEMF treatment after C-section decreases postsurgical pain, analgesic use, and surgical wound exudate and edema significantly, and is associated with a high level of patient satisfaction.