

# Medical PEMF Studies

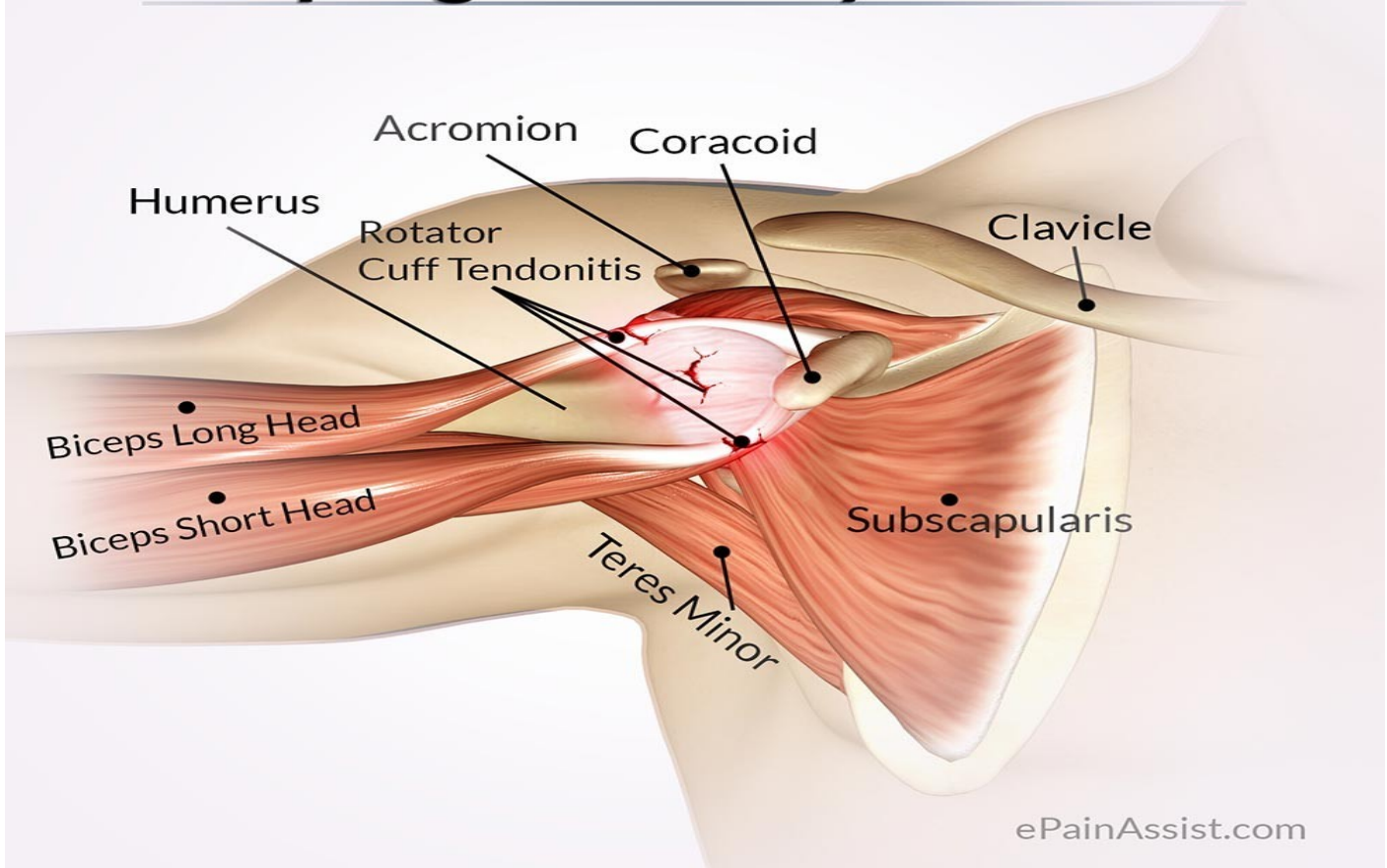


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## PAIN

**Pulsed electromagnetic field and exercises in patients with shoulder impingement syndrome: a randomized, double-blind, placebo-controlled clinical trial.**

### Impingement Syndrome



1. Arch Phys Med Rehabil. 2014 Feb;95(2):345-52. doi: 10.1016/j.apmr.2013.09.022. Epub 2013 Oct 15.

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**OBJECTIVE:** To evaluate the effects of pulsed electromagnetic field (PEMF) and exercises in reducing pain and improving function and muscle strength in patients with shoulder impingement syndrome (SIS).

**DESIGN:** Double-blind, randomized controlled trial with a 3-month posttreatment follow-up.

**SETTING:** Outpatient rehabilitation of a public hospital.

**PARTICIPANTS:** Patients (N=56) between 40 and 60 years of age, with a diagnosis of SIS, were randomly assigned to receive active PEMF (n=26; mean age, 50.1y) or placebo PEMF (n=30; mean age, 50.8y).

**INTERVENTIONS:** After 3 weeks of active or placebo PEMF, both groups performed the same program of exercises that focused on shoulder strengthening.

**MAIN OUTCOME MEASURES:** A visual analog scale, the University of California/Los Angeles shoulder rating scale, the Constant-Murley shoulder score, and handheld dynamometry for muscle strength were used as outcome measures at baseline (pretreatment), at 3 weeks (after active or placebo PEMF), at 9 weeks (postexercise), and at 3 months posttreatment.

**RESULTS:** Patients in the active PEMF group had a higher level of function and less pain at all follow-up time frames compared with baseline ( $P<.05$ ). However, the placebo PEMF group had increased function and reduced pain only at the 9-week and 3-month follow-ups ( $P<.05$ )-that is, after performing the associated exercises. For the shoulder dynamometry, the active PEMF group had increased strength for lateral rotation at 9 weeks ( $P<.05$ ), and increased strength for medial rotation at 9 weeks and 3 months (both  $P<.05$ ) when compared with baseline. There was no significant difference for shoulder strength in the placebo PEMF group ( $P>.05$ ), as well as no significant differences ( $P>.05$ ) for all outcome measures.

**CONCLUSIONS:** The combination of PEMF and shoulder exercises is effective in improving function and muscle strength and decreasing pain in patients with SIS. However, these results should be carefully interpreted because of the lack of differences between groups.

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