

## Is Acupuncture Effective for Arthritis of the Knee?

Berman BM, Lao L, Langenberg P, et al. Effectiveness of acupuncture as adjunctive therapy in osteoarthritis of the knee: a randomized, controlled trial. *Ann Intern Med* 2004;141:901–10.

### Study Overview

**Objective.** To determine whether acupuncture provides greater pain relief and improved function compared with sham acupuncture or education in patients with osteoarthritis of the knee.

**Design.** 3-armed, randomized controlled trial.

**Setting and participants.** 570 patients with knee osteoarthritis seen at either an integrative medicine facility or a rheumatology facility, both located in academic teaching hospitals and a clinical trials facility.

**Intervention.** Participants were randomly assigned to receive 1 of 3 treatments: 23 true acupuncture sessions over 26 weeks, 6 two-hour educational sessions over 12 weeks (control), or 23 sham acupuncture sessions over 26 weeks (control).

**Main outcome measures.** Changes in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain and function scores at 8 and 26 weeks. Secondary outcomes were patient global assessment, 6-minute walk distance, and physical health scores on the SF-36 health survey.

**Main results.** Participants in the true acupuncture group experienced greater improvement in WOMAC function scores than the sham acupuncture group at 8 weeks (mean difference,  $-2.9$  [95% confidence interval {CI},  $-5.0$  to  $-0.8$ ];  $P = 0.01$ ) but not in WOMAC pain score (mean difference,  $-0.5$  [95% CI,  $-1.2$  to  $0.2$ ];  $P = 0.18$ ). At 26 weeks, the true acupuncture group experienced significantly greater improvement than the sham group in WOMAC function score (mean difference,  $-2.5$  [95% CI,  $-4.7$  to  $-0.4$ ];  $P = 0.01$ ) and WOMAC pain score (mean difference,  $-0.87$  [95% CI,  $-1.58$  to  $-0.16$ ];  $P = 0.003$ ). The secondary outcome of patient global assessment showed no statistically significant change at 8 weeks for the true acupuncture group (mean difference,  $0.16$  [95% CI,  $-0.02$  to  $0.34$ ];  $P > 0.2$ ) but did show a difference at 26 weeks (mean difference,  $0.26$  [95% CI,  $0.07$ – $0.45$ ];  $P = 0.02$ ). There were no differences between groups in the outcomes of 6-minute walk distance and the physical health scores on the SF-36.

**Conclusion.** Acupuncture seems to provide improvement in function and pain relief as an adjunctive therapy for knee osteoarthritis when compared with credible sham acupuncture and education control groups.

### Commentary

The term “acupuncture” describes a family of procedures involving stimulation of anatomical points on the body by a variety of techniques. The acupuncture technique that has been most studied scientifically involves penetrating the skin with thin, solid, metallic needles that are manipulated by the hands or by electrical stimulation [1]. Acupuncture is one of most commonly used medical procedures in the world. According to the 2002 National Health Interview Survey, an estimated 8.2 million U.S. adults had ever used acupuncture, and an estimated 2.1 million U.S. adults had used acupuncture in the previous year.

The article by Berman and colleagues sought to determine if there is a difference in knee pain and function between those who receive true acupuncture, those who receive sham acupuncture, and those who receive education. Multiple concerns and limitations have been raised about this trial [2]. First, although the treatment effect may have been statistically significant, the clinical significance in a 1-point difference in WOMAC pain score between true acupuncture and sham acupuncture groups is questionable. Second, an important limitation of this study is the loss of many of the patients. After approximately 190 patients were randomized into each group, 50 were withdrawn from the true acupuncture group, 52 from the sham acupuncture group, and 99 from the educational control group. The authors note that they present results from the analysis that used all available data, including data from those patients who were withdrawn from the study. Therefore, intention-to-treat analysis was not strictly adhered to in the final analysis. Finally, true blinding did not exist. The acupuncturist will always know whether sham or real treatment is applied, leading to potential differences in nonverbal behavior that may influence patient outcome. It can also be argued that many of the participants also knew which arm they had been randomized to, as the patients who had sham treat-

ment may have been unmasked when they did not experience the needle sensation.

### **Applications for Clinical Practice**

An extended course of acupuncture seems to offer some improvements in pain and function for patients with knee osteoarthritis; however, there was considerable patient attrition that occurred over the 6-month study in all groups. More data are necessary before this procedure can be recom-

mended to patients as an evidenced-based therapy.

*—Review by Christianne L. Roumie, MD, MPH*

### **References**

1. National Center for Complimentary and Alternative Medicine. Get the facts: acupuncture. Available at [nccam.nih.gov/health/acupuncture/#acupuncture](http://nccam.nih.gov/health/acupuncture/#acupuncture). Accessed 3 Jan 2005.
2. Baker RH. Rapid response: methodological issues. Available at [www.annals.org/cgi/eletters/141/12/901](http://www.annals.org/cgi/eletters/141/12/901). Accessed 3 Jan 2005.

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