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NCCAM National Center for Complementary and Alternative Medicine

Acupuncture Relieves Pain and Improves Function in Knee Osteoarthritis

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Acupuncture provides pain relief and improves function for people with osteoarthritis of the knee and serves as an effective complement to standard care. This landmark study was funded by the National Center for Complementary and Alternative Medicine (NCCAM) and the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), both components of the National Institutes of Health. The findings of the study—the longest and largest randomized, controlled phase III clinical trial of acupuncture ever conducted—were published in the December 21, 2004, issue of the *Annals of Internal Medicine*.[1]

The multi-site study team, including rheumatologists and licensed acupuncturists, enrolled 570 patients, aged 50 or older with osteoarthritis of the knee. Participants had significant pain in their knee the month before joining the study, but had never experienced acupuncture, had not had knee surgery in the previous 6 months, and had not used steroid or similar injections. Participants were randomly assigned to receive one of three treatments: acupuncture, sham acupuncture, or participation in a control group that followed the Arthritis Foundation's self-help course for managing their condition. Patients continued to receive standard medical care from their primary physicians, including anti-inflammatory medications, such as COX-2 selective inhibitors, non-steroidal anti-inflammatory drugs, and opioid pain relievers.

"For the first time, a clinical trial with sufficient rigor, size, and duration has shown that acupuncture reduces the pain and functional impairment of osteoarthritis of the knee," said Stephen E. Straus, M.D., NCCAM Director. "These results also indicate that acupuncture can serve as an effective addition to a standard regimen of care and improve quality of life for knee osteoarthritis sufferers. NCCAM has been building a portfolio of basic and clinical research that is now revealing the power and promise of applying stringent research methods to ancient practices like acupuncture."

"More than 20 million Americans have osteoarthritis. This disease is one of the most frequent causes of physical disability among adults," said Stephen I. Katz, M.D., Ph.D., NIAMS Director. "Thus, seeking an effective means of decreasing osteoarthritis pain and increasing function is of critical importance."

During the course of the study, led by Brian M. Berman, M.D., Director of the Center for Integrative Medicine and Professor of Family Medicine at the University of Maryland School of Medicine, Baltimore, Maryland, 190 patients received true acupuncture and 191 patients received sham acupuncture for 24 treatment sessions over 26 weeks. Sham acupuncture is a procedure designed to prevent patients from being able to detect if needles are actually inserted at treatment points. In both the sham and true acupuncture procedures, a screen prevented patients from seeing the knee treatment area and learning which treatment they received. In the education control group, 189 participants attended six, 2-hour group sessions over 12 weeks based on the Arthritis Foundation's Arthritis Self-Help Course, a proven, effective model.

On joining the study, patients' pain and knee function were assessed using standard arthritis research survey instruments and measurement tools, such as the Western Ontario McMasters Osteoarthritis Index (WOMAC). Patients' progress was assessed at 4, 8, 14, and 26 weeks. By week 8, participants receiving acupuncture were showing a significant increase in function and by week 14 a significant decrease in pain, compared with the sham and control groups. These results, shown by declining scores on the WOMAC index, held through week 26. Overall, those who received acupuncture had a 40 percent decrease in pain and a nearly 40 percent improvement in function compared to baseline assessments.

"This trial, which builds upon our previous NCCAM-funded research, establishes that acupuncture is an effective complement to conventional arthritis treatment and can be successfully employed as part of a multidisciplinary approach to treating the symptoms of osteoarthritis," said Dr. Berman.

Acupuncture—the practice of inserting thin needles into specific body points to improve health and well-being—originated in China more than 2,000 years ago. In 2002, acupuncture was used by an estimated 2.1 million U.S. adults, according to the Centers for Disease Control and Prevention's 2002 National Health Interview Survey.[2] 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. In recent years, scientific inquiry has begun to shed more light on acupuncture's possible mechanisms and potential benefits, especially in treating painful conditions such as arthritis.

[1]Berman BM, Lao L, Langenberg P, Lee WL, Gilpin AMK, Hochberg MC. Effectiveness of Acupuncture as Adjunctive Therapy in Osteoarthritis of the Knee: A Randomized, Controlled Trial. *Annals of Internal Medicine*. 2004; 141(12):901–910.

[2]Barnes P, Powell-Griner E, McFann K, Nahin R. *CDC Advance Data Report #343*. Complementary and Alternative Medicine Use Among Adults: United States, 2002. May 27, 2004.

The National Center for Complementary and Alternative Medicine (NCCAM) is dedicated to exploring complementary and alternative medical (CAM) practices in the context of rigorous science, training CAM researchers, and disseminating authoritative information to the public and professionals. For additional information, call NCCAM's Clearinghouse toll free at 1-888-644-6226, or visit the NCCAM Web site at nccam.nih.gov.

The mission of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) is to support research into the causes, treatment, and prevention of arthritis and musculoskeletal and skin diseases, the training of basic and clinical scientists to carry out this research, and the dissemination of information on research progress in these diseases. For additional information, call NIAMS's Clearinghouse toll free at 1-877-22-NIAMS, or visit the NIAMS Web site at www.niams.nih.gov.