

# Acupuncture Improves Knee OA in Phase III Study

BY NANCY WALSH  
New York Bureau

SAN ANTONIO — Acupuncture has shown itself to be an effective adjunct in the treatment of osteoarthritis of the knee in a large phase III study funded by the National Center for Complementary and Alternative Medicine.

In a randomized clinical trial that compared traditional Chinese acupuncture with sham acupuncture or an educational program, statistically significant improvements were seen in pain and function with true acupuncture, Marc C. Hochberg, M.D., said at the annual meeting of the American College of Rheumatology.

The study included 570 patients with symptomatic knee osteoarthritis (OA), defined as moderate to severe pain on a 5-point Likert scale despite therapy with analgesics and anti-inflammatory agents.

The mean age of the patients was 65.5 years, 69% were white, and 64% were women.

True acupuncture intervention consisted of insertion of needles at 5 local points

and 4 points distal to the knee, said Dr. Hochberg, professor of medicine, University of Maryland, Baltimore. The acupuncture points were determined according to the precepts of traditional Chinese medicine, which classifies all types of arthritis as "Bi syndrome."

Additionally, low frequency electrical stimulation was applied at a single point in the infrapatellar area.

Patients received acupuncture treatments twice a week for 8 weeks, then weekly for 2 weeks, every other week for 4 weeks, and monthly for 3 months, for a total of 25 treatments over 26 weeks.

The validated sham acupuncture intervention consisted of the tapping of needles, without insertion, at the same acupuncture points, insertion of needles at 2 nonacupuncture points on the abdomen, and a mock TENS unit was applied to the infrapatellar point.

Patients randomized to the education group underwent the Arthritis Self-Help course attending 2 hours of classes weekly for 12 weeks and had monthly telephone calls for the duration of the study.

The primary outcome measures were the pain and function subscales of the Western Ontario and McMaster Universities (WOMAC) OA index. Ranges for the pain subscale are 0-20, while those for the function subscale are 0-68.

By week 26 significant differences in pain and function were seen for the true acupuncture group compared to the sham acupuncture group. (See box.)

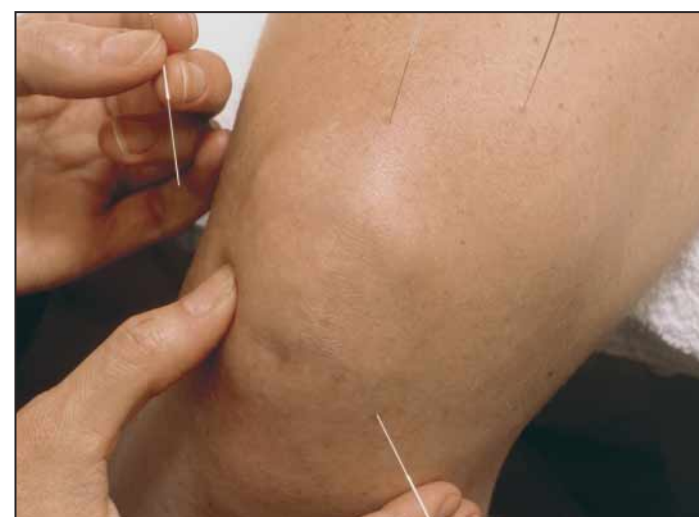
On secondary outcome measures, statistically significant differences were seen on patient global assessment between the true and sham acupuncture groups, though not on the SF-36 subscale or the 6-minute walk test, he said.

"The effect size is rather small, at about .25," Dr. Hochberg said. This is similar to that reported for intra-articular injections of hyaluronic acid (JAMA 2003; 290:3115-21).

Adverse events were uncommon and did not differ by treatment group. No adverse events were attributed to acupuncture.

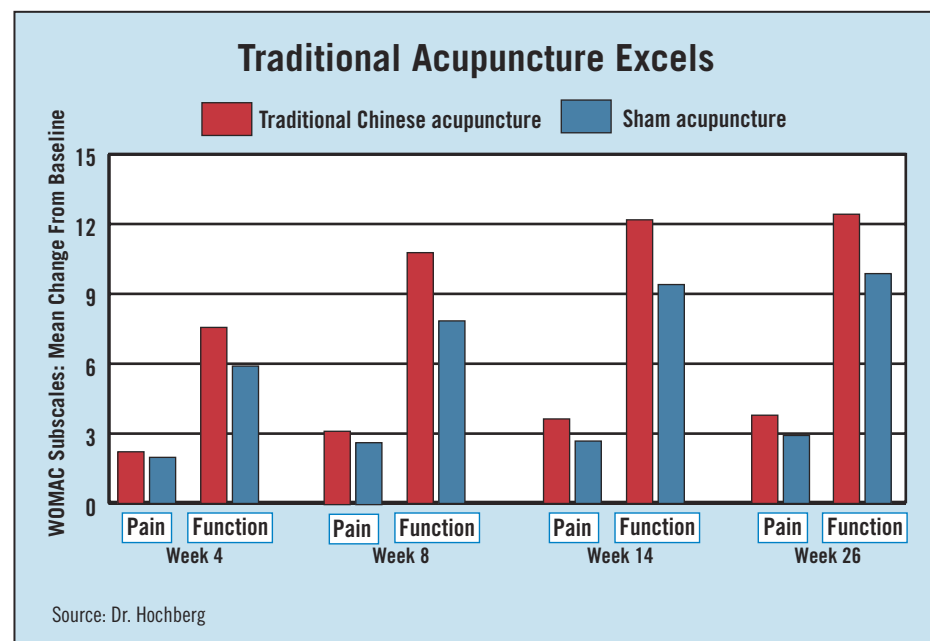
This "is clearly the most definitive study to date looking at acupuncture for arthritis and it supports the suggestion from previous, smaller and less well-designed trials that acupuncture can have adjunctive benefit in the management of osteoarthritis pain," Sharon Kolasinski, M.D., noted in an interview.

"Certainly, this study strengthens the argument that it is reasonable to consider acupuncture among the adjunctive therapies available to us for management of osteoarthritis pain," said Dr. Kolasinski, chief



Acupuncture significantly improved pain and function over the sham procedure in the most definitive study to date.

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## Strengthening Hip Muscle May Benefit Knee OA Patients

BY PATRICE WENDLING  
Chicago Bureau

CHICAGO — Strengthening the hip abductor muscle may delay progression of medial compartment knee osteoarthritis, according to findings reported at the 2004 World Congress on Osteoarthritis.

The study showed that a greater internal hip abduction moment—or torque generated by the body during walking—protected against medial tibiofemoral osteoarthritis (OA) progression in the ensuing 18 months in patients with knee OA.

Frontal knee mechanics have received most of the attention in knee OA studies. But such studies don't address the issue of stability since few knee muscles specifically provide frontal plane stability, said Alison Chang, a physical therapist at Northwestern University, Chicago.

Instead, hip frontal plane muscles may play a key role in regulating knee load and

providing such stability. In addition, "hip muscles have greater cross-sectional area, and can probably generate greater forces or torques," Ms. Chang explained at the congress, sponsored by the Osteoarthritis Research Society International.

The investigators hypothesized that a decrease in hip abductor muscle torque during walking would lead to an increase in medial tibiofemoral joint loading, and thereby to medial OA progression.

The idea is that during level walking the hip abductor muscles of the stance leg contract to control the slight lowering of the contralateral pelvis. Weakness of the hip abductor muscles in the stance leg may cause an additional drop in the contralateral swing leg. Such a drop would shift the body's center of gravity toward the swing limb, thereby increasing forces across the medial tibiofemoral compartment cartilage of the stance knee, and potentially increasing OA progression.

In the study, conducted in collaboration with Rush University Medical Center in Chicago, 64 patients with mild to moderate OA were evaluated using a motion-capturing system to determine kinematics and kinetic gait parameters at baseline and at 18 months. Inverse dynamics were used to calculate three-dimensional moments at the hip, knee, and ankle joints.

Pain was evaluated using a visual analog scale for each knee. Disease progression was defined as worsening of medial joint space narrowing.

The mean peak internal hip moment was calculated by finding the peak internal hip abduction moments during several gait cycles for each individual and then computing the mean. From these figures, the investigators were able to estimate peak hip abductor muscles activity during the gait cycle.

The mean age of the patients was 66 years, 63% were women, mean body mass

index (BMI) was 29, and the mean peak internal hip abduction moment was 4.19% of body weight multiplied by height.

Logistic regression analysis showed that a greater internal hip abduction moment during walking was significantly associated with a reduced likelihood of medial tibiofemoral OA progression at 18 months (odds ratio of 0.63).

This strong protective effect remained after adjustment for age, gender, gait speed, physical activity level, knee pain severity, and knee OA severity (OR 0.52). Further adjustment for ipsilateral hip OA and hip symptoms did not change the odds ratio.

The odds of OA progression were reduced by 50% per additional unit of internal hip abduction moment.

"The results suggest the need for interventional strategies to increase internal hip abduction moments such as hip abductor muscle strengthening in both static and dynamic positions," Ms. Chang said.