

Newswise — Tai chi is effective in the treatment of pain and physical impairment in people with severe knee osteoarthritis, according to research presented this week at the American College of Rheumatology Annual Scientific Meeting in San Francisco, Calif.

Osteoarthritis, or OA as it is commonly called, is the most common joint disease affecting middle-age and older people. It is characterized by progressive damage to the joint cartilage—the slippery material at the end of long bones—and causes changes in the structures around the joint. These changes can include fluid accumulation, bony overgrowth, and loosening and weakness of muscles and tendons, all of which may limit movement and cause pain and swelling.

Osteoarthritis in the knee and hip areas can generate chronic pain or discomfort during standing or walking. According to the Centers for Disease Control, knee OA affects 240 people out of every 100,000 people per year.

Tai chi is an ancient Chinese exercise that uses an integrated mind-body approach to enhance muscle function, balance, and flexibility and has been known to reduce pain, depression and anxiety in those who practice the exercise.

Researchers set out to determine if tai chi could successfully treat the physical and mental effects of severe knee OA. A total of 40 patients were randomly chosen to participate in the study. On average they were 65 years old and moderately overweight, and had knee OA for approximately 10 years; 75 percent of the patients were female and 70 percent were Caucasian.

Participants were introduced to either tai chi (10 modified forms from the classical Yang style) or to conventional stretching and wellness education. Each group received the intervention twice-weekly for 60 minutes over the course of 12 weeks. Patients were evaluated with a self assessment questionnaire (WOMAC) that evaluates pain, stiffness and physical function in hips and knees at the beginning and end of the study.

Additionally, researchers studied WOMAC function, patient and physician global assessments, timed chair stand, balance tests, knee proprioception, depression, self-efficacy, and health-related quality of life. These assessments were also done at weeks 24 and 48 to determine how lasting each intervention was for the participants.

Attendance for the 12-week interventions was 85 percent in the tai chi

group and 89 percent in the stretching and wellness group. Participants who took part in tai chi exhibited significantly greater improvements in pain, physical function, depression, self-effectiveness and health status. Patients who continued participating in tai chi after the 12-week intervention also reported long-lasting benefits in WOMAC pain and function.

These results lead investigators to believe that tai chi is effective in the treatment of the pain and physical impairments in people with severe knee OA. Chenchen Wang MD, MSc; Tufts Medical Center, Division of Rheumatology, and lead investigator in the study explains, “Tai chi mind-body exercise appears to provide an important approach for self-care and self-management for knee OA; however, these results should be confirmed by future large studies.”

Patients should consult their rheumatologists before beginning this, or any, exercise program.

The ACR is an organization of and for physicians, health professionals, and scientists that advances rheumatology through programs of education, research, advocacy and practice support that foster excellence in the care of people with or at risk for arthritis and rheumatic and musculoskeletal diseases. For more information on the ACR’s annual meeting, see www.rheumatology.org/annual.

Editor’s Notes: Dr. Wang will present this research during the ACR Annual Scientific Meeting at the Moscone Center from 11:30 – 11:45 AM on Sunday, October 26, in Hall C. Dr. Wang will be available for media questions and briefing at 1:30 PM on Sunday, October 26 in the on-site press conference room, 114.

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Tai Chi is Effective in Treating Knee Osteoarthritis: A Randomized Controlled Trial

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Purpose: Knee osteoarthritis (KOA) is a major cause of pain and functional impairment among elders and has no medical remedy. The basis of KOA is multifaceted and includes impaired muscle function, reduced proprioceptive acuity, and the psychological traits of chronic pain. Tai Chi is an ancient Chinese exercise that uses an integrated mind-body approach to enhance muscle function, balance, flexibility, and reduce pain, depression and anxiety. Tai Chi may thus be especially suited to the therapy of KOA.

Methods: We used a random number list to randomize 40 eligible individuals (age > 55 yr, BMI \leq 40 kg/m² with knee pain on most days of the previous month and tibiofemoral OA K/L grade \geq 2) to Tai Chi (10 modified forms from classical Yang style) or an attention control (stretching and wellness education). The 60-minute intervention occurred twice-weekly for 12 weeks. The primary endpoint was change in the WOMAC pain score at 12 weeks. Secondary endpoints included WOMAC function, patient and physician global assessments (VAS), timed chair stand, balance tests, knee proprioception (Biometrics electrogoniometer), depression (CES-D index), self-efficacy, and health-related quality of life (SF-36). We repeated these assessments at 24 and 48 weeks to test durability of response. The Tai Chi and control groups were compared by intention-to-treat using t-tests.

Results: The participants had mean age 65y (SD 7.8), mean disease duration 10y (SD 7.6), mean BMI 30.0 kg/m² (SD 4.8), and median K/L grade 4; 75% were female, 70% were white. There were no significant differences at baseline in demographics, radiographic score, and outcome measures. Participants' baseline expectations of benefit from exercise intervention were also similar between the two groups [outcome expectations for exercise score for Tai Chi =4.1 (SD 0.6), controls =4.3 (SD 0.4)]. Attendance for the 12-week assessment was 85% in the Tai Chi group and 89% in the attention control. Participants in the Tai Chi arm exhibited significantly greater improvements in pain, physical function, depression, self-efficacy and health status (Table). Patients who continued Tai Chi practice after 12 weeks reported durable benefits in WOMAC pain [between-group difference -150.2 (SD 116.6), p=0.04 at week 24 and -185.3 (SD 54.1), p=0.001 at week 48] and WOMAC function [between-group difference -572.7 (SD 257.8), p=0.02 at week 48].

Conclusion: Tai Chi is efficacious for treatment of pain and physical impairment in people with severe KOA. Further studies should be performed to replicate these results and deepen our understanding of this therapeutic modality. [Table included with press release and full abstract

at www.rheumatology.org.]

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