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## Effects of Tai Chi Exercise on Pain, Balance, Muscle Strength, and Perceived Difficulties in Physical Functioning in Older Women with Osteoarthritis: A Randomized Clinical Trial

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### **ABSTRACT.**

**Objective.** Twelve forms of Sun-style tai chi exercise have been developed specifically to reduce the symptoms and improve the physical functioning of arthritic patients, and this randomized study examined the changes in symptoms and physical characteristics in older women with osteoarthritis (OA) at the completion of a 12-week tai chi exercise program.

**Methods.** Seventy-two patients with OA were randomly assigned into 2 groups. Due to a 41% overall dropout rate, 22 experimental subjects and 21 controls completed pre- and post-test measures over a 12 week interval. Outcome variables were physical symptoms and fitness, body mass index, cardiovascular functioning, and perceived difficulties in physical functioning. The independent t test was used to examine group differences.

**Results.** The homogeneity test confirmed that there were no significant group differences in demographic data and pretest measures. Mean comparisons of the change scores revealed that the experimental group perceived significantly less pain ( $t = -2.19$ ,  $p = 0.034$ ) and stiffness ( $t = -2.13$ ,  $p = 0.039$ ) in their joints, and reported fewer perceived difficulties in physical functioning ( $t = -2.81$ ,  $p = 0.008$ ), while the control group showed no change or even deterioration in physical functioning after 12 weeks. In the physical fitness test, there were significant improvements in balance ( $t = 3.34$ ,  $p = 0.002$ ) and abdominal muscle strength ( $t = 2.74$ ,  $p = 0.009$ ) for the tai chi exercise group. No significant group differences were found in flexibility and upper-body or knee muscle strength in the post-test scores.

**Conclusion.** Older women with OA were able to safely perform the 12 forms of Sun-style tai chi exercise for 12 weeks, and this was effective in improving their arthritic symptoms, balance, and physical functioning. A longitudinal study with a larger sample size is now needed to confirm the potential use of tai chi exercise in arthritis management. (J Rheumatol 2003;30:2039-44)

*Key Indexing Terms:*

TAI CHI EXERCISE  
PHYSICAL FITNESS  
OSTEOARTHRITIS  
WOMEN  
SIGNS AND SYMPTOMS

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