

THE EFFECT OF TAI CHI ON BALANCE IN WOMEN WITH OR AT RISK OF OSTEOPOROSIS: A SYSTEMATIC REVIEW

K.M. Brown¹, M.R. Bass¹, C.M. Bruno¹, D.C. Outz¹, L.J. Barnes¹, H.A. Benghuzzi², M. Huang¹

¹Department of Physical Therapy, School of Health Related Professions, University of Mississippi Medical Center, Jackson, MS, USA

²Global Training Institute, Flowood, MS, USA

Corresponding Author: Min Huang

Email: mhuang@umc.edu

Doi: <https://doi.org/10.34107/KSZV7781.10451>

ABSTRACT

Background: As women age, hormone levels change and put them at increased risk for osteoporosis. Tai Chi is a weight bearing exercise intervention that incorporates balance. Balance training and weight bearing exercises have both been shown to be beneficial to those with or at risk of osteoporosis by benefiting bone mineral density and decreasing fall risk. **Objective:** The purpose of this systematic review is to determine whether Tai Chi is an effective intervention for improving balance in women with or at risk for osteoporosis. **Methods:** A search of PubMed and EMBASE databases was completed using search terms related to osteoporosis, Tai Chi, and balance, and was limited to randomized control trials, clinical trials, and research articles. The authors screened the resultant studies by title, abstract, and full text. In order to qualify for inclusion in this study, articles must have had a measure for balance before and after intervention, Tai Chi as an intervention, and women 45 or older as study subjects. Five studies were assessed for quality using the PEDro Scale and one study was assessed using the Quality Assessment Tool for Before-After (Pre-Post) Studies With No Control Group. **Results:** Six articles remained for inclusion in the review after screenings. Four out of six studies reported significant differences in at least one balance outcome measure post-intervention. Studies that had longer intervention periods resulted in more significant findings in the outcome measures of interest. **Conclusion:** Results from this systematic review suggest that Tai Chi may have positive effects on balance in women with or at risk of osteoporosis. Further research is recommended due to the heterogeneity of balance outcome measures, as well as length of intervention, with some studies indicating that longer intervention periods may increase benefits of Tai Chi.

Keywords:

INTRODUCTION

Osteoporosis is the most common metabolic bone disease, characterized by loss of bone mass, which can lead to increased risk for fracture [1]. The World Health Organization [2] defines osteoporosis as a bone mineral density more than 2.5 SD below the mean for health young White women. Osteoporosis is more prevalent in postmenopausal women due to changes in hormone levels. For women who have been diagnosed with osteoporosis, risk of fracture is increased. While many scenarios could cause a fracture, falls are one of the primary instances in which fracture occurs. Fall risk is linked to home environment, balance, strength, and medication. The National Osteoporosis Foundation recommend regular weight-bearing exercise that incorporates strengthening, agility, posture, and balance work in order to reduce fall risk and fracture [3]. Tai Chi meets these criteria by being both a weight bearing activity and a balance exercise.