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# Impact of tai chi intervention on rehabilitation efficacy in breast cancer patients: a systematic evaluation and Meta-analysis

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Zhang, CC; Zhang, JW.

**Corresponding author:**
Jian Wei Zhang

13161615533@163.com

**Author Affiliation:**
College of Physical Education and Sport, Beijing Normal University.

## ADMINISTRATIVE INFORMATION

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**Review Stage at time of this submission -** Data analysis.

**Conflicts of interest -** None declared.

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**Amendments -** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 6 December 2024 and was last updated on 6 December 2024.

## INTRODUCTION

**Review question / Objective** P: Breast cancer patients, especially those who have been clinically diagnosed and have received conventional treatments such as surgery, chemotherapy, and radiotherapy; I: Tai chi exercise intervention, which is used as a gentle aerobic exercise to assist in the rehabilitation of breast cancer patients; C: Conventional rehabilitation, including conventional hospital rehabilitation, conventional nursing care, and conventional postoperative breast cancer rehabilitation exercises; O: Includes indicators of quality of life, shoulder mobility and function, fatigue, immune factors (CD4+, CD8+, CD4+/CD8+), and sleep quality.

**Rationale** In this study, Meta-analysis was used to systematically evaluate the effect of tai chi rehabilitation exercise intervention on the rehabilitation efficacy of breast cancer patients. The basic principle is to assess the advantages and differences of tai chi intervention compared with traditional rehabilitation therapy in improving the rehabilitation efficacy of breast cancer patients by quantitatively synthesizing the results of multiple randomized controlled trials (RCTs). Statistical methods, such as fixed-effects and random-effects models, as well as heterogeneity analyses, were used to determine the efficacy and safety of the tai chi intervention.

**Condition being studied** Breast cancer is one of the most common cancers among women worldwide and has a serious impact on the quality of survival and health of patients.With the advancement of treatment technology, the survival rate of breast cancer patients has increased, but post-operative rehabilitation is equally important.Tai chi, as a gentle aerobic exercise, has been widely used in the rehabilitation of breast cancer patients. Its advantages lie in the slow, smooth, and coherent movements and the coordination of breathing and movement, which help to improve the physical function and psychological state of patients.However, further validation through systematic evaluation and Meta-

analysis is needed regarding the effectiveness of tai chi in breast cancer rehabilitation.

## METHODS

**Search strategy** Search terms: including "Breast Neoplasm", "Breast Cancer", "Tai Chi","Randomised Controlled Trials", etc. Electronic databases: Web of Science, PubMed, Embase, Ebsco, Cochrane, Sinomed, China Knowledge Network (CNKI), WanFang Data, VIP, and China Medical Journal Authority Database.INCLUSION EVALUATION: The search timeframe was from the construction of the database to October 2024, and the search was conducted through a combination of subject terms and free words.

**Participant or population** The type of participants involved in this study were patients who were clinically diagnosed with breast cancer, who were required to have a history of hospitalisation in a tertiary care hospital and met the inclusion criteria.

**Intervention** The experimental group added taijiquan exercise intervention to the conventional traditional rehabilitation treatment.

**Comparator** The control group was treated with conventional hospital rehabilitation, routine nursing care, and traditional postoperative breast cancer rehabilitation exercises.

**Study designs to be included** The included studies were designed as randomised controlled trials (RCTs) to ensure the reliability and validity of the findings.

**Eligibility criteria** Exclude duplicate literature, reviews, basic trials, abstracts, etc; Exclusion of literature with incompatible interventions, incomplete or erroneous data, and inaccessible literature; Exclusion of lower quality of 2 or more reports of a unified study; Exclude literature that does not form a meta-analysis.

**Information sources** Search databases: Web of Science, PubMed, Embase, Ebsco, Cochrane, Sinomed, CNKI, WanFang Data, VIP. Search time: from database construction to October 2024 Search terms: including "Breast Neoplasm", "Breast Cancer", "Tai Chi","Randomised Controlled Trials".

**Main outcome(s)**
Quality of life (FACT-B, WHOOQOL-BREF)
Shoulder mobility (ROM)
Fatigue (CFS, RPFS)
Shoulder function (Constant morley)
Immune factors (CD4+, CD8+, CD4+/CD8+)
Sleep quality (PSQI).

**Additional outcome(s)** No additional references.

**Quality assessment / Risk of bias analysis** The Cochrane Risk of Bias Assessment Tool was used to evaluate six aspects of selection bias, implementation bias, measurement bias, follow-up bias, reporting bias and other biases.

**Strategy of data synthesis** Meta-analysis was performed using RevMan 5.4 software, with mean±standard deviation as the effect indicator for measurements, and risk ratio (RR) or ratio ratio (OR) as the effect indicator for counts, and each effect size was expressed with 95% CI.

**Subgroup analysis** Subgroup analyses were conducted to explore sources of heterogeneity based on factors such as study design and implementation of the intervention.

**Sensitivity analysis** The robustness of the results was assessed by excluding each study individually and observing the impact on the overall effect estimates and heterogeneity statistics.

**Country(ies) involved** China.

**Keywords** Tai chi; breast cancer; Meta-analysis.

**Contributions of each author**
Author 1 - Chenchen Zhang.
Email: 18336732307@163.com
Author 2 - Jian Wei Zhang.
Email: 13161615533@163.com