

# INPLASY

## Efficacy and safety of long-term Baduanjin exercise in patients with chronic heart failure: a systematic review and meta-analysis

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### ADMINISTRATIVE INFORMATION

**Support** - None.

**Review Stage at time of this submission** - The review has not yet started.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202430099

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 25 March 2024 and was last updated on 25 March 2024.

### INTRODUCTION

**Review question / Objective** The main objective of this study is to systematically evaluate the efficacy and safety of long-term Baduanjin exercise for cardiac rehabilitation in patients with chronic heart failure and to conduct a meta-analysis. In order to focus on rehabilitation efficacy, we mainly evaluated the effects of Baduanjin on patients' quality of life, exercise capacity, depression, and productivity.

**Condition being studied** Traditional exercises are widely used in cardiac rehabilitation training and play a unique advantage in the field of rehabilitation. Many randomized controlled trials have proved that Baduanjin training is beneficial to CHF patients, but there is a lack of systematic research and evaluation on its follow-up time and effectiveness.

### METHODS

**Search strategy** Computer retrieval of Chinese databases: CNKI database, China Biomedical Literature database, Wanfang database and VIP full-text database; English databases: PubMed, Cochrane Library, web of science, EMBASE database; The search period is limited to January 18, 2024. The paper searches the literature by subject words and free words, and at the same time traces the references included in the literature as a supplement term: (heart failure OR Cardiac Failure OR Myocardial Failure OR Congestive Heart Failure OR Heart Decompensation OR Decompensation, Heart OR Heart Failure, Right Sided OR Right-Sided Heart Failure OR Right Sided Heart Failure OR Left-Sided Heart Failure OR Left Sided Heart Failure OR Heart Failure, Left Sided) AND (Baduanjin OR Ba Duan Jin OR Eight section brocades OR Eight section brocade OR

Eight-section brocade OR Eight-section brocades OR Eight pieces of brocade OR Baduanjin Exercise OR Qigong OR qi gong OR Traditional Chinese Exercises OR Traditional Exercises OR Ch'i Kung).

**Participant or population** Inclusion criteria: The subjects were patients with chronic heart failure, All patients met the diagnostic criteria in the Chinese Guidelines for the Diagnosis and Treatment of Heart Failure 2018, the European Society of Cardiology (ESC)2016 Guidelines for the Diagnosis and Treatment of Acute and Chronic Heart Failure, and the American Heart Association (AHA)/American College of Cardiology Foundation (ACCF) 2017 Guidelines for the Management of Heart Failure in the United States: Typical symptoms and/or signs of heart failure, echocardiography showed no significant enlargement of the left ventricle and the whole heart, and the patient had structural changes in the heart such as left atrium enlargement, left ventricular hypertrophy, and decreased left ventricular diastolic function with echocardiography; New York Heart Association (NYHA) Heart function scale :1-3; All patients signed informed consent forms. The intervention time was  $\geq 12$  weeks.

**Intervention** The experimental group was treated with regular Baduanjin exercise intervention on the basis of the control group.

**Comparator** The control group received conventional drug treatment (nursing) or other exercise.

**Study designs to be included** Randomized controlled trials (RCTs) will be included.

**Eligibility criteria** Inclusion criteria: The subjects were patients with chronic heart failure, All patients met the diagnostic criteria in the Chinese Guidelines for the Diagnosis and Treatment of Heart Failure 2018, the European Society of Cardiology (ESC)2016 Guidelines for the Diagnosis and Treatment of Acute and Chronic Heart Failure, and the American Heart Association (AHA)/American College of Cardiology Foundation (ACCF) 2017 Guidelines for the Management of Heart Failure in the United States: Typical symptoms and/or signs of heart failure, echocardiography showed no significant enlargement of the left ventricle and the whole heart, and the patient had structural changes in the heart such as left atrium enlargement, left ventricular hypertrophy, and decreased left ventricular diastolic function with echocardiography; New York Heart Association

(NYHA) Heart function scale :1-3; All patients signed informed consent forms. The intervention time was  $\geq 12$  weeks. Exclusion criteria: ① Chronic heart failure patients with cardiogenic.

**Information sources** Computer retrieval of Chinese databases: CNKI database, China Biomedical Literature database, Wanfang database and VIP full-text database; English databases: PubMed, Cochrane Library, web of science, EMBASE database; The search period is limited to January 18, 2024. The paper searches the literature by subject words and free words, and at the same time traces the references included in the literature as a supplement.

**Main outcome(s)** Minnesota Living with Heart Failure Questionnaire, 6-Minute Walk Test, Hamilton Depression Scale, Effective rate.

**Additional outcome(s)** Readmission rate, Adverse event.

**Quality assessment / Risk of bias analysis** The Cochrane Systematic Review manual was selected to assess the risk of bias in the literature we included. There are mainly: (1) random sequence; (2) Group concealment; (3) Blind method; (4) the integrity of the result data; (5) Selective reporting of test results; (6) Other sources of bias. It also gives "low deviation risk", "unclear" and "high deviation risk". All assessments are carried out by trained and experienced personnel using the same tools.

**Strategy of data synthesis** A meta-analysis was performed using RevMan5.4 statistical software. Results Data were pooled in inclusion trials at two time points: "short-term" ( $\leq 3$  months) and "long-term" ( $> 3$  months) follow-up. The measurement data were analyzed by means difference (MD), and the counting data were analyzed by Odds ratio (OR) and Risk Ratio (RR) with 95% confidence interval (95%CI). Q-value statistical test and I<sup>2</sup> test were used for the heterogeneity of the results. If P 0.1 and I<sup>2</sup> 3 months) follow-up. If heterogeneity was obvious, subgroup analysis or sensitivity analysis were performed, or only descriptive analysis was performed. In addition, we performed a sensitivity analysis to test the robustness of the results.

**Subgroup analysis** If heterogeneity was obvious, subgroup analysis were performed, or only descriptive analysis was performed.

**Sensitivity analysis** The stata software performs a sensitivity analysis by deleting data from a study

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and observing changes in the effect size to reflect sensitivity.

**Language restriction** None.

**Country(ies) involved** China.

**Keywords** Chronic heart failure, baduanjin, exercise rehabilitation.

**Contributions of each author**

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