

INPLASY PROTOCOL

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Review Stage at time of this submission: Piloting of the study selection process.

Conflicts of interest:
None.

High-Intensity Interval Training for Heart failure with preserved ejection fraction: A protocol for systematic review and meta analysis

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Review question / Objective: The purpose of this systematic review with meta-analysis is to assess the effectiveness of High-Intensity Interval Training(HIIT) on exercise capacity, cardiac function, symptom improvement and quality of life in heart failure with preserved ejection fraction(HFpEF).

Condition being studied: Heart failure with preserved ejection fraction (> 50%).

Information sources: We will search for the literature with the English language from the following database: MEDLINE, PubMed, EMBASE, CINAHL, Web of Science, PEDro, Cochrane Library and Google Scholar with no time restriction.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 26 May 2020 and was last updated on 26 May 2020 (registration number INPLASY202050097).

INTRODUCTION

Review question / Objective: The purpose of this systematic review with meta-analysis is to assess the effectiveness of High-Intensity Interval Training(HIIT) on exercise capacity, cardiac function,

symptom improvement and quality of life in heart failure with preserved ejection fraction(HFpEF).

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METHODS

Search strategy: Heart failure with preserved ejection fraction, diastolic dysfunction, high-intensity interval training.

Participant or population: Heart failure with preserved ejection fraction.

Intervention: High-intensity interval training.

Comparator: Moderate-intensity continuous training group.

Study designs to be included: Randomized controlled trials.

Eligibility criteria: Inclusion criteria: Patients diagnosed with HFpEF as 2016 ESC guidelines for the diagnosis and treatment of acute and chronic HF, New York Heart Association (NYHA) functional class II to III, and clinical symptom stability. Exclusion criteria other chronic diseases such as COPD, cancer or autoimmune diseases. unstable angina, myocardial infarction or undergoing surgery therapy in the past 1-month uncompensated heart failure and New York Heart Association class IV symptoms moderate-to-severe valvular disease and peripheral arterial disease severe arrhythmia, aortic stenosis, acute pulmonary embolus, musculoskeletal diseases and other conditions that can't accomplish exercise testing and exercise training.

Information sources: We will search for the literature with the English language from the following database: MEDLINE, PubMed, EMBASE, CINAHL, Web of Science, PEDro, Cochrane Library and Google Scholar with no time restriction.

Main outcome(s): The prime outcome is exercise capacity.

Additional outcome(s): Other outcomes: Quality of life Blood pressure Ventricular function and Left ventricular diastolic function Symptom improvement Endothelial function Arterial stiffness.

Data management: Studies that met the inclusion criteria will be included for data extraction and further analysis by two reviewers. We will use a standard data extraction forms: general characteristics of the study (name of the first author, year of publication and country), sample size, describe of HIIT, characteristics of the intervention and control group, number and characteristics of participants in each group, rates of missing data, duration, length/intensity, outcomes. In case the data of a study was not accessible, an investigator contacted the authors of the study for their assistance with the data extraction. The data extraction process was performed independently and discrepancies discussed with a third reviewer until consensus was reached.

Quality assessment / Risk of bias analysis: The quality of studies included in the systematic review was scored using the PEDro scale from Physiotherapy Evidence Database by two dependent reviewers.

Strategy of data synthesis: All the study characteristics will be described and meta-analysis using Review Manager software will be further performed.

Subgroup analysis: Not applicable.

Sensibility analysis: Sensitivity analysis will be performed to evaluate the reliability of results based on sample size, the methodological quality of the included studies. We will repeat the meta-analysis if it is necessary.

Language: English.

Country(ies) involved: China.

Keywords: High-intensity interval training, moderate-intensity continuous training heart failure with preserved ejection fraction, exercise intolerance, exercise capacity, cardiac rehabilitation.

Contributions of each author:

Author 1 - Sisi Zhang - The author drafted the manuscript.

Author 2 - Jingxian Zhang - The author provided statistical expertise.

Author 3 - Congying Liang - The author contributed to the development of the selection criteria, and the risk of bias assessment strategy.

Author 4 - Xiaochuan Li - The author contributed to the development of the selection criteria, and the risk of bias assessment strategy.

Author 5 - Xiaoping Meng - The author read, provided feedback and approved the final manuscript.