

# INPLASY PROTOCOL

To cite: Cheng. Effects of sprint interval training and moderate-intensity continuous training on aerobic capacity. Inplasy protocol 202350087. doi: 10.37766/inplasy2023.5.0087

Received: 23 May 2023

Published: 23 May 2023

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

**Conflicts of interest:**  
None declared.

## Effects of sprint interval training and moderate-intensity continuous training on aerobic capacity

Cheng, CM<sup>1</sup>.

**Review question / Objective:** This meta-analysis of randomized controlled trials aimed to assess the effects of sprint interval training and moderate-intensity continuous training on aerobic capacity, and the effectiveness assessment between the two.

**Condition being studied:** Short-term exercise training programs that consist of moderate intensity endurance training or high intensity interval training have become popular choices for healthy lifestyle modifications, with as little as two weeks of training being shown to improve cardiorespiratory fitness and whole-body glucose metabolism. An emerging concept in exercise biology is that exercise stimulates the release of cytokines and other factors into the blood that contribute to the beneficial effects of exercise on metabolism,

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 May 2023 and was last updated on 23 May 2023 (registration number INPLASY202350087).

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### INTRODUCTION

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## METHODS

**Search strategy:** We will search articles in three electronic database including PubMed, EMBASE and Cochrane Library. All the English publications until 30 April 2023 will be searched without any restriction of countries or article type. Reference list of all selected articles will independently screened to identify additional studies left out in the initial search.

**Participant or population:** Healthy adults (ages 20-30 years) are included.

**Intervention:** Physical exercise was the main intervention (e.g. aerobic exercise, resistance exercise and multicomponent exercise program).

**Comparator:** Healthy, sedentary men (n = 22) were randomized to moderate intensity training (MIT) or sprint intensity training (SIT) treatment groups. SIT consisted of 6 sessions over 2 weeks of 6 × 30 s all out cycle ergometer sprints with 4 min of recovery between sprints. MIT consisted of 6 sessions over 2 weeks of cycle ergometer exercise at 60% VO<sub>2</sub>peak, gradually increasing in duration from 40 to 60 min.

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

**Eligibility criteria:** Short-term exercise training at markedly different intensities similarly improves cardiovascular fitness but results in intensity-specific changes in cytokine responses to exercise.

**Information sources:** We will search articles in three electronic database including PubMed, EMBASE and Cochrane Library.

**Main outcome(s):** Short-term exercise training at markedly different intensities similarly improves cardiovascular fitness but results in intensity-specific changes in cytokine responses to exercise.

**Quality assessment / Risk of bias analysis:** The ROBIS (Risk of Bias in Systematic Review) tool for assessing the risk of bias of systematic reviews is described in detail, including the process of developing ROBIS and the three stages of using ROBIS to evaluate systematic reviews.

**Strategy of data synthesis:** Use SPSS for data system analysis.

**Subgroup analysis:** Short-term exercise training at markedly different intensities similarly improves cardiovascular fitness but results in intensity-specific changes in cytokine responses to exercise.

**Sensitivity analysis:** Blood was taken before the intervention and 48 h after the last training session, and glucose uptake was measured using [18F]FDG-PET/CT scanning. Cytokines were measured by multiplex and Klotho concentrations by ELISA.

**Country(ies) involved:** China.

**Keywords:** Sprint interval training, moderate intensity continuous training, peak oxygen uptake, maximum oxygen uptake.

**Contributions of each author:**

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