INPLASY PROTOCOL

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Conflicts of interest:
None declared.

Effects of Blood Flow Restriction Training on Cardiopulmonary Function and Body Composition: A Systematic Review with Meta-Analysis

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Review question / Objective: **The purpose of this meta-analysis was to elucidate the differences in the effects of blood flow restriction training versus non-blood flow restriction training on the cardiopulmonary function and body composition in athletes and healthy active population. The chosen study method was the RCT test.**
Eligibility criteria: **P, athletes or healthy active population, male or female, any sports activity, no age restriction; I, BFR training; C, Two-group or multi-group trials; O, At least one measure related to cardiopulmonary function or body composition; S, RCT.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 April 2023 and was last updated on 14 October 2024 (registration number INPLASY202340052).

INTRODUCTION

Review question / Objective: **The purpose of this meta-analysis was to elucidate the differences in the effects of blood flow restriction training versus non-blood flow restriction training on the cardiopulmonary function and body composition in athletes and healthy active population. The chosen study method was the RCT test.**

Condition being studied: **Blood flow restriction training is a training method based on a combination of resistance training and specific compression devices.**

The subjects of the study were healthy athletes.

METHODS

Participant or population: Healthy athletes or healthy active population.

Intervention: Blood flow restriction training.

Comparator: BFR training versus non-BFR training.

Study designs to be included: RCT.

Eligibility criteria: P, athletes or healthy active population, male or female, any sports activity, no age restriction; I, BFR training; C, Two-group or multi-group trials; O, At least one measure related to cardiopulmonary function or body composition; S, RCT.

Information sources: PubMed, Web of Science, EBSCOhost, and SCOUPS.

Main outcome(s): Cardiopulmonary function or body composition.

Quality assessment / Risk of bias analysis: Physical Therapy Evidence Database (PEDro) scale.

Strategy of data synthesis: The meta-analysis was performed using RevMan version 5.4 software. High and low heterogeneity were matched to different effect models: low, fixed; high, random.

Subgroup analysis: The age, height, weight, training duration and frequency, protocol, cuff pressure.

Sensitivity analysis: This was tested by removing the study on a case-by-case basis, with the change in effect size reflecting the sensitivity of the study.

Language restriction: English.

Country(ies) involved: China.

Keywords: Blood flow restriction training; cardiopulmonary function; body composition; maximal oxygen consumption; maximal heart rate.

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