INPLASY PROTOCOL

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Conflicts of interest:
None declared.

Effects of Blood Flow Restriction Training on Physiological Parameters Among Athletes: 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 physiological parameters of the athletes. The chosen study method was the RCT test.**
Eligibility criteria: **,Athletes, male or female, any sports activity,no age restriction; I,BFR training(BFR combined with other forms of training); C,Two-group or multi-group trials; O,At least one measure related to physiological parameters (e.g., body mass, VO2max, heart rate, 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 17 April 2023 (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 physiological parameters of the athletes. 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.

Intervention: Blood flow restriction training.

Comparator: No blood flow restriction training.

Study designs to be included: RCT.

Eligibility criteria: P,Athletes, male or female, any sports activity,no age restriction; I,BFR training(BFR combined with other forms of training); C,Two-group or multi-group trials; O,At least one measure related to physiological parameters (e.g., body mass, VO2max, heart rate, body composition); S,RCT.

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

Main outcome(s): Body mass, VO2max, heart rate, 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 (<22 vs. ≥22 years), height (<176 vs. ≥176 cm), and weight (3 sessions/week), length (≤4 vs. >4 weeks), pressure times (130 mmHg), and size (≤11 vs. >11 cm), and pressure status (continuous vs. intermittent).

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; physiological parameters; maximal oxygen consumption; cross sectional area; muscle thickness; maximal heart rate; thigh girth.

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