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The effects of blood flow restriction combined with resistance training on post-activation performance enhancement: a meta-analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 02 November 2023 and was last updated on 02 November 2023.

INTRODUCTION

Review question / Objective The aim of this study was to examine the effects of blood flow restriction combined with resistance training on post-activation performance enhancement in athletes.

Condition being studied The post-activation performance enhancement is a phenomenon in which an athlete's athletic performance improves in a short period of time after a high intensity stimulus to the skeletal muscle. It can be reflected by explosive power-related indicators, such as the rate of power development, jump height, and so on. The greater the improvement of these indexes, the better.

METHODS

Participant or population Athletes.

Intervention Blood flow restriction combined with resistance training.

Comparator Routine Warm-Up.

Study designs to be included Experiments with control groups.

Eligibility criteria Athletes with more than one year of training experience without injury experience within six months.

Information sources PubMed, Web of Science, ScienceDirect, Scopus, EBSCO, and CNKI (China).

Main outcome(s) Jump height, power output, reactive strength index, rate of force development.

Quality assessment / Risk of bias analysis Cochrane Risk of Bias Assessment Tool.

Strategy of data synthesis Data analysis using Review Manager 5.4 software. The square of I statistic was used to test for heterogeneity among studies, and when the square of $I \leq 50\%$, it indicated no heterogeneity among similar studies, and meta-analysis was performed using a fixed-effects model; when the square of $I > 50\%$, it indicated the existence of heterogeneity among studies.

Subgroup analysis BFR pressure ($\leq 40\%$ AOP, 40% to 60% AOP, $\geq 60\%$ AOP) and RT intensity ($\leq 30\%$ 1RM, 30% ~ 70% 1RM, $\geq 70\%$ 1RM, self-weight) were used as covariates for subgroup analysis.

Sensitivity analysis Sensitivity analyses were conducted using stata software, which responds to sensitivity by observing the change in effect size after deleting one of the articles.

Country(ies) involved China.

Keywords blood flow restriction, resistance training, post-activation potentiation, meta-analysis.

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