

Effects of different training methods on athletes' interlimb asymmetry: A systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Completed but not published.

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 12 June 2024 and was last updated on 12 June 2024.

INTRODUCTION

Review question / Objective 1. To quantitatively assess included RCT's; 2. What are the effects of different training interventions in physical function asymmetry? If/when possible to draw general conclusions and provide guidelines for further research.

Condition being studied The physical function of the athlete is asymmetrical. Asymmetry is prevalent across several sports regardless of age, gender, or competitive level, and can be verified even in apparently symmetric actions (e.g., running and rowing).

METHODS

Search strategy PubMed, Web of Science, CNKI, Cochrane, ScienceDirect and SPORTDiscus was searched.

Restricted to humans, English and Chinese language, and peer-reviewed articles.

The search strategy, including all identified keywords/abstract/title is adapted for each included database and a thorough search of all included databases will be done.

This comprehensive search will reduce the risk of publication bias present in review findings (Lefebvre et al., 2019).

Participant or population Athletes without sports injuries at the time of study participation.

Intervention Intervention methods: Different training methods.

Comparator Non-exposed control group.

Study designs to be included This review will consider quantitative. RCTs will be considered as the primary focus as it's the most ideal to examine

the cause-and-effect relationship between interventions and outcomes. There is no restriction on publication status of included studies, but incomplete studies with only abstract or protocol will be excluded. Only studies published in the English and Chinese language will be included. Non-English/Chinese studies will be excluded due to lack of reviewer proficiency in other languages and resource limits.

Eligibility criteria The inclusion criteria for the studies were as follows: (1) RCTs; (2) examined physical function asymmetry among athletes; (3) experimental group was given training interventions, and the control group was given regular teaching or training; and (4) reported the asymmetry index as the outcome measure.

The exclusion criteria for the studies were as follows: (1) no control group; (2) duplicate studies, including studies with the same authors, the same experimental subjects, and the same exercise intervention protocol; (3) studies from which valid data could not be obtained; (4) systematic evaluations or review articles; and (5) articles not published in Chinese or English.

Information sources Electronic databases.

Main outcome(s) Isokinetic muscle strength, explosive power, and balance ability of the lower limbs and so on.

Quality assessment / Risk of bias analysis

Quality assessments were in the first article performed by two independent researchers and will, in case of new studies, be performed by the same two authors. Risk of bias will be evaluated using the Cochrane domain-based tool and study assessments will be brought into consideration when conclusions are drawn.

Strategy of data synthesis A narrative synthesis is planned, possibly supplemented by generation of a common SMD estimate in individual intervention subgroups. A meta-regression was performed.

Subgroup analysis Subgroup analysis of the CMJ test asymmetry index and the SLH test asymmetry index.

Sensitivity analysis To test whether the results of the meta-analysis were stable and reliable, sensitivity analyses was performed to separately assess the effects of the training intervention on the degree of asymmetry of the CMJ test and SLH.

Country(ies) involved China.

Keywords Interlimb asymmetry; functional asymmetry; athletes; training interventions.

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