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INPLASY

Effects of backward running training on sport-specific performance in healthy athletes: a systematic review

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ADMINISTRATIVE INFORMATION

Support - NO SUPPORT.

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

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 9 February 2026 and was last updated on 9 February 2026.

INTRODUCTION

Review question / Objective The effects of retrograde running training on sport-specific performance in healthy athletes have not been compiled in a comprehensive review. Previous reviews have not addressed athletic performance, rather than backward walking for clinical balance/gait or biomechanics for injury risk. In order to direct future research and sports applications, this study compiles dispersed evidence.

Condition being studied Backwards running have recently become the object of scholarly interest, namely, due to the fact that they pose diverse biomechanical challenges to the musculoskeletal system and trigger the activity of other muscular pathways causes various physiological and neuromuscular adaptations that are not similar to those that are present during the normal forward gait.

METHODS

Search strategy Develop a specific and appropriate search term and apply it in the database . example - backward running or retrogarde running or backward sprinting and athlete and sports performance and RCT.

Participant or population Sports athletes or recreational sports athlete or youth sports athlete.

Intervention Studying backward running training (BRT).

Comparator Comparing RCTs with backward running with forward running training, normal training or non-running control protocols.

Study designs to be included Include randomized controlled trial.

Eligibility criteria The sample will include physically active male and female athletes, and

physically active individuals who are enrolled on an organised sport ,Interventions will include structured backward (retrograde) running programmes.

Information sources Database : search articles in different types of database such as pubmed , scopus, web of science , google scholar database.

Main outcome(s) Jumping performnace , sprint ability , balance , agility.

Additional outcome(s) Strength , aerobic endurance and leg stiffness.

Data management Data collection: Summarize or extract the content from each study which includes study design, participants details, BRT protocols, outcomes and result findings.
Form: Use of data extraction form should be prepared in a standard format. It include categories like:- Study Characteristics, Intervention Description, Outcomes and overall Result Findings.

Quality assessment / Risk of bias analysis Assess the quality of study's methodological quality by using the tools such as the Cochrane Risk of Bias Tool for RCTs.

Strategy of data synthesis If applicable , use statistics software to perform meta analysis ex- revman or stata analyse pooled of BRT.

Subgroup analysis Heterogeneity assessment I2 statistics can be used to assess and report the heterogeneity of the studies with consideration of sub group analysis.

Sensitivity analysis Summarize review of outcome of each study . identify similarities and dissimilarity and establish different pattern or trends.

Language restriction Non english language.

Country(ies) involved India.

Keywords "backward running", "retrograde running", "backward sprinting", "athlete", "sports performance".

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