IJSPT

SYSTEMATIC REVIEW

IS THERE EVIDENCE FOR AN ASSOCIATION BETWEEN CHANGES IN TRAINING LOAD AND RUNNING-RELATED INJURIES? A SYSTEMATIC REVIEW

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ABSTRACT

Background: Sudden changes (increases and decreases) in training load have been suggested to play a key role in the development of running-related injuries. However, the compiled evidence for an association between change in training load and running-related injury does not exist.

Purpose: The purpose of the present systematic review was to compile the evidence from original articles examining the association between changes in training load and running-related injuries.

Study Design: Systematic review.

Methods: Four databases (Pubmed/Medline, SPORTDiscus, Embase, and Scopus) were systematically searched. Two reviewers screened titles, abstracts, and full-text articles independently. Articles were included if i) the study design was a randomized trial, a prospective cohort study, a cross-sectional study or a case-control study, ii) participants were runners between 18-65 years, and iii) specific information on changes in training load was provided. Methodological quality of included articles was assessed using the Newcastle Ottawa Scale and the PEDro rating scale.

Results: Four articles fulfilled the eligibility criteria of which three found an association between increases in training load and an increased risk of running-related injuries: This association was shown by an increased injury risk amongst runners: i) if they recently had performed one or more changes in either velocity and/or distance and/or frequency compared with the non-injured runners ($p = 0.037$), ii) increasing their average weekly running distance by more than 30% compared to an increase less than 10% (Hazard Ratio = 1.59 (95% Confidence Interval: 0.96; 2.66)), iii) increasing their total running distance significantly more the week before the injury origin compared with other weeks (mean difference: 86%; 95% Confidence Interval: 12%; 159%, $p = 0.026$). However, no difference was found between a 10% and a 24% average increase in weekly volume (HR = 0.8, 95% CI: 0.6; 1.3).

Conclusion: Very limited evidence exists supporting that a sudden change in training load is associated with increased risk of running-related injury.

Level of evidence: 2

Keywords: Etiology, running-related injuries, training load.

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Conflicts of interest
None of the authors have any conflicts of interest, including relevant financial interests, activities, relationships, and affiliations.

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DOI: 10.26603/ijspt20180931