INPLASY PROTOCOL

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None declared.

Do prevention programs prevent sports injuries and increase performance in volleyball athletes? A systematic review with meta-analysis

Souza, ALX[1]; Santos, JFS[2]; Oliveira, MCT[3]; Marinho, HVR[4]; Mendonça, LD[5].

Review question / Objective: The injury prevention programs that includes neuromuscular training, core, strength training, plyometric training improve the sports performance of volleyball athletes?

Condition being studied: The effectiveness of injury prevention programs in volleyball athletes regarding injury occurrence and performance.

Information sources: Electronic databases (PubMed, Web of Science and Scopus) were searched for relevant publications.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 07 May 2021 and was last updated on 07 May 2021 (registration number INPLASY202150026).

INTRODUCTION

Review question / Objective: The injury prevention programs that includes neuromuscular training, core, strength training, plyometric training improve the sports performance of volleyball athletes?

Rationale: Injury prevention programs are implemented in the athletes' routine in order to prevent injuries and athletes absence from sport. In this perspective, prevention programs end up avoiding the withdrawal of athletes and consequently improving sports performance. Therefore, this systematic review and metanalysis will

summarize and analyze the quality of the current evidence on prevention programs effectiveness.

Condition being studied: The effectiveness of injury prevention programs in volleyball athletes regarding injury occurrence and performance.

METHODS

Search strategy: Electronic databases (PubMed, Web of Science and Scopus) were searched for relevant publications. Keywords and synonyms were entered in various combinations in all fields"(volleyball OR volleyball athletes OR volleyball players)" AND "(Injury prevention programs OR injury prevention strategies OR injury prevention exercise OR preventive exercise program OR preventive training programs)" AND "(Athletic performance OR sport performance OR performance).

Participant or population: Volleyball athletes, with no restrictions on their playing level, sex, or age.

Intervention: Preventive training programs.

Comparator: Passive or active control groups.

Study designs to be included: Randomized, or quasi-randomized, controlled studies (ie ECR and ECC).

Eligibility criteria: Through the PICO strategy, articles that used injury prevention programs with the outcome in performance and articles that used volleyball athletes were selected. Articles that had the study design as cross-sectional, articles that did not use volleyball athletes and that did not use any prevention program were excluded. Years of publication of the articles were not considered as an eligibility criterion.

Information sources: Electronic databases (PubMed, Web of Science and Scopus) were searched for relevant publications.

Main outcome(s): Injury efficiency and improvement were the best results.

Additional outcome(s): None.

Quality assessment / Risk of bias analysis: Two researchers independently conducted the rating process to increase accuracy. In the case of disagreements between the 2 researchers, a third reviewer was consulted for their expertise and consensus was achieved. The physiotherapy evidence database (PEDro) scale was used to assess the methodologival quality og eligible studies included in the review. this scale evaluates internal study validity on a scale from 0 (high risk of bias) to 10 (low risk of bias). The quality assessment was interpreted using the following 10-point scale: ≤3 poins was considered poor quality, 4-5 points moderate quality, and 6-10 points high quality. The GRADE will be used to assess the strength of the evidence, ranging from high-quality to very low-quality.

Strategy of data synthesis: Descriptive statistics will be presented as means/medians, SDs/interquartile range and percentage. Outcome data will be transformed to a common scale, if possible. We will pool outcome data when enough homogeneity. Heterogeneity will be assessed using I^2, with scores up to 50% meaning low heterogeneity. We will pool data using fixed-effect model when I^2 is up to 50%. For I^2 over 50%, we will pool data using random-effects model and, if I^2 remains over 50%, data will be qualitatively presented due to high heterogeneity. Pooled differences and 95% confidence intervals (95%CIs) will be presented in Forest-plots.

Subgroup analysis: The analysis of the subgroup will be made through the type of intervention used and the evaluation made by the studies.

Sensitivity analysis: Sensitivity analyzes will be planned to investigate whether methodological quality, sample characteristics and prevention programs

would have a level impacted on the estimated effects.

Language: English.

Country(ies) involved: Brazil.

Keywords: volleyball; Injury prevention programs; performance.

Contributions of each author:
Author 1 - Áquila Souza - The author run the data search, performed the methodological assessment, conducting data extraction, analyse and interpreted the data, wrote the original manuscript.
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Author 2 - Jonatas Santos - The author conceived and designed the analysis, analyse and interpreted the data, revise the original manuscript.
Author 3 - Maria Oliveira - The author run the data search, performed the methodological assessment, conducting data extraction and wrote the manuscript.
Author 4 - Hellen Marinho - The author interpreted the data, revised the original manuscript.
Author 5 - Luciana Mendonça - The author conceived and designed the analysis, performed the methodological assessment, analyse and interpreted the data, revised the original manuscript.