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Knee Injuries in Sport Climbing: A Systematic Review

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INTRODUCTION:
Previous research in sport climbing was dominated by studies focusing on climbing-specific upper extremity injuries, especially finger injuries. No last systematic review has examined the prevalence of knee injuries in sports climbers. Our objective was to establish the prevalence and risk factors for knee injuries resulting from sport climbing activity in both professional and recreational athletes.
METHODS:
A systematic review was conducted to determine the injury rate and risk factors for knee injury from a biomechanical point of view during sport climbing. The literature search was performed from January 2000 to January 2023 in the PubMed (Medline) and Scopus databases. The following keywords were used: injury AND sport climbing OR rock climbing, OR lead climbing OR bouldering OR speed climbing. Original, peer-reviewed, full-text articles published in scientific journals in the English language were included. Papers in non-climbers, mountain climbers, papers concerning climbing intervention in climbers and non-climbers, review articles, conference papers, case studies, animal studies, studies published in other languages, and studies with incomplete statistics data were excluded. Reference lists of review articles were reviewed for additional relevant articles. The following descriptive data were extracted from studies: study type, cohort, and knee injury information (structure and mechanism). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement and checklist were used to guide this systematic review.
RESULTS:
A total of 849 studies were retrieved from this research. Finally, 13 studies were selected after the full-text review. 339 knee injuries were found in the analyzed studies, accounting for 1-18.9% of all climbing-related injuries. The most common injury was to the meniscus. Most knee injuries result from falls, overtraining or traumatic mechanisms of injury, e.g., heel hook, high step, or drop knee techniques.
CONCLUSION:
The growing sport climbing popularity is associated with a higher incidence of knee injuries. Specific climbing-related training of the knee stabilizers for improved joint control and stretching techniques may reduce the risk of a knee injury during falls and climbing-specific knee techniques.

Topic: Sports Medicine and Orthopedics

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