

INPLASY

The Use of Extracorporeal Shockwave Therapy following Anterior Cruciate Ligament Reconstruction: A Systematic Review

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ADMINISTRATIVE INFORMATION

Support - N/A.

Review Stage at time of this submission - Preliminary searches.

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 30 December 2023 and was last updated on 30 December 2023.

INTRODUCTION

Review question / Objective This review aims to review and evaluate the existing studies that investigated the efficacy of extracorporeal shockwave therapy (ESWT) in post-operative rehabilitation for patients undergoing anterior cruciate ligament reconstruction (ACLR).

Rationale An ACL injury is known to be a prevalent site of knee injuries and a common injury due to sports-related activities. This injury is often treated with ACLR to stabilize the knee's anterior-posterior movement, minimize cartilage damage, and allow knee rotation, followed by post-operative rehabilitation for better patient outcomes, such as returning to their physical or activity level before injury. Recently, studies have been conducted to investigate whether ESWT combined with standard rehabilitation may improve

outcomes following ACLR. However, there has yet to be a review that synthesized literature evaluating the efficacy of ESWT in patients undergoing ACLR. Therefore, this systematic review aimed to determine whether ESWT can improve clinical outcomes following ACLR.

Condition being studied ACL injury undergoing reconstruction.

METHODS

Search strategy Pubmed, Embase, and Web of Science.

Participant or population Patients who underwent ACL reconstruction.

Intervention ESWT (radial, focused, or combined).

Comparator For randomized controlled trials (RCTs) and comparative or cohort studies, comparators such as standard of care, standardized rehabilitation protocol, and placebo exist.

Study designs to be included RCTs and comparative studies.

Eligibility criteria Studies that contain the outcomes of patients who underwent ESWT protocol after ACL reconstruction.

Information sources PubMed (NLM), Embase (Elsevier), and Web of Science (Clarivate).

Main outcome(s) Patient-reported outcome measures such as VAS, functional outcome measures such as Lysholm score, IKDC score, Tegner score, bone mineral density, radiograph, and MRI investigation, or return to sports.

Additional outcome(s) N/A.

Data management Two authors will be responsible for data extraction using Covidence. The population, symptom duration, ESWT parameters, activity restriction following ESWT, co-intervention, comparator, outcome measurements, follow-up durations, main findings, return to sports/activities (if applicable), and adverse events will be collected from the included studies.

Quality assessment / Risk of bias analysis For RCTs, a revised Cochrane risk-of-bias tool for randomized trials (RoB2) will be utilized. For non-randomized comparative/cohort studies, a risk of bias in non-randomized studies of interventions (ROBINS-I) will be used.

Strategy of data synthesis If two or more studies are homogeneous to each other in terms of outcome measurements, intervention methods (radial or focused ESWT), and follow-up period, a meta-analysis will be performed. If meta-analysis is not performed, a narrative synthesis of the results from available evidence will be conducted.

Subgroup analysis Subgroup analysis will be performed for different follow-up periods, intervention methods (radial, focused, or combined ESWT), age, and gender if the meta-analysis is performed.

Sensitivity analysis When the meta-analysis is performed, only RCTs included in the meta-analysis will be considered to perform the

sensitivity analysis to check the robustness of the data.

Language restriction Studies published in English will be considered.

Country(ies) involved United States.

Other relevant information N/A.

Keywords Extracorporeal shockwave therapy, Anterior cruciate ligament, ACL reconstruction, ACLR outcomes, ACLR rehabilitation, and Systematic review.

Dissemination plans We will publish the paper in a peer-reviewed journal.

Contributions of each author

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