# International Platform of Registered Systematic Review and Meta-analysis Protocols

# INPLASY

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### **ADMINISTRATIVE INFORMATION**

Support - None

Review Stage at time of this submission - Completed but not published.

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 13 June 2025 and was last updated on 13 June 2025.

# **INTRODUCTION**

**eview question / Objective** This systematic review aims to investigate the role and recognition of psychological factors in the rehabilitation process after anterior cruciate ligament reconstruction (ACLR). It also examines whether current rehabilitation protocols include psychological assessment and identifies the most commonly used tools for evaluating mental readiness.

**Rationale** Despite the growing recognition of psychological factors in sports injury rehabilitation, these aspects remain underrepresented in ACL rehabilitation protocols. Athletes often face mental barriers that influence their return to sport after ACL reconstruction, yet psychological readiness is not routinely assessed. This review addresses this gap by summarizing current knowledge on the role of psychological factors and the tools used to evaluate them.

**Condition being studied** Anterior cruciate ligament (ACL) injury is one of the most common and functionally disabling knee injuries, particularly among athletes. ACL reconstruction surgery is often performed to restore knee stability and allow return to sport. However, successful rehabilitation and return to pre-injury performance levels remain challenging. The condition under investigation is postoperative recovery and rehabilitation after ACL reconstruction, with particular attention to physical and psychological factors influencing return-to-sport outcomes.

# **METHODS**

**Search strategy** A systematic search was conducted in PubMed, EMBASE, and Web of Science between May and August 2024. An updated search was performed on August 5, 2024, to capture additional studies. The following keywords were employed during the search: anterior cruciate ligament reconstruction AND acl reconstruction AND psychological bacground AND psychological factors AND return to sport AND

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return to play. Articles were included if published within the last five years, written in English, and addressed psychological assessments or the need for such assessments in patients undergoing ACL reconstruction. Studies older than five years, non-English publications, and those focusing on other knee injuries or non-surgical interventions were excluded.

**Participant or population** Patients who have undergone anterior cruciate ligament reconstruction (ACLR), regardless of age, sex, or sport level. Only those studies were included that focused on postoperative rehabilitation and assessed psychological aspects in this population. Non-surgical cases and studies unrelated to ACLR were excluded.

**Intervention** This is a systematic literature review. The intervention under investigation is not a clinical treatment but the presence or assessment of psychological factors during rehabilitation after ACL reconstruction. The review includes studies applying standardized psychological tools (e.g., ACL-RSI, K-SES, TSK) or describing psychological readiness, fear of re-injury, and self-efficacy.

**Comparator** Not applicable. This review does not compare two distinct interventions but explores the presence, assessment, and impact of psychological factors in patients undergoing ACL reconstruction.

**Study designs to be included** This review includes quantitative empirical studies such as cross-sectional studies, cohort studies, case series, and systematic reviews that examine psychological factors related to recovery or return to sport after ACL reconstruction.

**Eligibility criteria** Only peer-reviewed original articles published in English between 2019 and 2024 were included. Studies had to focus on psychological factors or assessments during rehabilitation after ACL reconstruction. Editorials, letters to the editor, conference abstracts, non-English publications, and studies on non-surgical or other types of knee injuries were excluded. Duplicate publications and studies with insufficient methodological transparency were also excluded.

**Information sources** Electronic databases searched included PubMed, Scopus, and Web of Science. Searches were limited to peer-reviewed articles published in English between 2019 and 2024. Grey literature, trial registers, and author contact were not used as information sources. **Main outcome(s)** This protocol refers to a completed systematic review. The main outcomes of the review were psychological readiness for return to sport and associated psychological factors after anterior cruciate ligament reconstruction (ACLR). These outcomes were measured using standardized self-report tools such as the ACL-RSI, K-SES, TSK, IKDC, and I-PRRS. Key outcomes included fear of reinjury, self-efficacy, stress, motivation, and emotional status.

**Data management** The review process involved independent title and abstract screening by two reviewers, followed by full-text evaluation of eligible articles. All references were imported into Zotero for reference management, and duplicates were identified and removed. Eligible records were then exported to Microsoft Excel for screening and data extraction. The screening and selection process is summarized in the PRISMA 2020 Flow Diagram.

Quality assessment / Risk of bias analysis A formal risk of bias assessment was not conducted. However, studies were classified according to study design and levels of evidence to provide a general overview of methodological quality. This classification included systematic reviews, cohort studies, cross-sectional studies, clinical reviews, and consensus statements. The methodological characteristics were extracted and summarized in the review tables.

Strategy of data synthesis A narrative synthesis was performed. Extracted data from the included studies were summarized in structured tables and grouped thematically according to psychological constructs (e.g., fear of reinjury, psychological readiness, self-efficacy) and their association with return-to-sport (RTS) outcomes. Study designs and methodological quality were considered descriptively. No meta-analysis was conducted due to the heterogeneity of study populations, outcomes, and measurement tools.

**Subgroup analysis** No formal subgroup analyses were conducted. However, studies were thematically categorized into two groups: (1) studies that emphasized the importance of psychological assessment without specific tools, and (2) studies that employed or recommended validated questionnaires (e.g., ACL-RSI, K-SES, TSK).

**Sensitivity analysis** No sensitivity analysis was performed, as no meta-analysis or pooled statistical estimates were calculated.

**Language restriction** Yes, only studies published in English were included. Language restrictions were applied during the screening process.

**Country(ies) involved** Hungary. All authors are affiliated with academic and clinical institutions located in Hungary.

**Other relevant information** This protocol refers to a completed systematic review that has not been previously registered in any database. The review was conducted as part of a PhD project at Semmelweis University. The manuscript is intended for submission to a peer-reviewed journal for academic purposes. PRISMA 2020 guidelines were followed during the reporting process.

**Keywords** anterior cruciate ligament reconstruction; return to sport; psychological readiness; psychological factors; mental health; sports medicine.

**Dissemination plans** The findings of the review are intended to be published in a peer-reviewed scientific journal. In addition, parts of the review will be presented at national and international scientific conferences and form an integral part of a PhD thesis submitted to Semmelweis University.

#### **Contributions of each author**

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