

INPLASY PROTOCOL

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Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: Comparison of the effects of professional exercise rehabilitation based on the latest RCT evidence on knee recovery after anterior cruciate ligament reconstruction by comparing scores on the Lysholm Knee Function Rating Scale and the VAS Pain

Effect of professional sports rehabilitation on functional recovery of the knee joint after anterior cruciate ligament reconstruction: A Meta-Analysis of Randomized Controlled Trials

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Review question / Objective: Comparison of the effects of professional exercise rehabilitation based on the latest RCT evidence on knee recovery after anterior cruciate ligament reconstruction by comparing scores on the Lysholm Knee Function Rating Scale and the VAS Pain Scale in patients after anterior cruciate ligament reconstruction.

Eligibility criteria: Inclusion criteria: (1) Rcts; (2) Postoperative analysis of professional sports rehabilitation compared with conventional rehabilitation; (4) Reported mean and standard deviation of scores on Lyshlom scale or VAS scale or IKDC scale

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 February 2023 and was last updated on 13 February 2023 (registration number INPLASY202320054).

Scale in patients after anterior cruciate ligament reconstruction.

Condition being studied: Anterior cruciate ligament injury (ACL) is one of the most common and more serious injuries of the knee in both competitive and mass sports. In recent years, as the public becomes more health conscious, the level of competition in various sports continues to

improve, and the sports population continues to expand, the number of ACL injuries has increased significantly. Patients usually undergo ACL reconstruction to obtain a higher quality of life and even return to competition, but whether the post-rehabilitation of ACL reconstruction is scientific or not can directly affect the knee sequelae including muscle strength atrophy, weakened joint stability, knee pain, joint movement, traumatic osteoarthritis, etc. causing a greater psychological and physical burden on the individual.

In recent years, the development of professional rehabilitation exercises after ACL reconstruction has been rapid, such as core strength training, aquatic rehabilitation training, neuromuscular training, proprioceptive strengthening training and other scientific and reasonable rehabilitation exercise training not only accelerate the recovery of joint structures, but also enhance the rapid improvement of joint function, which greatly improves the possibility of patients to return to sports. However, there are some shortcomings in these studies, firstly, the research is relatively early, and some high-quality research literature is not included. Second, there are many different types of professional movement therapy, and the intervention methods, intervention duration, Second, there is a wide variety of specialized exercise therapies, with inconsistent interventions, duration of intervention, length of intervention, and outcome indicators, and significant variation in patient recovery, making it confusing for practitioners of sports medicine and rehabilitation medicine to choose exercise regimens for postoperative rehabilitation of patients with ACLR. In addition, there is insufficient evidence to suggest that specialized exercise rehabilitation has an advantage over other traditional rehabilitation exercises in the recovery of knee function after ACLR reconstruction. Therefore, there is a need to include more high-quality studies to further clarify the effects of professional rehabilitation exercises versus conventional or traditional rehabilitation

training methods on knee function recovery.

METHODS

Participant or population: Patients undergoing ACL reconstruction using sports rehabilitation for postoperative knee function recovery will be included.

Intervention: Professional sports rehabilitation.

Comparator: Traditional rehabilitation or rest and recuperation Traditional Rehabilitation.

Study designs to be included: RCTs.

Eligibility criteria: Inclusion criteria: (1) Rcts; (2) Postoperative analysis of professional sports rehabilitation compared with conventional rehabilitation; (4) Reported mean and standard deviation of scores on Lyshlom scale or VAS scale or IKDC scale.

Information sources: PubMed, Embase, Web of Science, and Cochrane Library, CNKI, VIP, WangFang.

Main outcome(s): Primary outcomes included:(1) Lysholm knee score: This scoring system consists of 8 questions on a scale of 0-100, with higher scores representing better functional status of the patient. Compared to other scores, it is more inclined to activities of daily living. (2)IKDC:It can be applied to various conditions of the knee joint, and assesses the knee joint for symptoms, function and adaptability to physical activity, and helps to compare between different knee disease groups. It can also assess a variety of diseases of the knee joint, and is most reliable for the assessment of knee ligament injuries and defects.

Additional outcome(s): Secondary outcomes included:(1) VAS pain score: For pain assessment, the basic method is to use a 10-cm-long moving scale with 10 scales on one side and "0" and "10" scales

at each end, with 0 indicating no pain and 10 representing the most severe pain that is unbearable.

Author 3 - Xianliang Wang - Proofreading and revision.

Quality assessment / Risk of bias analysis:

Quality assessment / Risk of bias analysis: Risk of bias was assessed using the Cochrane risk of bias tools and the tool include random sequence generation, allocation concealment, blinding, incomplete outcome data, selective reporting and other possible biases.

Strategy of data synthesis: Pooled statistical analysis was performed using Review Manager 5.4 to compare the differences between the professional sports rehabilitation group and the traditional rehabilitation group. Weighted mean differences (WMD) and 95% CI were estimated using inverse variance (IV). heterogeneity between studies was determined using Cochran's Q test and I² statistic. In cases of significant heterogeneity (I² ≥ 50% and p < 0.1), a random-effects model was used; otherwise, a fixed-effects model was used. In each individual trial and in this analysis, the level of statistical significance taken was p = 0.05. In addition, if more than 10 studies were included, publication bias analysis was performed.

Subgroup analysis: Divided into 5 subgroups according to interventions: Divided into 3 subgroups based on intervention period.

Sensitivity analysis: Subgroup analysis according to intervention and intervention period

Country(ies) involved: China.

Keywords: Professional sports rehabilitation, ACLR, meta-analysis.

Contributions of each author:

Author 1 - Chao Ma - framework design, Data collection and analysis, first draft writing.

Author 2 - Yiran Deng - Data collection and analysis, first draft writing.