Trees, et al. Exercise for treating isolated ACL injuries in Adults. Cochrane Database System Review. 19(4): CD005316, 2005.

http://www.cochrane.org/reviews/en/ab005316.html

Exercise for treating isolated anterior cruciate ligament injuries in adults

Trees AH, Howe TE, Dixon J, White L

Summary

Exercise for treating isolated anterior cruciate ligament injuries in adults

The anterior cruciate ligament of the knee controls movement of the lower leg bone (tibia) relative to the thigh bone (femur) and guides knee extension. Injury to this ligament is most common, especially when playing sport, through rapid stopping with a twisting movement. Injuries consist of partial or total tears in the ligament itself or where it attaches to bone. The resulting pain, fluid on the knee and inflammation limit movement and make it difficult to return to normal function and sporting activities. People are treated conservatively, or if the knee has become unstable they may need reconstruction surgery. Rehabilitation programs are an important part of treatment as return to full knee function may limit future degenerative changes in the knee. This review found no strong evidence to support one form of exercise program against another in managing anterior cruciate ligament injuries, looking at return to daily activities, work and sporting activities. Comparisons were of muscle strengthening, in weight bearing and non-weight bearing positions; at home or under supervision; and adding balance and proprioception exercises to a standard rehabilitation program.

This finding was based on nine randomised controlled trials, involving 391 mainly male people aged 15 to 49 years and followed up from 12 weeks to one year. Two trials used conservative treatment and seven trials, involving 315 participants, evaluated rehabilitation following reconstruction surgery. The small numbers of studies, non-standardised exercise programs, methods of looking at their effectiveness and reporting results contributed to the limited conclusions that could be drawn.

This record should be cited as: Trees AH, Howe TE, Dixon J, White L. Exercise for treating isolated anterior cruciate ligament injuries in adults. *Cochrane Database of Systematic Reviews* 2005, Issue 4. Art. No.: CD005316. DOI: 10.1002/14651858.CD005316.pub2.

This version first published online: October 19. 2005

Abstract

Background

The anterior cruciate ligament (ACL) is the most frequently injured ligament of the knee. Injury causes pain, effusion and inflammation leading to the inability to fully activate the thigh muscles. Regaining muscular control is essential if the individual wishes to return to pre-injury level of function and patients will invariably be referred for rehabilitation.

Objectives

To present the best evidence for effectiveness of exercise used in the rehabilitation of isolated ACL injuries in adults, on return to work and pre-injury levels of activity.

Search strategy

We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register (Feb 2005), the Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library*, Issue 1, 2005), MEDLINE (1996 to March 2005), EMBASE (1980 to March 2005), other databases and reference lists of articles.

Selection criteria

Randomised controlled trials and quasi-randomised trials testing exercise programmes designed to rehabilitate adults with isolated ACL injuries. Trials where participants were randomised to receive any combination of the following: no care, usual care, a single-exercise intervention, and multiple-exercise interventions, were included. The primary outcome measures of interest were returning to work and return to pre-injury level of activity post treatment, at six months and one year.

Data collection and analysis

Two authors independently assessed trial quality and extracted data. Study authors were contacted for additional information. Adverse effects information was collected from the trials.

Main results

Nine trials involving 391 participants were included. Only two trials, involving 76 participants, reported conservative rehabilitation and seven trials, involving 315 participants, evaluated rehabilitation following ACL reconstruction. Methodological quality scores varied considerably across the trials, with the nature of participant and assessor blinding poorly reported. Trial comparisons fell into six categories. Pooling of data was rarely possible due to lack of appropriate data as well as the wide variety in outcome measures and time points reported. Insufficient evidence was found to support the efficacy of one exercise intervention over another.

Authors' conclusions

This review has demonstrated an absence of evidence to support one form of exercise intervention against another and the use of supplementary exercises in the management of isolated ACL injuries. Further research in the form of large scale well designed randomised controlled trials with suitable outcome measures and surveillance periods, using standardised reporting should be considered