

Chalmers PN, Mall NA, et al. Does ACL Reconstruction Alter Natural History? A Systematic Literature Review of Long-Term Outcomes. JBJS Am 2014;96:292-300

Design: Systematic literature review

Study purpose: In patients with an ACL injury and at least ten years of followup, to compare knees undergoing ACL reconstruction and knees treated nonoperatively with respect to (1) knee stability on physical examination, (2) function and patient-based outcomes, (3) need for further surgery (reoperation or later meniscal surgery), (4) radiographic outcomes

Reasons not to cite as evidence:

- There were no randomized trials yet published comparing ACL reconstruction with nonoperative treatment with ten years of followup
- The included studies which did report on surgical and nonsurgical treatment allocated patients based on patient and clinician choice, and are often at risk of bias
- Two of the studies (Meuffels 2009, Streich 2011) did match pairs of patients on age, sex, and BMI (Streich) or pre-injury Tegner activity score (Meuffels), and thus attempt to control some potential confounders
 - o Both studies reported that the nonoperated group underwent more meniscal operations on the index knee than the operated group
 - Meuffels reported meniscectomies in 3/25 operated knees and in 10/25 nonoperated knees
 - Streich reported subsequent meniscal surgery in 4/40 operated knees and in 16/40 nonoperated knees
 - o Meuffels reported greater stability in the operated than the nonoperated knees with the KT-1000 arthrometer, but Streich reported no difference
 - o Neither author reported treatment differences in subsequent radiographic osteoarthritis
- When all studies were considered, the patient-based functional outcomes and the radiographic outcomes did not show differences between operative and nonoperative treatments, but knee stability on clinical examination was greater with the operated groups
- The two matched pair studies showing more subsequent meniscal surgery in the nonoperated knees after at least ten years of followup need to be compared with the randomized trial of Frobell 2013, which did not qualify for inclusion because it had only five years of followup; however, at five years, there were no differences between Frobell's early surgery and optional delayed surgery with respect to later meniscal operations, and the risk of meniscal surgery must be regarded as very uncertain
 - o A retrospective cohort study comparing ACL reconstruction with physical therapy (Fink 2001) allocated patients based on their treatment preferences;

Fink reported similar frequencies of subsequent arthroscopic partial meniscectomy in the two groups

- It is not clear whether the subsequent meniscal surgery in the nonoperated groups was due to incident meniscal injury or due to problems arising from meniscal damage which accompanied the original ACL tear

Assessment: Although not adequate for evidence, this systematic review does add to the information that ACL reconstruction, compared to physical therapy, yields similar patient-based functional outcomes and radiographic outcomes at ten years of followup, even though knee stability assessed by physical examinations may be greater with ACL reconstruction

References:

Fink C, Hoser C, Hackl W, Navarro RA, Benedetto KP. Long-term Outcome of Operative or Nonoperative Treatment of Anterior Cruciate Ligament Rupture : Is Sports Activity a Determining Variable? *Int J Sports Med* 2001; 22: 304-309

Meuffels DE, Favejee MM, et al. Ten year follow-up study comparing conservative versus operative treatment of anterior cruciate ligament ruptures. A matched-pair analysis of high level athletes. *Br J Sports Med* 2009;43:347–351

Streich NA, Zimmerman D, et al. Reconstructive versus non-reconstructive treatment of anterior cruciate ligament insufficiency. A retrospective matched-pair long-term follow-up. *Int Orthop* 2011;35:607-613.