

# Nonoperative, Early, and Delayed Reconstructive Treatment of Anterior Cruciate Ligament Tears

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## Background:

ACL injuries are an increasingly common injury among all ages in the United States. The most common causes of ACL injuries include skiing, lateral movement sports, and unexpected falls.

## Purpose:

There are three main standards of care when it comes to an anterior cruciate ligament tear: non-operative treatment, early operative treatment, and delayed operative treatment. The purpose of this research is to determine the most effective treatment timeline, leading to greater healing outcomes and overall decreased healthcare cost and increases patient satisfaction with treatment.

## PICOT:

In adults and adolescents ages 14-65, does early operative ACL reconstruction surgery result in better health outcomes and full recovery with return to play when compared with delayed or nonoperative treatment for ACL surgery?

## Design & Methods:

**Keywords:** ACL reconstruction, delayed operative treatment, ACL tear, Early operative ACL reconstruction, delayed ACL reconstruction  
**Inclusion:** 14-65 years old, torn ACL, primary tear, published between 2017-2023  
**Exclusion:** repeat ACL injuries, published 5+ years ago

## Synthesis of Evidence:

The databases used for this research were Pubmed and The National Institute of Health, brought through the Valparaíso University Library Summons which pulls books, articles, and research from hundreds of different databases. All studies analyzed were peer-reviewed and academic. The articles reviewed were a mix of systemic review, meta-analysis, controlled studies, and randomized trials.

## Summary of Evidence Search:

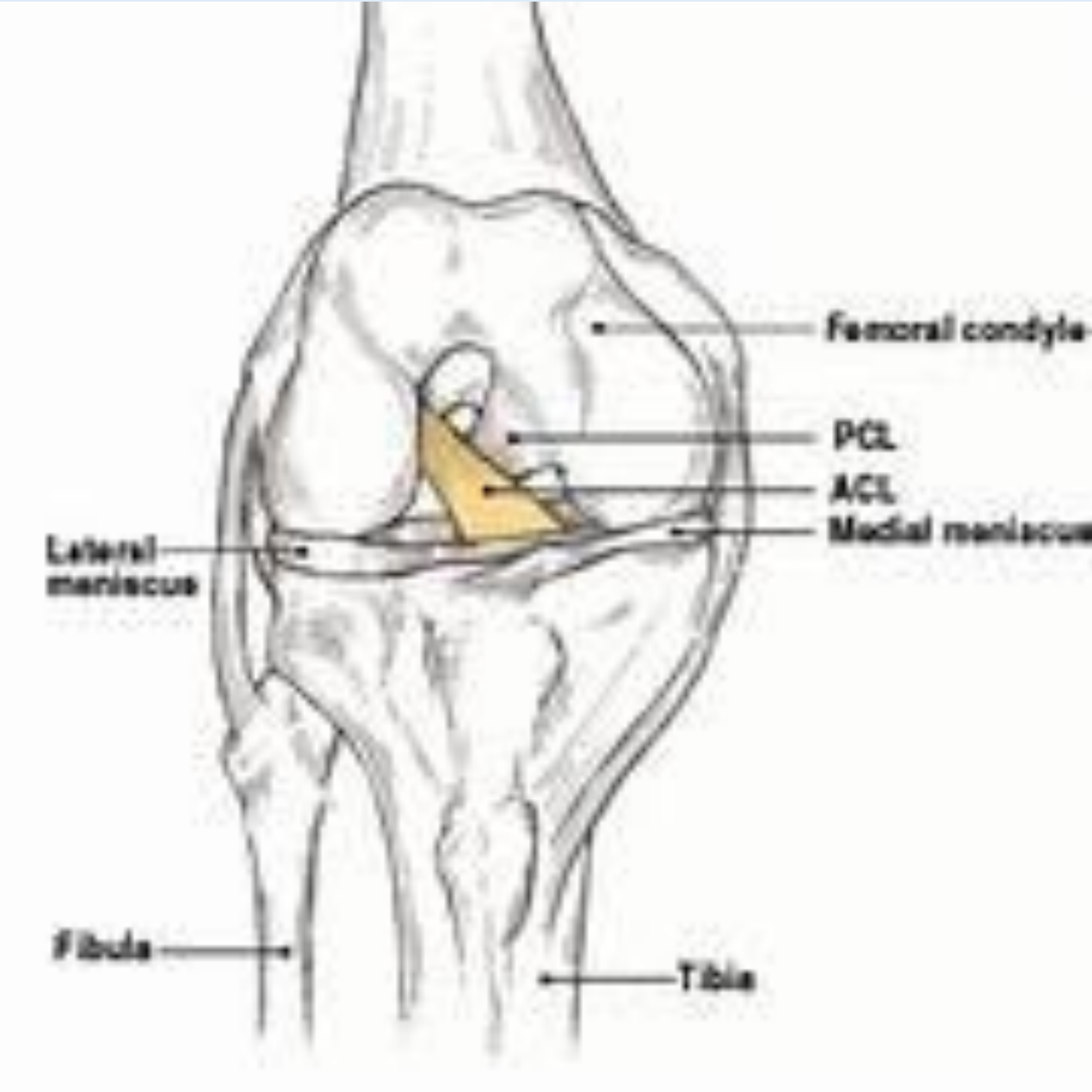
Database	Yielded	Reviewed	In Analysis
“ACL tear”	7,688	112	5
AND “treatment.”	1,527	103	9
Total:	9,215	215	14

## Results:

- › Studies found that early operations were most cost-effective over delayed surgery or non-operative treatment in the young and athletic population.<sup>1</sup>
- › The patients who underwent early ACL surgery had greater outcomes in terms of overall knee function than those who initially did not seek operative treatment or those who received late operative treatment. They also consistently scored higher in all categories of analysis: symptoms, pain, activities of daily living, sports and recreation, and quality of life.<sup>2</sup>
- › In the beginning, during the first 3 months after the injury, the rehabilitative + delayed operative surgical group scored higher, but at the 6, 9, 12, and 24 month marks, the early operative group consistently scored higher when using the International Knee Documentation Committee score.<sup>3, 4</sup>
- › This study also concluded that there were significantly less patients that were able to return to play if they did not have surgery to repair the torn ACL.<sup>5</sup>

## Best Practice/Discussion:

Early operative treatment was consistently found to be preferred for patients who are more active and who require knee stability to maintain their pre-injury quality of life. These patients also reported a lesser incidence of injuring supporting structures after the reconstruction. Early reconstruction has been shown to be the most cost-effective option for treatment of an ACL tear. Patients who received early operative treatment consistently throughout all the studies showed greater knee stability, less pain, less risk for injury to the surrounding structures, and overall a higher quality of life when compared to those who got delayed or nonoperative ACL tear treatment. This group also reports the highest sustained scores for knee stability and return-to play after the surgery. They also reported less symptoms of the original tear than the delayed-operative and nonoperative groups. These patients also receive post-operative physical therapy and rehabilitations to strengthen the surrounding knee structures. Overall, studies suggest this group had the best long-term results and satisfaction after the surgery.



## Limitations/Further study:

One major limitation of this research is that many of the studies that are done on these patients use biased methods of information gathering from the patients, such as surveys. These surveys allow bias in data collections because it is heavily based on personal experience. Within the research studied, there was no objective assessment for knee stability or knee pain. Several of the evaluation tools used to evaluate pain, knee stability, and overall quality of life are evaluated subjectively on surveys.

One area where future research could be done is in assessing knee stability objectively. The major limitation of several of the studies evaluated in this paper is that there was no objective way to evaluate pain and knee stability, it was all based on patient perception which is subjective. The primary objective evaluation is using physical examination and diagnostic imaging. Objective measurements and better physical exam tests to evaluate overall knee quality of life could be explored.

## Conclusion:

The results of this paper concluded that early operative ACL reconstruction within 3 weeks of the original injury results in greater knee stability, less pain, greater range of motion, higher knee-related quality of life, less knee related symptoms, maintained activities of daily living, and greater recreational ability, when compared to late operative or nonoperative treatment. The studies reviewed in this paper concluded that early operative treatment for ACL tears is the optimal timeline that minimizes postoperative complications and makes for optimal healing. This conclusion is to be expected, as more immediate treatment is typically recommended for most surgical procedures.

## References:

<sup>1</sup>Bergerson E, Persson K, Svantesson E, et al. Superior Outcome of Early ACL Reconstruction versus Initial Non-reconstructive Treatment With Late Crossover to Surgery: A Study From the Swedish National Knee Ligament Registry. *Am J Sports Med.* 2022;50(4):896-903. doi:10.1177/03635465211069995

<sup>2</sup>Reijman M, Eggerding V, van Es E, et al. Early surgical reconstruction versus rehabilitation with elective delayed reconstruction for patients with anterior cruciate ligament rupture: COMPARE randomized controlled trial. *BMJ.* 2021;372:n375. Published 2021 Mar 9. doi:10.1136/bmj.n375

<sup>3</sup> Ramski DE, Kanj WW, Franklin CC, Baldwin KD, Ganley TJ. Anterior cruciate ligament tears in children and adolescents: a meta-analysis of nonoperative versus operative treatment. *Am J Sports Med.* 2014;42(11):2769-2776. doi:10.1177/0363546513510889

<sup>4</sup>James EW, Dawkins BJ, Schachne JM, et al. Early Operative Versus Delayed Operative Versus Nonoperative Treatment of Pediatric and Adolescent Anterior Cruciate Ligament Injuries: A Systematic Review and Meta-analysis. *Am J Sports Med.* 2021;49(14):4008-4017. doi:10.1177/0363546521990817

<sup>5</sup>Ferguson D, Palmer A, Khan S, Oduoza U, Atkinson H. Early or delayed anterior cruciate ligament reconstruction: Is one superior? A systematic review and meta-analysis. *Eur J Orthop Surg Traumatol.* 2019;29(6):1277-1289. doi:10.1007/s00590-019-02442-2