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## Surgical Techniques

# Posterior Cruciate Ligament Reconstruction, Single Bundle Technique.

**Alejandro Jaramillo MD<sup>a</sup>**

<sup>a</sup> Orthopaedics and Traumatology. Sports Medicine.

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## KEY WORDS

Posterior cruciate ligament  
Reconstruction

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\* Corresponding author. *E-mail address:* [alejandrojlo@gmail.com](mailto:alejandrojlo@gmail.com)

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## INTRODUCTION

Single-bundle posterior cruciate ligament (PCL) reconstruction is a challenging procedure that requires a deep understanding of anatomy, biomechanics, and advanced surgical techniques. This video aims to provide an audiovisual guide, to facilitate the performance of this challenging surgery.

The PCL plays a crucial role in the rotational and anteroposterior stability of the knee. Single-bundle reconstruction focuses on restoring function of the anterolateral bundle, which is the primary stabilizer of the PCL. It is recommended to use techniques that reproduce the anatomical orientation and tension of the anterolateral bundle to prevent posterior translation of the tibia and excessive external rotation. Double bundle reconstruction techniques show biomechanical superiority, but do not show clinical benefit, which is why it is our choice.

## PATIENT SELECTION

Single-bundle PCL reconstruction is indicated in patients with chronic knee instability due to PCL injuries unresponsive to conservative treatment, grade III PCL injury, and combined injuries. Individual patient characteristics, including age, activity level, associated injuries, and ligamentous laxity and alignment, should be carefully considered to determine the type of correction. Well, in chronic injuries, alignment takes precedence over ligamentous reconstruction.

## IMAGENOLOGY

A thorough preoperative evaluation is recommended with magnetic resonance imaging to assess associated injuries, stress radiographs, and axis assessment in chronic patients and varus patients. Perform a thorough physical examination, as associated injuries may be present in more than 70% of cases.

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## CLINICAL RESULTS

The available literature has consistently demonstrated significant improvements in a variety of clinical measures after single-bundle PCL reconstruction. In terms of knee stability, a substantial reduction in posterior laxity is observed, measured through posterior drawer and tibial translation tests, indicating effective restoration of PCL function.

In addition to improved stability, patients report a noticeable decrease in pain and significant recovery of knee function. Objective measurements of function, such as range of motion and muscle strength, show satisfactory restoration of joint biomechanics, resulting in increased ability to perform daily activities and sports.

Subjective results are also positive, with patients reporting improved quality of life and greater satisfaction with the reconstructed knee. Outcome assessment scales, such as the International Knee Documentation Committee (IKDC) and the Knee Injury and Osteoarthritis Outcome Score (KOOS), reflect significant improvement in knee function and functional capacity after surgery.

## CONCLUSIONS

Single-bundle posterior cruciate ligament reconstruction is an advanced technique that offers promising results in the hands of expert knee surgeons. With a thorough understanding of the biomechanical fundamentals, careful patient selection, and precise execution of the surgical technique, this intervention remains a suitable option for the management of PCL injuries. I hope that with this video, the surgical technique is made easier and can be done in a reproducible way.

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