

The 'other' cruciate ligament: Newer treatments for PCL tears

1 July 2009

While major advances have been made in the understanding of posterior cruciate ligament (PCL) anatomy and reconstruction, a literature review published in the July 2009 issue of the *Journal of the American Academy of Orthopaedic Surgeons* (JAAOS) finds that there must be continued advances in basic science research in order to determine the best course of treatment for those with PCL injuries.

"An ACL (anterior cruciate ligament) tear is an injury of instability; a PCL tear is an injury of disability," said study author Matthew Matava, MD, Associate Professor, Department of [Orthopedic Surgery](#), Washington University School of Medicine, in Chesterfield, Missouri. "With a PCL injury, your knee won't buckle on you tomorrow, but in a few months or years it may become painful and not as strong or stable as it was prior to the injury. PCL tears are less frequently discussed because they are often left undiagnosed and the patient does not seek treatment for what they assumed was a mild injury."

PCL injuries are assessed by grades:

- Grade 1: Partial tear (non-surgical treatment options recommended)
- Grade 2: Isolated, near complete tear (non-surgical treatment options recommended)
- Grade 3: Complete PCL torn, with other ligament injuries (surgery often recommended, but not always)

Two newer surgical options, along with one traditional method, are currently used to treat Grade 3 injuries:

- Traditional: One-bundle bone graft passed through a tunnel in the tibia (shin bone).

One-bundle grafts are made thicker than two-bundle grafts, but may not be as effective because they attach at a single point.

- Newer: Two-bundle graft (studied for the past 10 years). Two-bundle grafts use thinner individual grafts, but their total graft volume is thicker. They may be more effective than one-bundle grafts because they attach at two different points.
- Newer: Inlay reconstruction is an approach whereby a graft is screwed into the back of the tibia avoiding a tunnel through the front of the tibia.

According to Dr. Matava, basic science data suggests that it is favorable to use a two-bundle graft over a one-bundle graft, and that an inlay reconstruction is preferable to a graft passing through a tibial tunnel. Inlay reconstruction is different, he says, because the graft does not get stretched around the tibial tunnel and is prevented from stretching out and/or fraying.

"I like this procedure because I have had improved results compared to prior patients of mine that underwent the traditional method with the graft placed through the tibial tunnel," said Dr. Matava. "Additionally, there is biomechanical evidence that the benefits I have noticed are real." There have not been any randomized prospective studies to date, however, comparing the two methods.

Some orthopaedic surgeons, however, believe these procedures are more complicated and therefore more risky; they also disagree on how much tension to use on the graft. If a patient has a PCL injury, the orthopaedic surgeon should first determine the level of injury in order to decide on the best treatment option. Because PCL surgery is technically challenging, a patient needing surgery should seek out an orthopaedic surgeon with experience performing PCL reconstructions.

"Although we believe the newer treatments are better, we still must prove it," said Dr. Matava. "In order to do that, we must continue with our research, and follow patients over the course of several years to determine whether their treatments were successful."

Source: American Academy of Orthopaedic Surgeons ([news](#) : [web](#))

APA citation: The 'other' cruciate ligament: Newer treatments for PCL tears (2009, July 1) retrieved 5 May 2021 from <https://medicalxpress.com/news/2009-07-cruciate-ligament-treatments-pcl.html>

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