

# Meniscal Root Tears

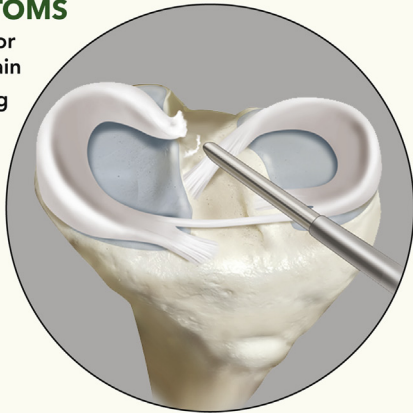
Jorge Chahla, M.D., Ph.D., and Robert F. LaPrade, M.D., Ph.D.



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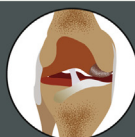
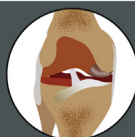

**SYMPTOMS**

- Posterior knee pain
- Popping



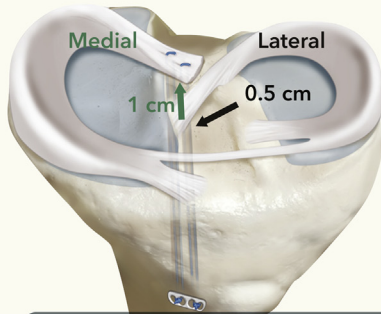
**BIOMECHANICS**

Root tear is equivalent to **NO meniscus**


→

→


Absence of meniscus increases risk of TKR by 132X

**TECHNIQUE**



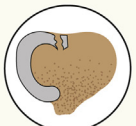
Use the tibial spines as a landmark!

Medial Root: 1 cm posterior to Medial spine	Lateral Root: 0.5 cm medial to Lateral spine
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## Arthroscopy

The Journal of Arthroscopic and Related Surgery

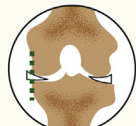
**DIAGNOSIS (MRI)**



Root tear



Ghost sign



Extrusion

**TREATMENT**

TIME SENSITIVE

Rapid Evolution

**Conservative**

- Elderly patients
- Significant OA (KL >2)

**Partial Meniscectomy**

- Persistent symptoms in patients with no indication for repair

**Root repair**

- Active Patients with no Significant OA (KL 1-2)
- Acute and Chronic tears

**RESULTS**

- Excellent outcomes regardless of age or laterality
- High patient satisfaction
- Cost effective

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**Abstract:** Meniscus root tears are a specific type of meniscal injury that have gained attention over the past 5 years and have been reported to account for 10% to 21% of all meniscal tears, affecting nearly 100,000 patients annually. Meniscal root tears either are defined as an avulsion of the insertion of the meniscus attachment or complete radial tears that are located within 1 cm of the meniscus insertion. Biomechanical studies have demonstrated that meniscal root injuries interrupt the continuity of the circumferential fibers, and hence lead to failure of the normal meniscal function to convert axial loads into transverse hoop stresses. The most common presenting symptoms in meniscal root tears are posterior knee pain and joint line tenderness, especially with deep squatting. Another common symptom is a popping sound heard while participating in light activities such as ascending stairs or squatting. Magnetic resonance imaging signs of medial meniscus root tears include: (1) medial meniscal extrusion of  $\geq 3$  mm in a coronal section; (2) high signal indicating a disruption of the posterior meniscal root region in an axial view; and (3) a “ghost sign,” which is the absence of an identifiable meniscus in the sagittal plane, or increased signal replacing the normally dark meniscal tissue signal at the posterior root attachment. Active patients, regardless of age, should be referred early and considered for a meniscal root repair. Indications for a meniscal root repair include acute, traumatic root tears in patients with nearly normal or normal cartilage and chronic symptomatic root tears in young or middle-aged patients without significant preexisting osteoarthritis. Meniscal root repair has been demonstrated to have high satisfaction rates and superior outcomes to arthroscopic meniscectomy for root tears. To restore the function of the meniscus after medial meniscus root tears, a transosseous meniscal root repair technique is most commonly used. The advantage of this technique is the ability to reduce and fix the meniscal root to the broad anatomic footprint to maximize its healing potential. In addition, the transtibial tunnels may contribute to the release of biological factors that can enhance the healing of the meniscal root repair.

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