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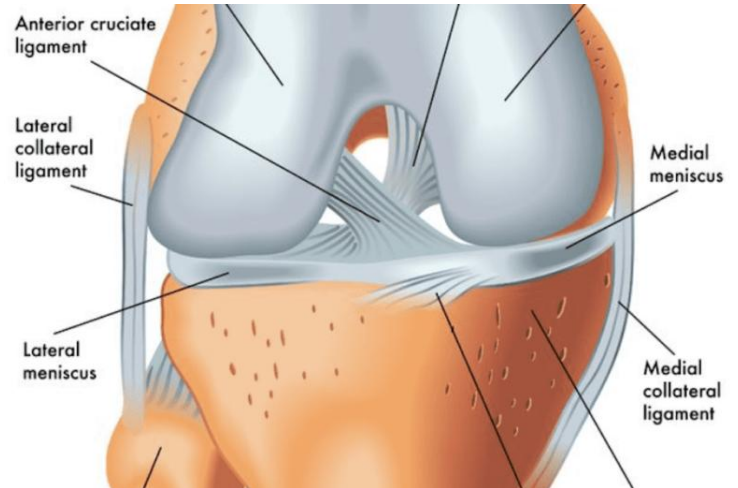
## ACL Reconstruction Graft Options

### Background:

The Anterior Cruciate Ligament (ACL) is a ligament that attaches the two bones of your knee together. When it is torn, the knee can feel unstable.

In general, the ACL cannot be "repaired"; instead, it is reconstructed using a transferred tendon.

The tendon that is used is either from the patient (autograft) or it is taken from a donor (allograft).

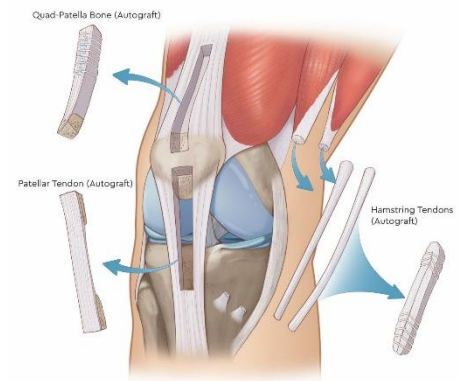


### Graft Options:

With an autograft, either part of the quadriceps tendon, patellar tendon or hamstring tendons are harvested and used to reconstruct the ACL. There are different advantages and disadvantages with each graft choice.

However, minimal differences have been shown between muscle strength, function, return to sport or patient satisfaction between each choice.

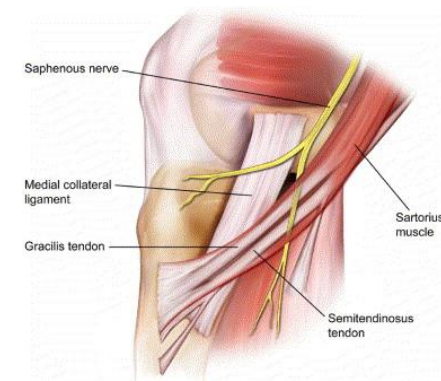
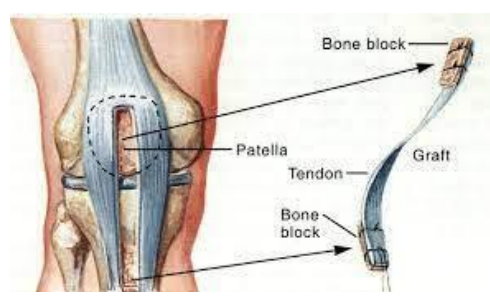
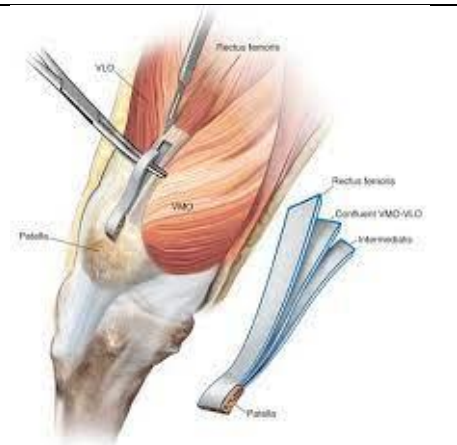
Graft choice should be individualized for each patient and should be based on age, activity level of the patient, and the nature of the injury.



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Please review the attached table for more information on the advantages and disadvantages of each graft type.

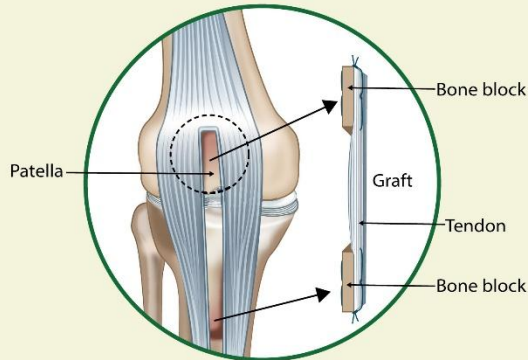
Graft Type	Advantages	Disadvantages
<b>Autograft</b>	<ul style="list-style-type: none"> <li>• Patient's own tissue</li> <li>• More predictable incorporation</li> <li>• No risk of disease transmission</li> <li>• Lower risk of failure</li> </ul>	<ul style="list-style-type: none"> <li>• Donor site morbidity</li> <li>• More painful &amp; slower early recovery</li> </ul>
<b>Allograft</b>	<ul style="list-style-type: none"> <li>• No donor-site morbidity</li> <li>• Smaller incisions</li> <li>• Shorter surgery</li> <li>• Less painful, quicker early recovery</li> </ul>	<ul style="list-style-type: none"> <li>• Higher risk of failure</li> <li>• Theoretical risk of disease transmission (all allografts are tested)</li> </ul>

Graft Type	Advantages	Disadvantages	Location
<b>Hamstring autograft</b>	<ul style="list-style-type: none"> <li>• Smaller incision</li> <li>• Less painful</li> <li>• Earlier recovery</li> </ul>	<ul style="list-style-type: none"> <li>• Hamstring weakness</li> <li>• May require allograft augmentation</li> <li>• Higher failure rate in young, female athletes with significant joint laxity</li> </ul>	
<b>Patellar tendon autograft (BPTB)</b>	<ul style="list-style-type: none"> <li>• Bone to bone healing</li> <li>• Longest history of use</li> <li>• Lowest failure rates</li> </ul>	<ul style="list-style-type: none"> <li>• Greater incidence of pain in front of the knee (10-15%)</li> <li>• Increased risk of osteoarthritis</li> <li>• Larger incision</li> <li>• Longer, more invasive surgery</li> <li>• Quadriceps weakness</li> </ul>	
<b>Quadriceps tendon autograft</b>	<ul style="list-style-type: none"> <li>• Strong graft</li> <li>• Smaller incision than BPTB</li> <li>• Less risk of front of the knee pain</li> <li>• Equivalent outcomes to patellar tendon and hamstring</li> </ul>	<ul style="list-style-type: none"> <li>• Delayed quadriceps recovery</li> <li>• Less long-term outcomes regarding re-tear/failure (newer graft option)</li> </ul>	

# ACL Reconstruction Graft Options



### Bone-Patellar Tendon-Bone (BPTB) Autograft

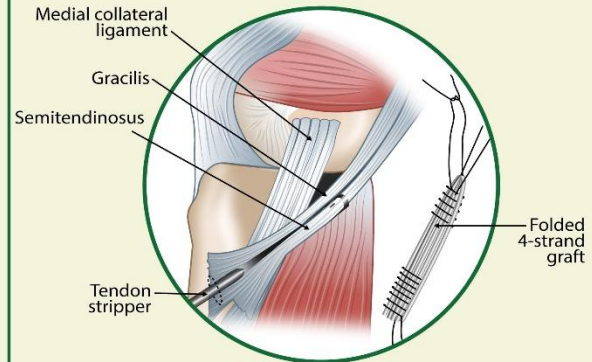


Right knee anterior view

**Risks:**

- + Fastest incorporation
- + Low revision rate
- + Improved return-to-sport
- Knee extensor weakness
- Anterior knee pain
- Patella fracture/tendon rupture
- Arthritis

### Hamstring Tendon (HT) Autograft

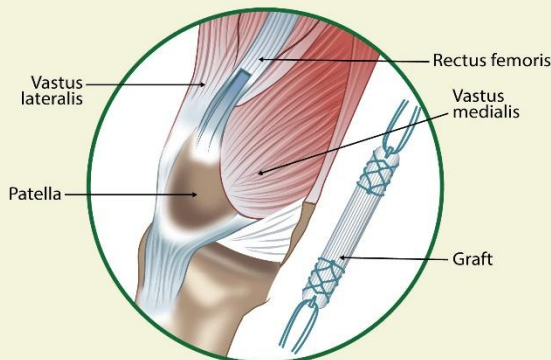


Right knee medial view

**Risks:**

- + May use in skeletally immature
- + Small harvest incision
- + Avoids extensor mechanism
- Knee flexor weakness
- Saphenous nerve injury
- Bone tunnel widening
- Higher risk of infection

### Quadriceps Tendon (QT) Autograft

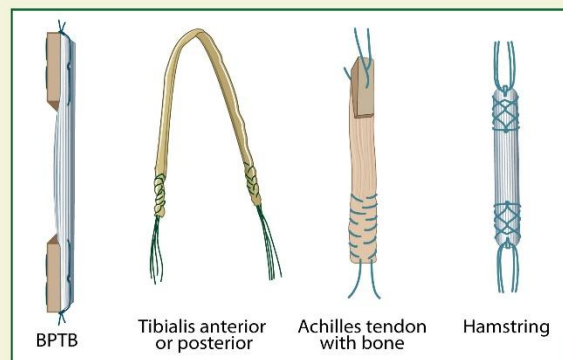


Right knee anteromedial view

**Risks:**

- + May use in skeletally immature
- + Large diameter graft
- + Small harvest incision
- Knee extensor weakness
- Limited long-term outcome data

### Allografts



**Risks:**

- + No donor site morbidity
- + Reduced surgical time
- + Predictable graft size
- Higher failure rate in young athletes
- Lower return-to-sport
- Higher cost

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Abstract and disclosure of potential author conflicts of interest are available at <https://www.arthroscopyjournal.org/infographiclibrary>