

SUBSPECIALTY PROCEDURES

PERONEUS LONGUS TENDON HARVESTING FOR ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Investigation performed at AO Hospital, Karachi, Pakistan

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Abstract

Background: There remains controversy regarding the ideal graft choice for anterior cruciate ligament (ACL) reconstruction¹. Bone-patellar tendon-bone and hamstring autografts have been considered the gold standard for decades. Despite the good clinical outcomes, donor-site morbidity is a concern for both of these grafts². Peroneus longus tendon autograft has also been considered as a potential graft for many orthopaedic reconstructive procedures³. The biomechanical properties and thickness of such a graft permit its use for ACL reconstruction^{3,4}. The tensile strength of a peroneus longus tendon autograft is the same as that of a hamstring autograft and greater than that of a bone-patellar tendon-bone graft and a quadriceps tendon graft^{3,5}. We aimed to describe the steps to harvest the peroneus longus tendon autograft during single-bundle ACL reconstruction.

Description: Identification of anatomical landmarks is performed, including the distal aspect of the fibula and the posterior border of the fibula, 2 cm above the tip of the bone. A longitudinal incision is made along the posterior border of the fibular bone, from 2 cm above the tip of the fibula. Care is taken to identify the tendon sheath that covers the longus and brevis approximately 2 cm above the superior extensor retinaculum, and the peroneus longus is stitched to the peroneus brevis. The proximal aspect of the peroneus longus tendon is whipstitched, after which the peroneus longus tendon and surrounding soft tissues are incised. The peroneus longus tendon is then released with use of a closed stripper, and the graft is prepared.

Alternatives: Alternative nonoperative treatment options include physical therapy, nonsteroidal anti-inflammatory drugs, rest, and limitation of sporting activities. Alternative surgical treatment options include arthroscopic debridement, ACL repair or reconstruction with bone-patellar tendon-bone or hamstring-tendon autograft, and ACL reconstruction with allograft.

Rationale: Recent studies have shown that ACL reconstruction with use of a peroneus longus tendon autograft is safe and effective, with less donor-site morbidity compared with other tendon autografts^{4,6,7}.

Expected Outcomes: The peroneus longus graft has been accepted for ligament reconstruction because of its strength, safety, and less donor-site

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morbidity⁷. The peroneus longus graft allows surgeons to harvest the autograft via a relatively small incision, resulting in fewer donor-site complications⁴. According to Rhatomy et al., the use of a peroneus longus graft provides good functional outcomes that are comparable with those of a hamstring autograft, but it has a larger graft diameter and its harvest results in less thigh hypotrophy⁸. Additionally, a case series of 10 patients who underwent ACL reconstruction with use of a peroneus longus autograft showed satisfactory Lysholm scores and low disability according to the Foot and Ankle Disability Index⁹.

Important Tips:

- Examination under anesthesia and arthroscopic confirmation of the ACL tear are recommended prior to harvesting the peroneus longus tendon.
- Take care to identify the anatomical landmarks of the peroneus longus and brevis.
- Tenodesis of the peroneus longus to the brevis is performed first, followed by whipstitching of the peroneus longus proximal to the site of the tenodesis.
- Once the peroneus longus tendon is passed through the closed stripper, gently maintain traction on the sutures while pushing the stripper proximally until the tendon is freed.
- Care should be taken not to damage the superior peroneal retinaculum, which provides the primary restraint to tendon subluxation.
- Identification of the peroneus longus and brevis is important. The peroneus longus tendon is free of muscle attachment and more rounded in shape, while the peroneus brevis contains muscle fibers.

Acronyms & Abbreviations:

- PL = peroneus longus
- CI = confidence interval
- IKDC = International Knee Documentation Committee

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