

# Full-Thickness Peroneus Longus Tendon Autograft For Anterior Cruciate Ligament Reconstruction: Outcomes And Donor Site Morbidity

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# Disclosures

- Conflict of interests: None
- Financial support/ disclosures: None
- Company affiliations: none

# Background

- Most popular autografts used are quadrupled hamstring graft and bone-patellar tendon-bone (BPTB) graft.
- The choice of an appropriate autologous graft becomes difficult in cases of revision ACL surgeries or multi-ligament reconstructions, where more than one tendon may be needed.
- PLT is gaining popularity as a graft option in knee ligament reconstruction surgeries

# Peroneus longus graft

## Advantages:

- A viable alternative in primary or revision ACL
- Useful in multiligament injury
- Good functional outcome
- Comparable strength

Disadvantages: Donor ankle morbidity

## The Anterior Cruciate Ligament Reconstruction with the Peroneus Longus Tendon: A Biomechanical and Clinical Evaluation of the Donor Ankle Morbidity

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TURCICA

## Peroneus Longus Tendon Autograft is a Safe and Effective Alternative for Anterior Cruciate Ligament Reconstruction

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Author's translation

Acta Orthop Traumatol Turc 2008;42(1):38-43

## Anterior cruciate ligament reconstruction with the peroneus longus tendon

*Peroneus longus tendonu ile ön çapraz bağ rekonstrüksiyonu*

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# Objectives

- This study aims to assess
  - the functional outcomes of knee after ACL reconstruction in revision and multiligament injury cases with PL autograft
  - donor site morbidity and ankle strength after harvesting ipsilateral peroneus longus autograft

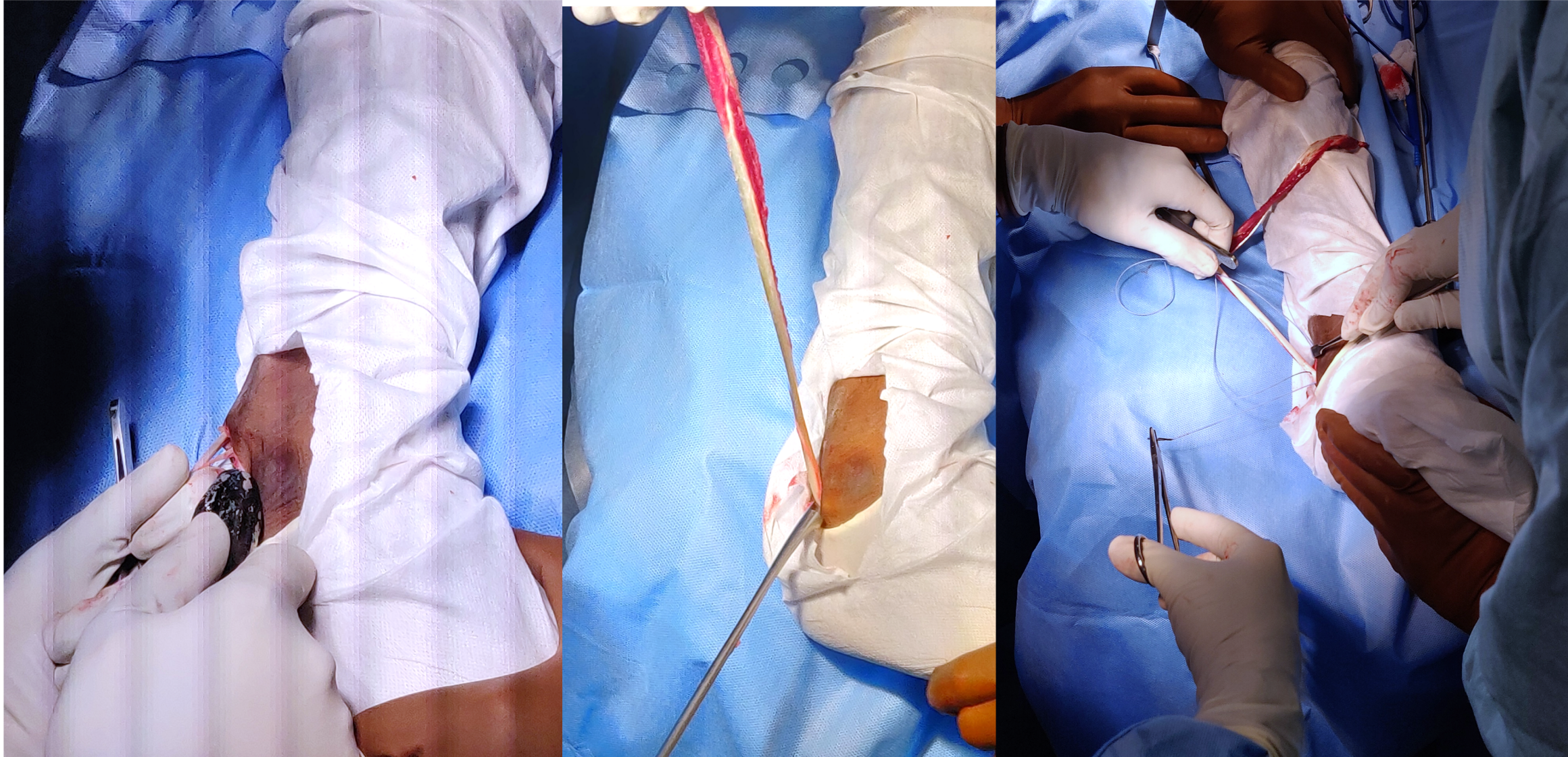
# Methodology

- Prospective case series.
- Follow up evaluated (preop and at two-year follow-up)
  - Clinical examination for knee for laxity, ankle joint stability
  - visual analogue scale (VAS) for pain,
  - IKDC score, Lysholm score,.
- Morbidity of donor ankle
  - American Orthopaedic Foot and Ankle Society (AOFAS) score,
  - bilateral evertors, and first ray plantar-flexion strength measurement using an isometer (Innovative Design Orthopaedics) at two-year follow-up.

# Operative technique

- Incision along the posterior border of the distal fibula, just above the superior peroneal retinaculum.
- Incise fascia and both peroneus longus and brevis identified
- Peroneus longus secured with suture and cut
- Distal end of tendon sutured with peroneus brevis with heavy non-absorbable suture keeping ankle in eversion
- Proximal tendon harvested with a tendon retriever
- Graft prepared
- Rehabilitation: Ankle to be kept immobilised for 1week. Gentle Stretching exercises to be started after that.
- Gentle eversion strengthening exercises with use of resistance band after 2weeks.

# Operative technique





# Results

- Ipsilateral PLT graft was used in ten patients of revision ACL reconstruction, and 27 patients of the multi-ligament ligament knee injury.
- The mean length of PLT (cm) was 26.2 (SD 2.6, range 22-31),
- Mean diameter of the doubled graft (mm) 7.9 (SD 0.68, range 7.5-8.5).
- There was a significant improvement in VAS score for pain, Lysholm, and IKDC scores ( $p < 0.001$ ) at two -year follow-up.
- There were no cases of graft failure, superficial or deep infection.
- Ankle dorsiflexion/plantarflexion/ eversion strength/ first ray plantarflexion strength, and AOFAS score ( $p = 0.29$ ) were found to be comparable to the normal side in all patients.

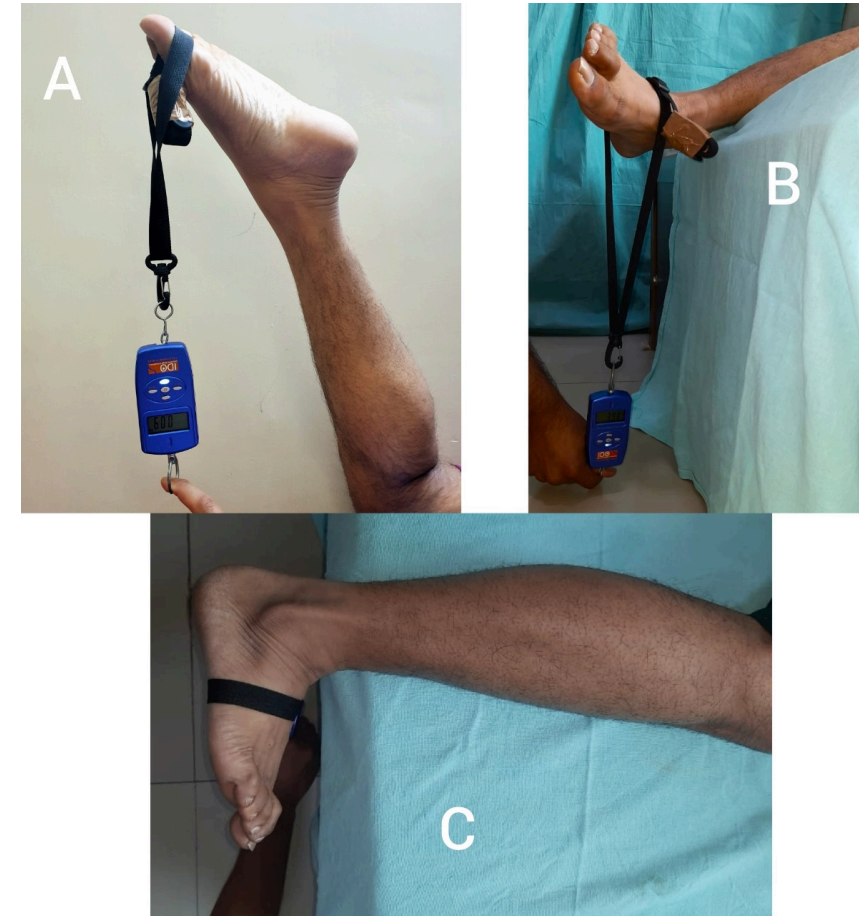
# Table: Table showing distribution of clinical and functional outcome parameters

Variables	Mean± Standard deviation	Range	Significance
Knee range of flexion unaffected side	124.1±5.3	116-133	0.1
Knee range of flexion affected side	121.3±7.1	104-130	
Preoperative VAS score	7.2±1.6	5-9	<0.001
Postoperative VAS score	2.4±1.1	0-4	
Preoperative Lysholm score	52.4±6.4	38-64	<0.001
Postoperative Lysholm score	85.03±7.2	61-95	
Preoperative IKDC score	53.5±5.6	44.5-63.2	<0.001
Postoperative IKDC score	80.7±6.06	58.6-91.3	

Footnote: VAS: Visual analog scale, IKDC: International Knee Documentation Committee

# Table: Table showing parameters measuring donor ankle morbidity

Variables	Mean± deviation	Standard	Range	Significance
Ankle dorsiflexion unaffected side	19.3±2.8		15-28	0.32
Ankle dorsiflexion affected side	18.5±3.04		13-25	
Ankle plantarflexion unaffected side	44.3±3.7		36-50	0.19
Ankle plantarflexion affected side	43.06±3.2		35-48	
AOFAS score unaffected side	99.3±0.7		98-100	0.29
AOFAS score affected side	98.9±1.6		95-100	
Evertor power unaffected side (Kg)	4.4±1.3		3.1-7	0.6
Evertor power affected side (Kg)	4.2±1.5		2.7-6.8	
First ray plantar flexion unaffected side (Kg)	7.5±2.4		4-11.6	0.52
First ray plantar flexion affected side (Kg)	7.2±2.1		3.5-11.1	



# Conclusion

- PL autograft can be a potential autograft option for ACL reconstruction in multi-ligament knee injuries and revision ACL reconstruction.
- No significant donor site morbidity was noted at follow-up.

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