

Can Full Thickness Peroneus Longus Graft Be Used For ACL Reconstruction ?

3 Year Prospective Study with Isokinetic Testing and Functional Outcomes of Ankle

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Why Peroneus??

- Dearth of autograft choices is a challenge especially in patients with **thin hamstrings**, **Multi-ligament injuries** and in **revision ligament reconstructions**.
- Peroneus longus - A viable option??
- Concerns - Ankle & Foot morbidity
- Numerous studies evaluated ankle and foot morbidity subjectively.



Objective

An attempt to evaluate long term morbidity both subjectively & objectively with isokinetic testing of ankle function.



Materials and Methods

- **53** consecutive patients with isolated ACL tear treated with full thickness peroneus longus autograft
- **Study Period** | April 2019 - January 2020

Inclusion Criteria

- Skeletally mature adults (18-60 Years)
- Isolated ACL tears \pm meniscus tears.

Materials and Methods

Exclusion Criteria

- Multi-ligament Injuries.
- Athletes
- Skeletally immature patients
- patients with other lower limb pathologies/fracture.
- Patients with generalised ligamentous laxity.



How do we harvest?

1. Incision at the level of lateral malleolus 1 cm posterior, extending for 3 cm proximally
2. Peroneal tendons were isolated from the posterior surface of malleolus above the superior peroneal retinaculum.
3. Peroneus Longus & brevis tendon sutured together with non-absorbable suture distally with ankle in neutral position.
4. Peroneus longus tendon cut made proximal to the suture.
5. Tendon harvested with closed stripper upto 3 finger breadths distal to fibular head.



Clinical Assessment

- Subjectively donor ankle was assessed preoperatively
- 3, 6, 12 months & 3 years by Foot and Ankle (VAS-FA) scores
- Objectively Isokinetic testing of donor ankle movements were done using BIODEX system 4 robotic dynamometer at 1 & 3 years

Biomechanics testing

- Peak torques of ankle eversion and plantar-flexion was measured at 60 deg and 120 deg angular velocities and compared with the opposite side.



Results

- No significant difference in VAS-FA scores preoperatively and at 3 years post-op.

Time	VAS-FA scores
Prep	97.64 \pm 5.42
3 month	91.74 \pm 9.43
6 month	95.21 \pm 7.51
12 month	96.5 \pm 5.85
3 year	97.12 \pm 5.21

Results

- No significant difference in peak torques of plantarflexion and eversion between Donor and contralateral ankle at 3 year followup.

	Mean peak Torques			
	60 deg/sec Inversion	120 deg/sec Inversion	60 deg/sec Eversion	120 deg/sec Eversion
DONOR ANKLE	20.44± 5.98	16.57± 5.73	18.22± 5.7	14.06± 6.64
CONTRALATERAL ANKLE	18.11± 5.48	11.73± 3.5	15.66± 6.38	13.94± 6.74
P values for torque difference	0.285	0.085	0.235	0.654

Discussion

Shi et al., in their study on 38 pts.- No postoperative difference in ankle strength at 2 year followup- Outcome similar to our study

Angthong et al., in their study on 10 volunteers -significant difference in peak toques with deterioration of both inversion and eversion at both velocities between donor and contralateral ankle at 7 months. This was in stark contrast to our study which showed no such difference at 3 year followup.

CONCLUSION

- **Peroneus Longus deserves a consideration as a safe and feasible graft option** especially for patients with combined ACL + MCL injury, revision ligament reconstruction patients and in patients with thin hamstrings
- Can be considered as a **useful option for low demand patients** especially those with multiligament injuries.

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