Functional viability of the peroneus longus tendon as a safe autograft in ligament reconstruction without altering donor foot biomechanics

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INTRODUCTION:

The search for alternative grafts for anterior cruciate ligament (ACL) reconstruction has led to the consideration of the peroneus longus tendon as a viable and safe option. Objective: To analyze the functional viability of the peroneus longus tendon as an autograft in ACL reconstruction, evaluating its safety and functionality without compromising

METHODS: This was a descriptive observational study with clinical and functional follow-up over 12 months. The sample consisted of 26 male and female patients between 18 and 60 years old, diagnosed
with ACL rupture through clinical evaluation and MRI, and surgically treated between 2023 and 2024.
The surgical technique involved an anatomical arthroscopic reconstruction with femoral and tibial tunnels, using the peroneus longus tendon as a graft, prepared in double or triple folds with
reinforced ends and fixed using bioabsorbable interference screws and Adjustable endobuttons.. To evaluate functional outcomes, the Ankle-Hindfoot Scale (AOFAS) was applied at 3, 6, and 12
months postoperatively, assessing

RESULTS:

The results showed low pain perception (mean: 36.8), good functionality (mean: 46.8), and adequate alignment (mean: 9.92). No significant differences in ankle strength were found between
the operated and contralateral limbs, except for a slight deficit in eversion. However, overall functional recovery was favorable, with acceptable symmetry in flexion, extension, and inversion, and even a slight advantage in the operated limb for some movements.

DISCUSSION AND CONCLUSION:

These findings suggest that the use of the peroneus longus tendon as an autograft is a safe and functionally viable alternative for
ACL reconstruction, without compromising the biomechanical integrity of the donor foot or generating significant deficits in ankle strength or functionality. The technique represents a promising option for patients requiring ligament reconstruction

Table 1. AOFAS Ankle and Hindfoot Scale values of post-surgical patients

Variable	N	Minimum	Maximum	Average	Standard Deviation
Pain	25	30	40	36.8	4.761
Functionality	25	28	50	46.8	5.148
Reaction	25	8	10	9.92	0.4

Table 2. Descriptive results of the strength test evaluated post-surgically

Ankle Movement	Non-Operated Extremity*	Operated Extremity*	Average Deficit	Bilateral Symmetry (%)
Flexion	11.59 ± 2.86	11.97 ± 3.51	-3.3%	84.1%
Extension	12.31 ± 3.33	13.48 ± 4.65	-9.5%	80.8%
Eversion	11.99 ± 3.53	11.78 ± 3.61	1.8%	79.8%
Inversion	10.13 ± 2.94	10.33 ± 3.58	-2.0%	81.4%

*(Average Force in Newtons ± Standard Deviation)

Figure 1. Removal of the peroneus longus tendon from a patient

Figure 2. a) Post-surgical evaluation of a patient. b) Patients performing ankle flexion on the graft donor limb.