

The Effect of Graft Tissue on ACL Outcomes: A Multi-Center Prospective Randomized Control Trial Comparing Fresh Frozen Allograft to Autograft

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Summary:

No difference in subjective and functional outcomes following ACL surgery using autograft hamstring tendons or fresh frozen tibialis allografts.

Abstract:

Purpose:

To compare the results and outcome of anterior cruciate ligament (ACL) reconstruction using autogenous hamstring tendons versus fresh-frozen allograft anterior tibialis tendon.

Methods:

A randomized prospective study was conducted from September 2002 to October 2006. 147 patients were randomized to have the ACL reconstructed with either autogenous hamstrings or freshfrozen allograft anterior tibialis tendon. One hundred and two patients (70%) completed a minimum of 2 years of follow-up. There were 54 patients (72%) in the hamstring group and 48 patients (67%) in the allograft group. All patients underwent standardized subjective and objective evaluation with functional outcome assessments (IKDC) and standardized radiographs were also performed.

Results:

The average age of the autograft group was 32.0 years and 33.3 years for the allograft group. There was no difference in stability between the two groups ($p>0.05$). The mean IKDC subjective score was 91.0 for the autograft group and 90.9 for the allograft group ($p>0.05$). The functional IKDC scores for the autograft group were normal in 46 patients (85%), nearly normal in 7 patients (13%) and severely abnormal in one patient. For the allograft group, the functional IKDC scores were normal in 43 patients (89%) and nearly normal in 5 patients (10%) ($p>0.05$). There were 4 re-operations in the allograft group and 3 re-operations in the autograft group. No patient underwent revision ACL surgery nor planned to undergo revision surgery due to instability in either group during the study period despite the one patient in the autograft group with a pivot shift and a maximum manual KT of 5mm.

Conclusion:

The use of fresh-frozen anterior tibialis allograft (non-treated) for ACL reconstruction produced similar subjective and functional outcomes at 24 months minimal follow-up compared to patients undergoing ACL reconstruction using autograft hamstring tendons.

Level of evidence:

II