Prevalence and Severity of Anterior Knee Symptoms after ACL Reconstruction Using BTB Autograft vs BTB Allograft

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Summary:
While BTB autograft is a commonly cited risk for anterior knee pain after ACL reconstruction compared to allograft, our study found that graft option did not significantly influence Kujala score or specific limitations related to anterior knee pain at 1 year after surgery.

Data:
Background: Anterior cruciate ligament (ACL) reconstruction is one of the most commonly performed procedures in sports medicine, yet continued controversy exists with regard to optimal graft options. Patellar tendon (BTB) autograft has been associated with increased risk for anterior knee pain, however the severity of symptoms and limitation in function associated with this have not been quantified. Therefore our aim was to quantify the presence and severity of anterior knee symptoms, comparing knees undergoing BTB autograft vs BTB allograft, and identify risk factors for increased symptoms. Methods: Patients who underwent ACL reconstruction with BTB autograft or BTB allograft by a single surgeon were prospectively enrolled and assessed at 1 year followup using the Kujala score, a validated measurement of patellofemoral symptoms. Kujala scores were compared at 1 year between groups using the Mann Whitney U test. Frequency of those difficulty with stairs at 1 year (p = 0.175). 13.4%). 91 patients underwent BTB autograft, while 63 patients underwent BTB allograft. At 1 year followup, patients with autograft BTB had a higher Kujala score (94.4 +/- 6.5 vs 90.1 +/- 11.5, p = 0.039). 13.2% of autograft patients and 19.0% of allograft patients reported at least some difficulty with stairs at 1 year (p = 0.324), whereas 16.4% and 25.4% reported some difficulty with squatting (p = 0.341). 23.1% of patients with autograft and 17.4% of allograft patients reported pain with prolonged sitting (p = 0.398). Stepwise multiple regression analysis demonstrated an independent negative relationship on Kujala score with older age at the time of surgery and increased Outerbridge score on the trochlea. Conclusion: While BTB autograft is a commonly cited risk for anterior knee pain after ACL reconstruction, our study found that graft option did not significantly influence Kujala score or specific limitations related to anterior knee pain at 1 year after surgery. However, older age and greater severity of chondral defects on the trochlea at the time of surgery were found to increase the severity of anterior knee symptoms. Further study is needed to better understand the morbidity related to graft options and identify those at risk in patients undergoing ACL reconstruction.

Category: Knee - ACL

Mid-Term Follow-up of the STABILITY Study Multicenter RCT Comparing Anterior Cruciate Ligament Reconstruction With and Without Lateral Extra-Articular Tenodesis in Individuals at High Risk of Graft Failure

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Summary:
Preliminary results of the STABILITY long-term follow-up suggest differences in graft failure rates persist longer than two years postoperatively in favour of the added LET, with no negative influence on patient-reported outcome measures, or range of motion.

Data:
Background: Studies have shown high ACL re-tear rates in patients returning to pivoting sports after ACL reconstruction (ACLR). The STABILITY study was a prospective, multicenter randomized clinical trial (RCT) comparing hamstrings tendon (HT) autograft ACLR with or without a lateral extra-articular tenodesis (LET) that showed a significant reduction in graft failure rates with the addition of LET at two years postoperatively. Objective: The purpose of this study was to conduct a mid-term follow-up (three, five and seven years postoperative) of patients involved in the STABILITY study at the Fowler Kennedy Sport Medicine Clinic (FKSMC) in London, Ontario, to determine if differences between the surgical groups persisted beyond two years. Methods: Of the 196 participants at the FKSMC, 82 (42%) participated in this mid-term follow-up. Patients completed patient-reported outcome measures (PROMs) including the ACL Quality of Life Questionnaire (ACL-QOL), Knee Injury and Osteoarthritis Outcome Score (KOOS), International Knee Documentation Committee Subjective Knee Form (IKDC), and Marx Activity Rating Scale (MARS). Adverse events and range of motion (ROM) measurements were recorded, and objective knee function was assessed by a surgeon. The primary composite outcome of clinical failure (asymmetric pivot shift and/or graft failure) was determined by the pivot shift test, presented as a relative risk reduction (RRR) and risk difference (RD). An analysis of covariance (ANCOVA) was conducted for PROMs and ROM, with days from surgery to follow-up and baseline values serving as covariates. We reported descriptive information and proportions of adverse events. Results: There was no significant difference in the incidence of clinical failure between the ACLR only and ACLR + LET groups (RRR 0.25, 95% CI: -0.10 to 0.49, p = 0.14 and RD 16%, 95% CI: -7% to 40%). There was a significant difference in incidence of graft failure favouring the ACLR + LET group (RRR 0.88, 95% CI: 0.08 to 0.98, p = 0.04 and RD 18%, 95% CI: 3% to 34%). There was no statistically significant difference between groups for scores on the ACL-QOL (Adjusted Mean Difference (AMD) = -2.2, 95% CI: -5.9 to 10.3, p = 0.34), KOOS (AMD = -3.2, 95% CI: -1.6 to 7.9, p = 0.08), IKDC (AMD = -3.2, 95% CI: -2.4 to 8.7, p = 0.05), or MARS (AMD = -1.0, 95% CI: -3.1 to 1.2, p = 0.37). There were no significant differences between groups in side-to-side limb differences in extension and flexion. At least one adverse event (infection, stiffness, meniscal injury, graft failure, etc.) from the time of surgery to most recent follow-up was experienced by 47 of 82 (57%) patients. Conclusion: While there was no statistically significant difference between groups in terms of ACLR clinical failure, the ACLR alone group experienced significantly more graft failures than the ACLR + LET group. Preliminary results of the STABILITY long-term follow-up suggest differences in graft failure rates persist longer than two years postoperatively in favour of the added LET, with no negative influence on PROMs or ROM.

Category: Knee - ACL

Risk Factors for Reoperation for Arthrofibrosis Following Anterior Cruciate Ligament Reconstruction: Results from the New Zealand ACL Registry

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Summary:
Female sex, a history of previous knee surgery and a transtibial femoral tunnel drilling technique are associated with a higher risk of arthrofibrosis following primary ACL reconstruction.

Data:
Introduction: Arthrofibrosis is a less common complication following anterior cruciate ligament (ACL) reconstruction. It is unclear what factors increase the risk of arthrofibrosis, however there are concerns that undergoing early surgery may be associated with arthrofibrosis. The aim of this study was to identify the patient and surgical risk factors for arthrofibrosis following primary ACL reconstruction. Methods: Prospective data recorded by the New Zealand ACL Registry was analyzed and cross referenced with data from the Accident Compensation Corporation (ACC), which is the New Zealand Government’s sole funder of ACL reconstructions and any subsequent surgery. Primary ACL reconstructions performed between April 2014 and December 2019 were analyzed, allowing for a minimum follow-up of two years. Patient and surgical data