Bone- Vs. Soft-Tissue Quadriceps Tendon Autograft for Anterior Cruciate Ligament Reconstruction - A Comparison of 559 Patients

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All Authors:
Armin Runer Assoc. Prof., MD GERMANY
Amit Meena MBBS, MS, DNB INDIA
Lena Juchan Cand. med. AUSTRIA
Guido Wierer MD AUSTRIA
Elisabeth Abermann MD AUSTRIA

Mid-Term Outcomes of the All-Soft Quadriceps Tendon Versus Hamstring Autograft In Primary Anterior Cruciate Ligament Reconstruction: Comparison With Minimum 5-Year Follow Up

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All Authors:
Joseph C. Brinkman MD UNITED STATES
Sailesh Vardhan Tummala MD UNITED STATES
Kade Soren McQuey MD UNITED STATES
David G Deckey MD UNITED STATES
Jeffrey D. Hassebrock MD UNITED STATES
Kostas Economopoulos MD UNITED STATES

Summary:
ACL reconstruction using soft tissue QT autograft demonstrates equivalent clinical outcomes compared to HT autograft at 2 years yet statistically higher patient reported outcomes at 5-years postoperatively.

Data:
Purpose: The purpose of this study was to compare the 5-year clinical and functional outcomes of the soft tissue quadriceps tendon (QT) to those of the hamstring tendon (HT) autograft Methods: A retrospective review of patients undergoing ACL reconstruction using either soft tissue QT or HT autograft with at least 5 years of follow up was conducted. Surgical technique included anteromedial portal creation for the femoral tunnel and transtibial technique for the tibia. Graft fixation was achieved with interference screws for the QT and combination of interference screw and suture button for the HT cohort. The two groups were compared for differences in outcomes including International Knee Documentation Committee (IKDC) score, Lysholm score, return to sport, and complications. Results: A total of 37 patients with QT autograft and 46 HT autografts were included in the study with a mean follow up of 69.9 months and 70.9 months, respectively. The QT group demonstrated a larger graft size on average (9.64mm vs. 7.90mm, p < 0.001). The IKDC and Lysholm scores were not significantly different between the two groups at 2-years postoperatively. At 5-years postoperatively, the QT group demonstrated significantly greater IKDC (p = 0.018) and Lysholm (p = 0.007) scores although the absolute difference did not meet minimal clinically important difference (MCID) thresholds. There was no significant difference in the rate of achieving MCID at either 2 or 5 years postoperatively. The two groups demonstrated comparable rates of return to sport, time to return, and postoperative complications. Conclusion: ACL reconstruction using soft tissue QT autograft had equivalent clinical outcomes compared to HT autograft at 2 years and statistically higher patient reported outcomes at 5-years postoperatively. There was no clinically significant difference found between the two cohorts. The QT autograft is an effective alternative to HT autograft with noninferior outcomes to the hamstring autograft at midterm follow up.

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Category: Knee - ACL Graft Choice

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All Authors:
Mirco Herbort MD, Prof. GERMANY
Christian Hoser MD AUSTRIA
Christian Fink MD, Prof. AUSTRIA

Summary:
There is no statistically significant difference in patient-reported outcome measures, revision- or contralateral surgery between patients treated with bone-quadriceps tendon or soft-tissue-quadriceps tendon autograft.

Data:
Purpose: To compare patient reported outcome measurements (PROMs) and reoperation rates in patients treated with soft tissue quadriceps tendon autograft (S-QT) or quadriceps tendon autograft with bone block (B-QT) in anterior cruciate ligament reconstruction (ACL-R). Methods: All ACL-Rs performed between January 2010 and December 2020 at a single specialized orthopaedic center were included in a prospectively administered Microsoft (MS) Access-based database. Patient-administered questionnaires including Visual Analogue Scale (VAS) for pain, Lysholm score and Tegner activity score were obtained preoperatively and at 6, 12 and 24 months postoperatively as revision- and contralateral ACL-R were recorded. Preinjury physical activity level was measured with the Tegner Activity Scale and classified as low (<3), medium (4-6), and high (7). All patients were grouped into 4 age categories: <15, 15-30, 31-45, >45 years. Besides ACL graft ruptures, concomitant injuries to cartilage and meniscus were recorded. Binary logistic regression was used to assess the influence of the following factors on the need to undergo revision surgery or ACLR on the contralateral limb: graft preparation technique, age group, preinjury Tegner activity level, sex, and additional surgical interventions. Additional Mann-Whitney U- and chi-square test were used for between group comparison. Results: A total of 556 patients (45.6% female) with primary QT-A ACL were included in the study. Out of those 347 49.5% (n = 347) where treated with B-QT and 50.5% (n = 345) with S-QT. Mean age was 29.1 ± 13.0 and 31.4 ± 12.2 (p = 0.04), respectively. Both groups did not differ preoperatively with regards to gender, sports activity level, time from injury to surgery or additionally performed interventions. At final follow-up no statistical differences between both groups were observed in VAS for pain (median [range] B-QT: 0 [0-6]; S-QT: 0 [0-8]), Lysholm score (B-QT-BB: 87.5 [82.0-92.0]; S-QT: 82.2 [71.6]), Tegner activity level (median [range] B-QT: 6 [2-10]; S-QT: 6 [1-10]) and rate of return to preinjury Tegner activity level (B-QT: 67.6%; S-QT-ST: 67.2%). Revision surgery (B-QT: 12.8%; n = 3; S-QT: 2.9%, n = 3) or contralateral ACL reconstructions rates (B-QT: 2.8%, n = 7; S-QT: 3.9, n = 9) did not differ between both groups. Neither graft type, age, preinjury Tegner activity score, sex or additional surgical interventions had a significant value in predicting the need for revision- or contralateral ACL surgery. Conclusion: There is no statistically significant difference in patient-reported outcome measurements, revision- or contralateral surgery between patients treated with bone-quadriceps tendon or soft-tissue-quadriceps tendon autograft. Neither graft type, age at time of surgery, preinjury Tegner activity level, sex or additional surgical interventions had a significant value in predicting the need for revision- or contralateral ACL surgery.

Category: Knee - ACL Graft Choice

Adverse Events and Complications following Primary ACL Reconstruction with Quadriceps Tendon Autograft: A Systematic Review

Abstract ID# 23401
All Authors:
Garrett Jackson MD UNITED STATES
Eazo Salvistio Mameri MD, MSc BRAZIL
Johnathon Robert Mccormick MD UNITED STATES
Zeehan Ahmad Khan BA UNITED STATES
Derrick Michael Knapijk MD UNITED STATES