

Paper #92

Quadriceps Tendon versus Patellar Tendon Autografts in ACL Reconstruction: Outcomes of Muscular, Physical, and Patient-Reported Function

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Summary:

The quadriceps tendon autograft in ACL reconstruction resulted in similar functional and patient-reported outcomes compared to the patellar tendon autograft in the early postoperative period.

Abstract:

Background

Various graft types in anterior cruciate ligament reconstruction (ACLR) can affect clinical outcomes. The patellar tendon (PT) autograft remains the standard graft of choice for ACLR. Several complications with the PT autograft, such as anterior knee pain and increased donor site morbidity, provide reason to continue the search for a more optimal graft. The quadriceps tendon (QT) offers a unique soft-tissue option with a larger and stronger anatomical area from which to harvest the graft. However, there is little information on post-surgical functional outcomes.

Purpose

The purpose of this study was to compare outcomes of muscular, physical, and patient-reported function in individuals following ACLR with QT versus PT autografts. The hypothesis is that individuals with QT autografts will demonstrate superior results.

Methods

This was a cross-sectional study of active individuals with history of primary, unilateral ACLR with soft tissue QT or bone-PT-bone autografts. Knee extensor isokinetic strength at 60°/s was measured bilaterally with an isokinetic dynamometer, and normalized to body mass. Maximal cross-sectional area was measured bilaterally for each of the quadriceps muscles via magnetic resonance imaging (MRI). Assessor was blinded to graft type and side of ACLR. Functional testing included the single-leg hop test and step length symmetry during walking, measured with a spatiotemporal portable walking system. Self-reported function was determined with the International Knee Documentation Committee (IKDC) questionnaire.

Analysis: Limb symmetry indices were expressed as a percentage of surgical limb over nonsurgical limb. Wilcoxon rank-sum tests were used to compare limb symmetry indices, as well as IKDC scores, between QT and PT autograft groups.

Results

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Thirty individuals (23±8 years; 19 males; 9.8±5.0 mo. post-ACL) participated. There were 15 individuals in each group. There were no significant differences in demographic variables between groups. When compared to the PT group, the QT group exhibited similar limb symmetry indices in knee extensor strength, quadriceps cross-sectional area, hop test scores, and step length symmetry ($p>0.05$). There were no significant differences between groups in IKDC scores ($p>0.05$).

Conclusion

As there were no significant differences between groups, surgeons can feel confident in the use of either QT autografts or PT autografts. Future longitudinal studies with larger sample sizes are needed to evaluate longer-term outcomes with QT autografts for ACL reconstruction.