Higher Return to Sport with Patellar Tendon Autograft Versus Hamstring Tendon Autograft Following Anterior Cruciate Ligament Reconstruction: Results from the New Zealand ACL Registry

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INTRODUCTION:
Studies have reported a lower rate of graft failure but a higher rate of contralateral anterior cruciate ligament (ACL) injury in patients undergoing primary ACL reconstruction with a bone-patellar tendon-bone (BTB) autograft. Some clinicians may view subsequent contralateral injury as a marker of success of the BTB graft, but it is unclear whether the type of graft influences the rate of return to sport. The aim of this study was to compare the rate of return to weekly sport and the rate of return to preinjury activity levels between the BTB and hamstring tendon autografts following primary ACL reconstruction.
METHODS:
Prospective data recorded in the New Zealand ACL Registry was analyzed. Primary ACL reconstructions performed between April 2014 and November 2019 were included to allow for a minimum follow-up of two years. Preinjury and post-operative Marx activity scores at 6-month, 1- and 2-year follow-up were collected by the Registry. The primary outcome was return to weekly sport, defined as a Marx activity score of 8, at 2-year follow-up. The secondary outcome was return to preinjury activity level, defined as a post-operative Marx activity score that was equal or greater to the patient's preinjury Marx activity score. The rate of return to sport was compared between the BTB and hamstring tendon autografts via univariate Chi-Square test and multivariate binary logistic regression with adjustment for patient age, sex, time-to-surgery and preinjury activity levels. Odds ratios (OR) with 95% confidence intervals (CI) were computed.
RESULTS:
A total of 4259 patients were analyzed, of which 50.3% were playing weekly sport (n = 2144) and 28.4% had returned to their preinjury activity level (n = 1211) at 2-year follow-up. A higher rate of return to weekly sport was observed in patients with a BTB autograft compared to patients with a hamstring tendon autograft (58.7% versus 47.9%, adjusted OR = 1.23, 95% CI 1.05 – 1.44, p = 0.009). In addition, patients with a BTB autograft had a higher rate of return to preinjury activity levels compared to patients with a hamstring tendon autograft (31.5% versus 27.5%, adjusted OR = 1.21, 95% CI 1.03 – 1.44, p = 0.025). Male sex and younger age were patient factors that were associated with a higher rate of return to sport.
DISCUSSION AND CONCLUSION:
Patients with a BTB autograft had a higher rate of return to sport compared to patients with a hamstring tendon autograft at short-term follow-up. The higher return to sport may explain the higher rate of contralateral ACL injury in patients with a BTB autograft.