79.2 hamstring, 73.9 bone-patella-tendon-bone, P < 0.001). Similar revision rates were reported between all autograft groups (mean revision rate per 100 component years; 1.05 hamstring, 0.80 bone-patella-tendon-bone, 1.68 quadriceps, P = 0.083). Autograft revision was independent of age and gender variables. Conclusions: All autograft groups had similar patient reported outcome measures and revision rates at 2 years when concomitant knee injuries were excluded. These results suggest that quadriceps tendon is a comparable autograft choice to the status quo in the early to intermediate follow-up period. Previous research that have suggested difference in outcomes between autograft options may have been confounded by concomitant knee injuries. Further research is required to quantify the longer term outcomes for quadriceps tendon use.

Category: Knee - ACL

Reduction in re-rupture rates following implementation of return to sport testing after ACL reconstruction; 313 patients with a median follow-up of 50 months

Abstract ID# 21880
All Authors:
Dominic Patrick O’Dowd MBCchB, MSc(SEM), FRCS(Tr&Orth) UNITED KINGDOM
Jeremy Stanley BHB, MBCchB, FRACS NEW ZEALAND
Michael Rosenfeldt MBCchB, FRACS NEW ZEALAND
Stewart J. Walsh FRACS NEW ZEALAND
Bruce C. Twaddle MD, FRACS, Prof. NEW ZEALAND
Paul Monk DPhil (Oxon), FRCS NEW ZEALAND

Summary:
Passing a RTS-test battery following ACLR reduces ACL re-rupture by 36.21% and contralateral ACL injury by 19.15% at mid-term follow-up.

Data:
Objectives To assess mid-term effectiveness of a return to sport (RTS) test battery in relation to preventing ACL re-rupture following reconstruction. Secondary purposes to assess timing of passing a RTS-test battery post-surgery, age in relation to RTS outcomes and contralateral ACL injuries. Methods Patients undergoing ACLR between August 2014 - December 2018 performed a RTS-test battery following rehabilitation. The RTS-test battery consisted of the ACL-RSI, single leg hop, triple hop, and triple cross-over hop, box drop vertical jump down, single leg 4 rep max incline leg press and a T-test. Pass criteria was = 90% LSI in addition to symmetrical, controlled takeoff and landing patterns. Results 352 patients underwent RTS-testing following ACLR with 313 (89%) contactable at a median of 50 months (SD11.41, range28-76) post-surgery. The re-rupture rate was 6.60% after passing the RTS-test battery and 10.34% following failure (p=0.24). Contralateral ACL injury rate during the study follow-up period was 6.07%. Median age of patients passing their first RTS-test battery was significantly older than those who failed (p=0.0003). Re-ruptures in those who passed the RTS-test battery first time all occurred late (~34 months) compared to those who failed first time which all occurred early (~33 months) (P=0.044). Median age of re-rupture was significantly younger compared to those who didn’t sustain a re-rupture (p=0.025). Conclusion Passing a RTS-test battery following ACLR reduces ACL re-rupture by 36.21% and contralateral ACL injury by 19.15% at mid-term follow-up. Younger patients are more likely to fail a RTS-test battery and are at higher risk of contralateral ACL rupture.

Category: Knee - ACL

Choose Your Poison: Bone-Tendon-Bone Or Hamstring Grafts In Professional Athletes For ACLR: Reduced Hamstring Strength or Worse Jump Metrics

Abstract ID# 21920
All Authors:
Roula Kotsifaki PT, PhD QATAR
Rodney Whiteley PT, PhD QATAR
Pieter D’Hooghe MD PhD QATAR
Khalid Alkhelaifi MD QATAR
vasileios Sideris MSc QATAR
Enda King PT, PhD QATAR
Bashir Zikria MD QATAR

Bruno Christian, Richard Olory MD QATAR
Emmanouil Papakostas MD, FEBSM QATAR
Vasileios Korakakis PT, PhD UNITED KINGDOM

Summary:
Graft choice individualization according to sport requirements.

Data:
Background There is no consensus on the optimal graft choice for reconstructing the ruptured ACL in the athletic population. Most common options include bone-tendon-bone and hamstring autografts, each one with specific advantages and disadvantages - mostly failure risk and donor site morbidity. The effect of graft choice on the return to performance for a professional athlete after ACLR is less studied. Objectives To identify postoperative outcomes that influence athlete performance and are influenced by graft choice. Methods We tested 173 professional male athletes 7-9 months after ACLR using either bone-tendon-bone or hamstring autograft. We performed clinical assessment, jump testing using two ground-embedded force plates, and isokinetic strength assessment for the quadriceps and hamstrings at 60°/s. Posterior-to-anterior and rotational knee laxity was evaluated by instrumented measurement. Between-group differences were explored using mixed models analyses. Results Hamstrings strength was significantly less when using hamstrings graft (1.63 Nm/kg) compared to bone-tendon-bone (1.80 Nm/kg) (p<0.001) but there were no differences in quadriceps strength between the grafts. Conversely, athletes showed greater concentric (85%) and eccentric (86%) impulse asymmetries (p<0.001) during a two-leg vertical jump when a bone-tendon-bone graft was used compared to athletes with a hamstring graft (93% and 98%, respectively). There was a statistically but not clinically significant difference for posterior-to-anterior knee laxity between graft (p=0.032, 1mm). Conclusion Hamstrings muscle strength is not fully restored when using hamstrings graft for ACLR and jumping ability is affected when using bone-tendon-bone graft. These findings can help inform surgical choices.

Category: Knee - ACL

The Cut-Off Point To Discriminate A Higher Chance Of Re-Tear Is 6.5 Degrees Of Hyperextension In Isolated Anterior Cruciate Ligament Reconstruction With Hamstring Autograft

Abstract ID# 21923
All Authors:
Camilo P. Helito MD, PhD BRAZIL

Summary:
The cut-off point established to discriminate an ACL re-tear was 6.5 degrees of hyperextension.

Data:
Background: The outcome of an ACL reconstruction surgery depends on many factors. The degree of knee hyperextension in isolation has not been studied in detail as a risk factor that may lead to graft failure after an ACL reconstruction. The aim of this study is to create a cut-off point for hyperextension that best discriminates re-tear and to verify whether this cut-off point can predict re-tear regardless of other characteristics after primary ACL reconstructions with hamstring autografts. Methods: A cohort of patients submitted to primary isolated ACL reconstruction with hamstrings autografts was retrospectively evaluated. Patients were stratified according to the degree of passive knee hyperextension measured in the normal contralateral knee at surgery time. The following data were collected: patient demographic data (age and gender), time from injury to surgery, passive knee hyperextension, KT-1000 and pivot-shift, associated meniscus injury and treatment, intra-articular graft size, follow-up time, occurrence of graft failure and postoperative Lysholm and IKDC subjective form. A ROC curve was constructed to identify the cut-off point of the hyperextension that best discriminates re-tear. Unadjusted odds ratios (OR) were estimated with the respective 95% confidence intervals of each characteristic with re-tear using bivariate logistic regressions to quantify the association of characteristics with re-tear. Results: Data from 457 patients were evaluated. Thirty-two presented a re-tear. There was a significant difference in hyperextension between patients with and without re-tear (p < 0.001), with the cut-off point established by the ROC curve from 6.5 degrees, with sensitivity of 78.1% and specificity of 76.7%. Patients with greater hyperextension had a statistically higher frequency of women, longer injury time, greater intra-articular graft size, greater post-op KT-1000 and higher frequency of re-tear, whereas