

injury (control group). Several bony morphology characteristics including medial and lateral condyle width, medial and lateral plateau width, notch width, bicondylar width, notch width index, and medial and lateral tibial slope were measured and compared between groups. Conditional logistic regression was used to analyse the data. Significance level was set at $p < 0.05$.

Results: According to univariate analysis, a narrower lateral femoral condyle (OR, 0.82; CI, 0.68-0.97), increased medial tibial plateau slope (OR, 0.142; CI, 1.85) and increased lateral tibial plateau slope (OR, 1.43; CI, 1.15-1.78) were associated with an increased risk for ACL injury. Multivariate analysis revealed that increased lateral tibial slope (OR, 1.32; CI, 1.03-1.70) was the sole independent risk of ACL injury.

Conclusion: A narrower lateral femoral condyle width and an increased medial and lateral tibial slope predispose male college football players to ACL injury. It is suggested to enroll these high-risk subjects in prevention programs to reduce the incidence of injury.

Septic Arthritis After ACL Reconstruction: Does Graft Retention Portend Increased Risk of Surgical Revision?

SS-18

April 14, 1:55 PM

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Introduction: The purpose of this study was to evaluate the clinical and functional outcomes of patients with septic arthritis after ACL reconstruction with and without graft retention.

Methods: A retrospective query of the Military Health System Management and Reporting Tool was performed to identify all patients undergoing primary arthroscopic ACL reconstruction with subsequent development of septic arthritis between 2007-2013. Clinical course, objective physical exam findings, and patient-reported outcomes were recorded. Graft choice, time to treatment, bacterial culture and specificity, number of arthroscopic debridements, and graft retention were evaluated as potential risk factors. Primary outcomes of interest included persistent ACL laxity (i.e. Lachman test of 2+ or greater or positive pivot shift), revision ACL reconstruction, and inability to return to military function.

Results: 31 patients were isolated at a mean follow-up of 24-months. Graft choice included hamstring autograft (55%; n=17), hamstring allograft (32%; n=10), and autologous bone-patellar tendon-bone (13%; n=4). A total of 8 patients (26%) developed an acute infection (<2 weeks), 17 patients (55%) had subacute infection (2-6 weeks) and 6 patients (19%) had chronic infection (>6 weeks). The most frequently isolated bacteria were MRSA (35%; n=11), MSSA (n=2; 6.5%) and MRSE (n=2; 6.5%), whereas 15 cases (48%) had no known isolate. All patients were treated with arthroscopic debridement (average 2.3; range, 1-4) and intravenous antibiotics, and the graft was retained in 64% (n=20). Of this group with graft retention, 6 patients developed significant knee laxity

(30%) and 2 of these underwent revision (10%). Two patients each with subacute and chronic infections developed early post-infectious arthritis, as compared to no patients with acute infections. In this study 48% (n=15) were able to return to military function, and there was no statistically significant difference according to graft retention.

Conclusion: Arthroscopic irrigation and debridement with graft retention is an effective treatment for patients with septic arthritis after primary ACL reconstruction. Factors affecting clinical outcomes may include late presentation and residual graft laxity after arthroscopic irrigation and debridement.

Investigating the Precision and Accuracy of Subjective Patient and Surgeon Expectations following Anterior Cruciate Ligament Reconstruction

SS-19

April 14, 2:00 PM

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Introduction: Advances in orthopaedic surgery have redefined patients' perception of the successful outcome. Recent literature suggests that patient satisfaction following orthopaedic surgery is related to their outcome and their preoperative expectation. However, patients undergoing ACLR may have unrealistic expectations which may contribute to worse outcomes and reduced patient satisfaction. The purpose was to compare patient's expectations and surgeon's expectation using validated outcome assessment tools as expectation questionnaires. Actual patient outcomes were tracked to determine accuracy of the expectations.

Methods: All patients undergoing primary ACLR for ACL tear were eligible. Patients completed IKDC and Lysholm knee questionnaires pre-operatively and at 3 and 6 months postoperatively. Before surgery patients completed a second set of IKDC and Lysholm knee questionnaires pertaining to how they expect their knee to feel in 18 months. Immediately post-operatively, surgeons completed a set of IKDC and Lysholm questionnaires representing how they expected the patient to fare in 18 months.

Results: 76 consecutive patients were enrolled. Pre-operatively, patient average Lysholm and IKDC scores were, 55.27 and 45.0%. Analysis of Lysholm score revealed patient's reported expectations significantly higher (mean = 94.9) than surgeons (mean = 92.6) ($p < .001$). The average difference between patient and surgeon expectations was 10.9 points. Analysis of IKDC scores revealed the same trend; patient (92.3%) vs. surgeon (91.8%) expectations. 58/76 patients reached 6

month follow-up, 42 completed Lysholm and IKDC questionnaires and the average reported scores are 84.9 and 74.5%. No correlation between 6-month outcome scores and pre-operative expectations has yet to be shown.

Conclusion: When using validated outcome measures to determine expectations, patients have higher expectations than surgeons with regard to ultimate function and pain after ACLR. This study is the first to assess the differences in expectations of patients v. surgeons prior to ACLR. Further data collection will determine if any correlation of expectation to ultimate outcome is observed.

Does Proximal-Distal Tibial Tunnel Placement for PCL Reconstruction Matter?

SS-20

April 14, 2:05 PM

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Introduction: The purpose of this study was to investigate the biomechanical effects of proximal-distal tibial tunnel placement on posterior laxity in PCL reconstruction.

Methods: Eighteen human cadaveric knees were studied, consisting of nine matched pairs. Transtibial PCL reconstruction was performed using a simulated arthroscopic technique. The native PCL was resected, and Achilles tendon autografts were used for PCL reconstruction. The specimens were divided into two groups based on tibial tunnel placement: 1) anatomic tunnel and 2) non-anatomic tunnel. The anatomic tibial tunnel was placed at the footprint of the PCL, 1 cm distal to the joint line, while the non-anatomic tibial tunnel was placed more proximal to this, at the joint line. A 150-N cyclic posterior tibial load was applied using a Materials Testing System (MTS) machine at 0°, 30°, 60°, and 90° of knee flexion. In 10 specimens, a static 250-N posterior tibial load was applied at 90° of knee flexion. Posterior tibial translation in the sagittal plane was recorded. A Mann-Whitney U test was used to compare posterior tibial translation between the two groups. Statistical significance was set defined as $p < 0.05$.

Results: With application of a 150-N posteriorly directed cyclic force, the anatomic tunnel group demonstrated significantly less posterior tibial translation than the non-anatomic tunnel group at 0°, 30°, 60°, and 90° of knee flexion ($p < 0.05$). The anatomic tunnel group also demonstrated significantly less posterior tibial translation than the non-anatomic tunnel group at 90° with a static 250-N posteriorly directed force applied ($p < 0.05$).

Conclusion: Anatomic distal tibial tunnel placement recreating the tibial origin of the PCL provided significantly greater restraint to posterior tibial translation than proximal non-anatomic tunnel placement. We recommend careful placement of an anatomic distal tibial tunnel during PCL reconstruction for avoidance of posterior laxity.

Predictors of Recurrent Patellar Instability in Children and Adolescents following First-Time Dislocation

SS-21

April 14, 3:35 PM

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Introduction: The purpose of the study was to examine risk factors in patients with first-time patellofemoral dislocations to develop a prediction model of recurrence.

Methods: A single institution retrospective review of all patients with a first-time patellofemoral dislocation from 2002 – 2013 was performed. Demographic risk factors (age, gender, laterality, mechanism of injury, and history of contralateral patellar dislocation) and radiographic risk factors (increased patella height, trochlear dysplasia, and skeletal immaturity) were examined. Patella height was measured using Caton-Deschamps index. Trochlear dysplasia was assessed using the two-grade Dejour classification and skeletal immaturity was assessed based on the distal femur and proximal tibia physis (open, closing, or closed).

Results: 266 knees in 250 patients were included in the study. Of these, 222 (83.5%) were treated nonoperatively and 44 (16.5%) were treated surgically. Of the knees treated nonoperatively, 77 (34.7%) had a recurrence. Significant risk factors for recurrence on univariate analysis were age ≤ 14 years, history of contralateral patellar dislocation, trochlear dysplasia, skeletal immaturity, and a Caton-Deschamps index > 1.45 . Multivariate analysis was performed and trochlear dysplasia and skeletal immaturity were the most significant factors with odds ratios of 3.56 and 2.23 respectively. The presence of all four multivariate risk factors (CDI > 1.45 , history of contralateral patellar dislocation, trochlear dysplasia, and skeletal immaturity) had a predicted risk of recurrence of 88%. The presence of any three risk factors had a predicted risk of about 75% and the presence of any two risk factors had a predicted risk of about 55%.

Conclusion: Trochlear dysplasia, skeletal immaturity, CDI > 1.45 , and a history of contralateral patellar dislocation were all significant risk factors for recurrence in patients with first-time patellar dislocations. A predictive model for calculation of recurrence risk was developed. This information is useful when counseling patients and their families following first-time patellar dislocation about prognosis.

The Anatomic Midpoint of the Anterior Attachment of the Medial Patellofemoral Complex

SS-22

April 14, 3:40 PM

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Introduction: The reconstruction of the medial patellofemoral ligament (MPFL) and medial quadriceps tendon