Category: Knee - Lateral Extraarticular Tenodesis

Lateral Extra-Articular Tenodesis Augmentation of Anterior Cruciate Ligament Reconstruction Does Not Impact Cartilage health in the patellofemoral joint based on post-operative two year qualitative and quantitative MRI analysis

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Summary:
No statistically significant differences in cartilage health was observed in the patellofemoral joint between patients that underwent primary ACLR with or without LET at two years post-operative, as determined via quantitative and qualitative analysis of MRI.

Data:
Introduction: Several clinical and biomechanics studies have concluded that lateral extra-articular tenodesis (LET) is an effective procedure to control rotational laxity, reducing failure rates when performed with an anterior cruciate ligament reconstruction (ACL-R). However, there is question whether the addition of an iliotibial band based LET may cause increased contact pressure in the patellofemoral joint (PFJ) that could potentially lead to cartilage damage. The purpose of the current study was to assess PFJ cartilage status in patients that underwent ACLR with or without LET augmentation using magnetic resonance imaging (MRI). It was hypothesized that 1) the addition of LET at the time of ACLR would have no effect on cartilage health on post-operative two-year MRI; 2) higher cartilage relaxation values would be associated with worse patient reported outcome measures.

Results: A subset of patients from the STABILITY 1 randomized controlled trial were reported and functional outcomes at two years post-operatively. Methods: A purpose of the current study was to assess PFJ cartilage status in patients that underwent primary ACLR with or without LET at two years post-operative, as determined via quantitative and qualitative analysis of MRI.

Concomitant Lateral Meniscus Tear in the Anterior Cruciate Ligament Injured Knee Should Be Treated by Repair or Additional Lateral Extraarticular Tenodesis to Achieve Sufficient Stability

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Summary:
Robotic system was used to compare knee kinematics between different treatments for concomitant lateral meniscus test in the ACL reconstructed knee. ACL reconstruction alone did not fully restore knee kinematics, while additional meniscus repair achieved intact level of knee kinematics. Furthermore, lateral extraarticular tenodesis also normalized knee kinematics without meniscus repair.

Data:
Objective: Concomitant lateral meniscus tear in the ACL injured knee could lead to insufficient restoration of rotatory knee laxity after ACL reconstruction. Since lateral meniscus tears are not always reparable, additional augmentation procedure, such as lateral extraarticular tenodesis (LET) could be indicated to salvage the stability after the ACL reconstructed knee. However, it is still unknown how the LET affect knee kinematics postoperatively in the ACL reconstructed knee. The purpose was to compare knee kinematics in situ-force force of ACL/ACL grafts between four different conditions of ACL and lateral meniscus. Methods: Eight human cadaveric knees were tested using a 6DOF robotic testing system. The knee was flexed from full extension to 90° while the following loads were applied: (1) anterior loading (i.e. 134N anterior tibial load with 100N compression force), (2) a simulated pivot-shift loading (i.e., 7Nm valgus torque, 7Nm internal tibial torque, and 100N compression force). Knee kinematics and in situ-force force of ACL/ACL grafts between four different conditions of ACL and lateral meniscus. Results: Anterior tibial translation (ATT) increased by cutting the ACL and the lateral meniscus between full extension and 60° (<0.01). The ACL reconstruction reduced the increase of ATT (<0.05 or <0.01), but the ATT was still larger than that of intact knee without meniscus repair or LET (p<0.05 or <0.01). Additional meniscus repair or LET achieved the intact level of ATT (<0.05). (Fig.1 Left) Abnormal lateral translation and valgus occurred by cutting the ACL and the meniscus at 15° and 30° (<0.05), and they were restored by ACL reconstruction and additional meniscus repair or LET (<0.05). The coupled anterior tibial translation (cATT) against simulated pivot-shift loading increased by ACL dissection and a meniscus tear from full extension to 30° (p<0.05 or <0.01). ACL reconstruction restored the increased cATT slightly better with...