The Impact of Family History In Anterior Cruciate Ligament Injuries in Professional Australian Rules Footballer Players

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Summary:
Professional AFL male Australian Rules footballers with a family history of ACL injury were at 3 times greater odds of having an ACL injury than their team mates without a family history.

Data:
Background Australian Rules football is the most popular football code in Australia and is the biggest cause for anterior cruciate ligament (ACL) injuries in the sporting population due to the high exposure to repeated change of direction, jumping, landing and tackling. The premier professional competition is the Australian Football League (AFL) in which ACL injuries create a major burden in time lost from competition. A family history of ACL injury has been reported to increase the odds of sustaining a first ACL injury by up to 2.5 times. This risk has not been investigated in an elite cohort playing a high risk sport. Purpose To determine if male AFL players with a family history of ACL injury were at increased odds of having an ACL injury. Method Study Cohort Study Methods All 10 AFL teams in the state of Victoria participated in the study. Players were asked to complete a survey detailing their age, time in the AFL, personal ACL injury history and details of immediate family members who had sustained an ACL injury. A 2x2 contingency table was used to calculate Odds Ratios (OR) and 95% confidence intervals (CI) to assess for a significant difference in the presence of a positive family history in those who had sustained an ACL injury and those who had not. Results Complete data was obtained from 410 out of 430 (95.3%) potential players. There were 4 players who were unsure of their immediate family history for ACL injury and were removed from the analysis. The mean age of the players was 23.6 years (range: 18-33) and they had been part of an AFL squad for a mean of 6 years. 32 (7.8%) players had sustained an ACL injury, 19 (59.4%) players had sustained their ACL injury whilst in the AFL and 13 (40.6%) had sustained their injury prior to being drafted. 15 out of 32 (46.8%) players who had sustained an ACL injury reported having a family history of ACL injury, compared to 82 out of 378 (21.7%) who had not sustained an ACL injury. Players with a positive family history were at significantly increased odds of having sustained an ACL injury compared to those without (OR 3.2 [95% CI 1.55-6.76], p < 0.001). Conclusions Professional AFL male Australian Rules footballers with a family history of ACL injury were at 3 times greater odds of having an ACL injury than their team mates without a family history. This is greater than what has been reported in sub-elite population groups in other sports. Athletes playing Australian Rules football should be screened for family history of ACL injury and encouraged to complete targeted injury reduction programs.

Outcomes of Soft Tissue Quadriceps Tendon Autograft for Primary ACL Reconstruction in Adult Population – A Systematic Review

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Summary:
No Difference in Complication Rates or Patient-Reported Outcomes Between All Soft Tissue Quadriceps Tendon and Bone-Patella Tendon-Bone or Hamstring Autograft for Anterior Cruciate Ligament Reconstruction.

Data:
Introduction: Anterior cruciate ligament reconstruction (ACLR) can be performed with a number of different autografts including all soft tissue quadriceps autograft. (S-QT). S-QT has several advantages including decreased donor site morbidity, reduced anterior knee pain and comparable revision rates compared to other autografts. The primary aim of this review was to assess all complications of QT in adult population. Methodology: A systematic review of the literature was conducted in accordance with the PRISMA guidelines using the online databases Medline and EMBASE. Clinical studies reporting on isolated primary ACLR using S-QT in the last 20 years were included and appraised using the Methodological Index for Non-Randomized Studies (MINORS) tool. Results: Eighteen studies were eligible, 3 randomised control trials (RCT), 11 comparative studies and 4 case series giving a total of 1145 cases of S-QT ACLR, 57% were men. The mean age was 26.8 ± 6.6 years (16-50) and the mean follow-up was 23.6 months (6-65 months). Eight comparative studies reported the use of Hamstring (HT) graft and 5 studies reported the use of bone patellar tendon bone (BPTB) graft with 498 and 174 patients, respectively. Thirteen studies reported on post operative patient reported outcome measure scores (PROMs). International Knee Documentation Committee (IKDC) score was the most reported score in 11 studies followed by Lysholm score in 9 studies. All PROMs scores were comparable to HT and BPTB except one study found significant difference in Lysholm score in favour of BPTB (82 vs 90, p = 0.055). Nine studies reported on knee laxity post operatively with various methods of clinical and instrumented assessment with no significant differences observed compared to BPTB. Complications of S-QT were reported in 14 studies, with overall complication rate of 8.2 % (89 patients). Graft failure was the most common complication n= 39 (3.5%), followed by cyclops lesion n= 14 (1.3%) and Arthrofibrosis n= 14 (1.3%). Infection was not a common complication with three patients from 2 studies, n = 3 (0.3%). Hardware prominence was the least reported complications with two patients who required hardware removal in one study n = 2 (0.2%). Re-operation for any reason was performed in 53 patients (4.7%). Anterior Knee/Kneeling pain was reported in 62 patients (5.6%) from 4 studies and graft site numbness in n = 4 (0.4%) from two studies. One study showed less donor site morbidity compared to BPTB and HT. Six studies reported no local complications and no graft site morbidity with S-QT. One study reported on less post operative pain and analgesia required with S-QT compared to HT in the immediate post-operative period (72 hours). Re-operation was performed in 89 patients (8.1%) with Cyclops lesion the most common cause for re-operation n= 26 (2.3%) Conclusion: No significant difference in functional outcome scores, knee stability and ROM between soft tissue QT, HT and BPTB. QT demonstrated similar quadriceps recovery and return to sport at 9-12 months. Similar graft failure and reoperation rates at 2 years post-op with low infection <0.5%. Less analgesia consumption and better HT/QT ratio compared to HT and less anterior knee/kneeling pain at harvest site compared to BPTB. Further level I studies are recommended.

Impact of an ACL Rupture on a Professional Soccer Player’s Career

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Summary:
In professional soccer, RTP at the professional level is high at 97%. Performance metrics show 59% of athletes are at the same league level at 2 years and this decreases to 34% at 5 years post ACLR. Presence of a Grade 3 or 4 chondral lesion significantly decreased performance metrics, while a meniscus repair delayed RTP but did not impact performance metrics at 5 years post ACLR.

Data:
Introduction: While advances in surgical technique have led to high levels of return to play in professional soccer players, little is known about their medium- and long-term career trajectory and performance. Methods: A retrospective review was performed of a consecutive series of primary ACL reconstructions in professional soccer players from the senior author’s practice, with a minimum of two-year follow-up. Clinical and performance measures were evaluated at 2- and 5-years post ACLR to determine pre-operative, operative and post-operative factors that affected player performance- measured by the level of league and number of minutes played. Results: 200 male, soccer players were identified who were playing professionally at the time of their primary ACLR. The average age at the time of surgery was 26.8 ± 6.6 years (range: 16-50) and the mean follow-up was 2.5 years (6-65 years). Eight comparative studies reported the use of Hamstring (HT) graft and 5 studies reported the use of bone patellar tendon bone (BPTB) graft with 498 and 174 patients, respectively. Thirteen studies reported on post operative patient reported outcome measure scores (PROMs). International Knee Documentation Committee (IKDC) score was the most reported score in 11 studies followed by Lysholm score in 9 studies. All PROMs scores were comparable to HT and BPTB except one study found significant difference in Lysholm score in favour of BPTB (82 vs 90, p = 0.055). Nine studies reported on knee laxity post operatively with various methods of clinical and instrumented assessment with no significant differences observed compared to BPTB. Complications of S-QT were reported in 14 studies, with overall complication rate of 8.2 % (89 patients). Graft failure was the most common complication n= 39 (3.5%), followed by cyclops lesion n= 14 (1.3%) and Arthrofibrosis n= 14 (1.3%). Infection was not a common complication with three patients from 2 studies, n = 3 (0.3%). Hardware prominence was the least reported complications with two patients who required hardware removal in one study n = 2 (0.2%). Re-operation for any reason was performed in 53 patients (4.7%). Anterior Knee/Kneeling pain was reported in 62 patients (5.6%) from 4 studies and graft site numbness in n = 4 (0.4%) from two studies. One study showed less donor site morbidity compared to BPTB and HT. Six studies reported no local complications and no graft site morbidity with S-QT. One study reported on less post operative pain and analgesia required with S-QT compared to HT in the immediate post-operative period (72 hours). Re-operation was performed in 89 patients (8.1%) with Cyclops lesion the most common cause for re-operation n= 26 (2.3%) Conclusion: No significant difference in functional outcome scores, knee stability and ROM between soft tissue QT, HT and BPTB. QT demonstrated similar quadriceps recovery and return to sport at 9-12 months. Similar graft failure and reoperation rates at 2 years post-op with low infection <0.5%. Less analgesia consumption and better HT/QT ratio compared to HT and less anterior knee/kneeling pain at harvest site compared to BPTB. Further level I studies are recommended.

Category: Knee - ACL