X-ref *For other Roundups in this issue that cross-reference with Sports see: Shoulder & Elbow Roundup 3.*

ACL repair or reconstruction? A randomized controlled clinical trial X-ref

■ The prospect of anterior cruciate ligament (ACL) repair as a viable option for ACL injury has started to gain more traction in recent years. There is much being written about whether to repair or to reconstruct the ACL and, as with most controversial areas of orthopaedic practice, there are strong proponents of both treatments. While there has been a rekindling of interest in reconstructive surgery, until now, there has been a distinct lack of high-quality evidence to support repair as a viable or equivalent treatment to reconstruction. This randomized controlled trial from **Hengelo (The Netherlands)**, which helps to plug this evidence gap, was designed to compare contemporary ACL suture repair techniques with ACL reconstruction for the treatment of patients with an isolated acute ACL rupture.[1] Outcomes were assessed at two years postoperatively using patient-reported outcome measures. The authors were able to recruit, randomize, and follow up 48 patients who all underwent either dynamic augmented ACL suture repair or ACL reconstruction with a single-bundle, all-inside, semitendinosus technique. The primary outcome measure was the International Knee Documentation Committee (IKDC) subjective score; secondary outcomes included the Knee Injury and Osteoarthritis Outcome Score, Tegner score, and visual analogue scale for satisfaction. Radiological outcomes and clinical outcomes (IKDC physical examination score, leg symmetry index for the quadriceps, hamstrings strength, and jump test battery) were also measured. Despite the small size and therefore low power of this study, one strength is the thoroughness of secondary outcome measure assessment. Adverse event reporting included assessment of rerupture and surgical complications. Overall, there were no statistical differences seen in the IKDC subjective score (repair, 95.4; reconstruction, 94.3). There was, however, a remarkably high complication rate reported, with two reruptures (8.7%) in the dynamic ACL suture repair group and four reruptures (19.0%) in the ACL reconstruction group. The authors also reported that five additional operations (other than revision ACL reconstruction) were undertaken in four patients (20.8%) from the dynamic ACL suture repair group and three (14.3%) in the ACL reconstruction group. This study has shown that reasonable short-term results can be achieved using repair techniques; however, more work is required in this area. While the early results of this randomized controlled trial indicate no difference, it is important to note the small sample size and short follow-up duration when comparing this with other trials. Here at *360*, we cannot help thinking that this study is underpowered to evaluate the difference in adverse event rate, which was somewhat higher in the repair group. Investigations of techniques like this one with short follow-up should be viewed with caution.

ACL repair with suture ligament augmentation has a high failure rate in adolescents X-ref

■ The technological improvements in suture anchor repair techniques have enabled a renewed interest in anterior cruciate ligament (ACL) repair, which had been attempted in the past but previously abandoned. There are, of course, some significant potential advantages to repair techniques, particularly in the adolescent population, where repair does not involve drilling tunnels across the physis. Here at *360*, we were delighted to see this paper from **Aurora, Colorado (USA)**, which reports the outcomes of adolescent patients between seven and 18 years of age, all of whom underwent either ACL repair with suture ligament augmentation (SLA) or standard ACL reconstruction using a quadriceps tendon–patellar bone autograft.[2] Primary outcomes reported in this series included failure, functional outcomes, return to sport, and joint laxity with a median follow-up of 3.2 years (interquartile range (IQR) 2.2 to 3.4) in the SLA group compared with 2.7 (IQR 2.0 to 3.6) in the reconstruction group. The overall estimated hazard ratio of failure for SLA repair *versus* standard reconstruction was 10.7 times that seen in the reconstruction group after adjusting for sex, age, body mass index, and time from injury to surgery. The cumulative observed incidence of graft failure in the SLA repair group in the first three years after surgery was 48.8% compared with 4.7% in the reconstruction group. Interestingly, there was no difference in return to sport between the groups, and subjective outcomes in those who did not rerupture were similar. However, the high failure rate of SLA repair at this early timepoint is concerning and is markedly inferior to standard ACL reconstruction.

ACL: quadriceps tendon or quadruple hamstring: a matched pair analysis

■ These authors from **Cologne (Germany)** have added further information to the quadriceps tendon *versus* hamstrings debate in primary anterior cruciate ligament (ACL) reconstruction.[3] The quadriceps tendon methods offer the potential advantage of a press-fit technique, whereas the standard four-bundle hamstrings approach requires interference screws. There are also likely to be potential differences in stability outcomes, functional testing, and donor site morbidity. The authors report a retrospective matched cohort study with follow-up out to 12 months. The cohort consisted of 92 patients, all presenting with isolated ligament injuries. Patients were excluded if there were other injuries or a contralateral ACL injury. Follow-up was reported in terms of knee stability measures and clinical outcome scores (the study evaluation included the Lachman test, Pivot-Shift test, International Knee Documentation Committee (IKDC) score, Tegner score, Rolimeter measurements, one-leg hop test, thigh circumference, and donor side morbidity). Side-to-side differences of > 3 mm were defined as graft failure. The cohort consisted of 46 quadriceps tendon patients matched to 46 hamstrings patients; matching was undertaken for age, sex, accompanying meniscus tear, and cartilage injury. In terms of outcomes, the authors were unable to establish a difference in any of the clinical outcome measures, including functional testing and stability testing. Despite the large number of outcome measures, there were no significantly different results. In all cases, there were no clinically relevant differences between the groups. We would agree with the authors that, based on the results of this paper, quadriceps tendon graft placed using a press-fit technique appears to be comparable to the more standard hamstrings repair.

Long-term outcomes of meniscal allograft transplantation with and without extrusion

■ Meniscal allograft transplantation (MAT) remains the only real joint-preserving primary treatment for significant meniscal deficiencies. However, despite advances in surgical techniques and a better understanding of the pathophysiology of the meniscus, results remain somewhat variable and controversial. The treatment is not widely available and remains the preserve of the specialist surgeon working at a tertiary referral unit. The long-term survival of these

implants and the impact of extrusion on outcomes are currently unknown. It is therefore heartening to see the publication of this series of 45 MAT cases (36 lateral and nine medial) from authors in **Seoul (South Korea)**.[4] The authors report their patients out to a mean follow-up of 12.3 years (8 to 19.6) and, for the purposes of the study, the group was dichotomized into two categories: meniscal extrusion ⩾ 3 mm or < 3 mm on MRI at one year postoperatively. Bilateral weight-bearing radiographs (posterior-anterior at 45° of flexion) were used to measure joint space width, and Lysholm scores were also collected as a patient-reported outcome measure. The results presented essentially demonstrated that joint space width was maintained throughout the period of the study, and was not found to be significantly different between the extrusion and no-extrusion group at the four- to six-year timepoint of follow-up. At the eight-year timepoint, however, increased loss of joint space was observed in the extrusion group. Interestingly, no differences in Lysholm score were observed at any timepoint. While the presence of MAT extrusion may be associated with radiological loss of joint space width at long term follow-up, it appears that clinical outcomes are maintained. What these findings mean for the survival of meniscal allograft transplants in the much longer term remains to be seen, but their use as a bridging solution for total meniscectomy remains a viable option.

Arthroscopic hip surgery compared with physiotherapy and activity modification for the treatment of symptomatic FAI

One of the newer developments in sports surgery is that of hip arthroscopy. Initially treated with scepticism and performed only in specialist centres, there is an accumulating evidence base. The recently published UK FASHIoN (Full Randomised Controlled Trial of Arthroscopic Surgery for Hip Impingement Versus Best Conventional Care) trial of 348 participants came down in favour of hip arthroscopy over personalized physiotherapy, although there has been some debate and questions raised about the finer points of the methodology following publication. This latest trial from **Oxford (UK)** adds more evidence to the field of hip arthroscopy surgery.[5] The trial was designed to test the two interventions of arthroscopic hip impingement surgery with a physiotherapy intervention and activity modification. Outcomes were assessed using patient-reported outcome measures and all patients included in the trial had a primary diagnosis of femoroacetabular impingement (FAI). Patients were included with symptomatic clinical FAI and a confirmatory imaging study. Patients were randomized 1:1 to either of the two interventions and outcome measures were assessed at 12 months. The trial team were able to enrol 112 patients into the arthroscopic hip surgery group and 110 into the programme of physiotherapy and activity modification group. Of the exclusion criteria, the most notable were patients with early arthritis (Kellgren–Lawrence grade ⩾ 2) and those who had completed a physiotherapy programme previously. There was considerable loss to follow-up, with data available for 100 patients (89%) in the arthroscopic hip surgery group and 88 patients (80%) in the physiotherapy programme group at eight months' follow-up. In the unadjusted outcomes, as measured by the Hip Outcome Score Activities of Daily Living (HOS ADL), there was sizeable difference favouring the arthroscopic group, at 78.4 (95% confidence interval (CI) 74.4 to 82.3) *versus* 69.2 (95% CI 65.2 to 73.3). Following adjustment for baseline HOS ADL, age, sex, and study site, this difference was 10.0 points (6.4 to 13.6) favouring the arthroscopic hip surgery group. The authors report that "patients with symptomatic FAI referred to secondary or tertiary care achieve superior outcomes with arthroscopic hip surgery than with physiotherapy and activity modification", which seems a reasonable conclusion.

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Foot & Ankle

X-ref ***For other Roundups in this issue that cross-reference with Foot & Ankle see: Hip Roundup 5; Research Roundup 5.***

Lateral column lengthening *versus* subtalar arthroereisis for paediatric flatfeet

There are two opposing approaches to management of paediatric flatfoot. Lateral column lengthening (LCL) aims to correct the pes planus deformity through lengthening of the lateral column, while arthroereisis (AR) aims to restrict the motion at the subtalar joint through a bone block or implant. Both procedures aim to address flexible pes planus at the hind foot. This review team from **Seoul (South Korea)** have conducted a systematic review on the current status of the literature comparing these two approaches.[1] The outcomes compared were radiological parameters, clinical scores, reported satisfaction, complications, and re-operations between LCL and AR for symptomatic flatfoot in children. Overall, 31 studies were included in the review (21 reporting LCL and 13 reporting AR outcomes) following a comprehensive search of the MEDLINE, EMBASE, and Cochrane Library databases. The authors undertook two independent reviewer quality analyses to assess the quality of the papers. From an outcome perspective, the talus first metatarsal angle was greater in the LCL group (9.5° to 21.7° *vs* 10.6° to 12.8°). This change was also reflected in the calcaneal pitch, which improved by around 24° in the LCL group and around 4° in the AR group. These differences in radiological outcomes translated into slightly better American Orthopedic Foot and Ankle Scores (AOFAS) (28 to 39 *vs* 17 to 22). As is often the case, these patients did not report an improvement in satisfaction scores between the two groups, with the vast majority of patients being satisfied with their treatment. However, despite the improved potential overall outcomes in favour of LCL in both radiological and clinical outcomes, these came at the cost of differences in complication rates. The authors of this review quote a range of complication rates for the LCL group (0% to 87%) and markedly lower for the AR group (4% to 45%). The most common complications were calcaneocuboid subluxation and persistent pain in the LCL and AR groups, respectively. Despite the differences in complication rates, there were no meaningful observed differences in reoperation rates. All