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.***

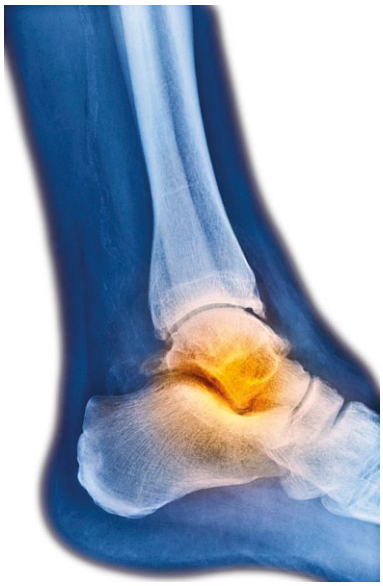
Lateral column lengthening *versus* subtalar arthroereisis for paediatric flatfeet

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

in all, this review favours the LCL approach over the AR – although the data is far from robust and the broad ranges of outcomes and complication rates hamper any firm conclusions. However, this review certainly indicates that the LCL approach has the edge.

Is there a role for gastrocnemius recession in recalcitrant plantar fasciitis in the overweight and obese?

■ Conservative management is the mainstay of treatment for the majority of patients with plantar fasciitis (PF), a condition in which the pathophysiology is still not completely understood. Gastrocnemius tightness has, however, been implicated in PF and treatment modalities are generally directed towards improving this. Obesity is a recognized risk factor for development of PF and, given the limited evidence for surgical efficacy, many surgeons share a legitimate concern in offering surgery to an overweight person who fails to improve with conservative measures. The authors of this case series from **Birmingham, Alabama (USA)** bravely intervened in this group of patients.[2] Diagnosis of PF in this series was clinical and not confirmed on ultrasound. Gastrocnemius tightness was defined using the Silfverskiold test and it is not entirely clear what clinical parameters were used for either. In this study, PF was considered recalcitrant after six months of failed conservative treatment, although the details of treatment are somewhat opaque. Pain was assessed using the visual analogue scale (VAS), and the Foot Function Index (FFI) was used to record functional status. The authors performed the gastrocnemius recession using a modified Strayer technique. Following surgery, patients were placed in a walker boot and allowed to weight bear as tolerated (except for one patient with concomitant foot surgery). Patients did not have supervised physiotherapy, merely "home stretching exercise". In terms of results, only 17/49 potential patients were available for review with an average body mass index (BMI) of 34.7 (26.6 to 57.8). The authors report improvement of mean pain score from 8.3 to 2.4 (0 to 10, 10 being worst pain) and a mean FFI improvement from 66.4 to 26.5 with just over eight weeks taken to return to work. A patient satisfaction survey was also included in the outcomes of this cohort, with 13/17 patients suggesting they would be happy to have the procedure again, and 14 stating that they would recommend it to their friends and family. Despite the overweight nature of the cohort, reported complication rates were low. These authors have tackled a difficult but common clinical problem for which they are to be commended. However, like many cohorts, they have not been meticulous in recording their experience. This is a retrospective case series and not immune from the usual methodological flaws of a retrospective study. As such, there are too many unanswered questions here for us to draw any firm conclusions.



Which approach is better for operative fixation of displaced calcaneal fracture? X-ref

■ This paper from **Daejeon (South Korea)** explores surgical approaches to fracture fixation for calcaneal fractures.[3] This is a topic that has sparked some interest in the past few years. The position of the extended lateral approach (ELA) as the workforce operation for operative fixation of displaced calcaneal fractures is being continuously evaluated, due to reported complications. The sinus tarsi approach is one of the alternative approaches described, and has gained some traction with surgeons worldwide. The authors undertook a randomized study to compare the complication rates and radiological outcome between the ELA and the extended sinus tarsi approach (ESTA). Patients were pseudorandomized into two intervention arms (patients with an even hospital number had ELA and those with odd number has ESTA). A single surgeon performed all cases. The strengths of this paper are the identical fracture reduction technique and implant choice, as was the selected postoperative regime. Minimum follow-up was up to three years and analysis was performed by two researchers. The demographic information included in the report was minimal and important characteristics such as smoking, diabetes, and peripheral vascular disease, were not reported. The ESTA group had higher number of type III injuries. All patients had a CT scan at three months, with selective CT at a later date to assess union. In this series, the ESTA approach was much a quicker procedure (81 mins *vs* 116 mins for ELA). Apart from some subgroup differences that are likely to be spurious, there was essentially no difference in radiological or functional outcome between the two groups. Wound complications (superficial infection and wound edge necrosis) were more frequent in the ELA group, but the ESTA group suffered a higher rate of superficial peroneal nerve injury. Although the reported radiological CT nonunion rate was higher in the ELA group, subtalar fusion rate was similar to ESTA. The authors are not entirely convincing in their argument that ESTA results in a lower rate of nonunion or wound complications when compared with ELA. However, for those seeking a viable alternative approach for open reduction and fixation of calcaneal fractures, based on these results, ESTA appears to be a suitable alternative.

Venous thrombotic events and foot and ankle surgery X-ref

■ There is agreement that the incidence of venous thrombotic events (VTE) after foot and ankle surgery is low. It is also widely accepted that individual risk assessment and careful consideration of balance of risk of VTE and bleeding is required before offering a patient chemical thromboprophylaxis. What is less clear is when to offer chemical thromboprophylaxis. The risk factors for VTE are best divided into patient-specific and procedure-specific factors. The aims of this study, from institutions across **California (USA)**, were to identify the overall incidence of VTE in patients undergoing foot and ankle surgery, to identify patient-specific risk factors, and to determine if prophylactic measures can lower the rate of VTE.[4] The authors report a retrospective case-control study of all adult Kaiser Permanente Northern California (KPNC) patients who underwent foot and ankle surgery between January 2008 to May 2011 and were reported at a follow-up of six months. The overall incidence of VTE was 0.9%. Pulmonary embolism was the presenting symptom of many patients with VTE. Interestingly, the VTE subgroup had a higher proportion of patients who were given chemical thromboprophylaxis and, in many cases, VTE occurred when patients were off chemical thromboprophylaxis and were full weight-bearing without immobilization. On performing multivariate logistic regression, the authors found four factors that were significantly predictive of development of VTE. Patients with previous VTE, non-weight-bearing mobilization of more than two weeks, hormone replacement therapy, and obesity (body mass index > 30 kg/m^2). In view of the low incidence of VTE, the authors concluded that routine chemical thromboprophylaxis was not recommended in foot and

ankle surgery, but recommended chemical prophylaxis when three or more of these risk factors were present. As these authors correctly point out, some of the risk factors, such as a history of malignancy or hypercoagulability, had a small number of patients and, therefore, may prove significant in a larger series. Furthermore, there was clearly some variability in practice among the centres and surgeons included, and it is not clear whether the practice of non-chemical prophylaxis was the same between the two groups. There should be general agreement and little surprise regarding these identified risk factors. The authors also successfully proved that an isolated risk factor does not warrant chemical thromboprophylaxis. This paper is a useful source of information for surgeons interested in evidence-based management of VTE in foot and ankle surgery.

Suture tape and lateral ligament instability

Significant ankle instability is often associated with deficient lateral ligament structures around the ankle, usually the anterior talofibular ligament, but the calcaneofibular ligament is also implicated. There are a range of reconstruction options described including reefing, reinforcement, and reconstruction of the ligamentous structures on the lateral side of the ankle. The use of artificial reinforcements or augments, while described, is not terribly well reported in the literature. This paper from authors in **Cheongju (Korea)** reports the outcomes of 24 patients, all with lateral ankle ligament injuries.[5] Patients were included who had instability that warranted operative repair, which was undertaken with a suture-tape augmentation. Outcomes were reported up to two years in 24 patients using a range of outcomes, including the Cumberland Ankle Instability Tool (CAIT), Foot and Ankle Ability Measure (FAAM), and measurements of peroneal strength, proprioception, and postural control using a dynamometer. Overall, there were clinically significant improvements in the CAIT and FAAM, with an average of 27 points and 87 points. In terms of functional measurements, the dynamometer testing yielded a significantly improved peak torque for eversion at two years, which complemented the also-improved deficit ratio of peak torque of 39.5% to 20.9%. In this series of patients, it does appear that the use of suture-tape augmentation yields a relatively reasonable outcome; however, there is no comparison data. As such, based on these results, it is possible to say that there is improvement in the patient-reported outcomes, isokinetic peroneal strength, and postural control. Although there is little in the way of comparative data, there is enough here to support the use of this technique as a viable option in ankle instability surgery. However, without a direct head-to-head comparison with other techniques, through either a comparative case series or randomized trial, it really is impossible to say how much better, if at all, the suture-tape technique is compared with the other options.

Is the torque test the answer? X-ref

Few anatomical structures have sparked as much interest as the syndesmosis has in recent years. There has been a reignition of interest in the syndesmosis following increased understanding of its anatomy (particularly with the recent studies examining the posterior malleolus and its importance in stability), new treatment options (principally the tightrope and related devices), and a better understanding of reduction and fixation techniques. That said, which patients need syndesmosis fixation is still a subject of debate – particularly in those patients in whom reduction is accurate just with fibular fixation. In this cadaveric study from **Montreal (Canada)** the authors propose a new stress test based on their study of ten cadavers.[6] The authors then compare their own newly proposed 'torque test' (TT) to the classical external rotation stress test (ERT) and lateral stress test (LST). In this cadaveric study, the authors undertook sequential sectioning of the three major structures in the syndesmosis complex: the anteroinferior tibiofibular ligament, the interosseous membrane, and the posteroinferior tibiofibular ligament. This sequence was repeated on ten fresh-frozen cadaveric ankles. With each sequential section, the presence or absence of instability was tested using the TT, LST, and ERT methods under direct visualization and diastasis measurements taken. With all three tests, significant motion, in terms of diastasis, was seen when two ligaments were sectioned. The two traditional tests yielded around 3 mm of diastasis, while the TT showed a mean increase in diastasis of 4.8 mm. The results here, although not clinical, would suggest that the newer test was both more sensitive and specific.

Long-term outcomes of the Cartiva device X-ref

The Cartiva device has been around for a number of years now and is a somewhat unique in regard to interposition arthroplasty. The device is designed as a synthetic cartilage interposition, and it sits within the first metatarsophalangeal joint (MTPJ) as an alternative to the more traditional arthrodesis. The potential advantages of the device are clear, with the maintenance of motion and length in the first MTPJ. There are, however (like with everything), some potential downsides. Previous soft arthroplasties (such as the Swanson joints) have suffered with dislocations, macroscopic failures, and synovitis – although these are a different design. The authors of this multinational study (**Canada, UK,** and **USA**) are to be congratulated on publishing a mid-term (5.8-year) prospective randomized non-inferiority study evaluating the use of the Cartiva device against MTPJ fusion.[7] The trial was designed to assess safety and efficacy of the Cartiva device against the standard of MTPJ arthrodesis. The numbers in this second report of the initial study take some unpicking, as the study design is purely to detect complications and prove non-inferiority to fusion. Participants were randomized 2:1 to the Cartiva device, with 236 patients (152 implants and 50 fusions) included in the original report. Of the original cohort, 112 had outcomes assessed at nearly five years of follow-up, including clinical (pain visual analogue scale (VAS), Foot and Ankle Ability Measure (FAAM) Activities of Daily Living (ADL), FAAM Sports subscales), radiological, and complications outcome measures. In terms of survival, 9.2% underwent revision in the first two years and a further 7.6% underwent revision between years 2 and 5 and conversion to arthrodesis. The clinical results were maintained in those patients who did not have revision surgery in all of the reported scores, with 99/106 surviving patients reporting they would have the procedure again. Despite the unusual study design, the methodological limitations from the selection of non-inferiority margins, and the limitations in reporting and analysis of the data, this study does go some way to supporting the use of the Cartiva in MTPJ arthritis as a reliable operation, although the revision rate should be taken into account.

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