

ROUNDUP³⁶⁰

Knee

x-ref For other roundups in this issue that cross-reference with *Knee* see: [Foot & Ankle roundup 3](#); [Research roundups 1, 2 and 5](#).

Acute repair preferable in hamstring ruptures

■ There is a large range of musculotendinous injuries that are, for the most part, treated conservatively. For the majority of the population this can yield acceptable results with no functional inhibition. However, patients with high level sporting requirements (professional and semi-professional athletes) can often require reconstruction. For injuries such as hamstring tendon avulsions there is no data available to support acute reconstruction over chronic repair for the symptomatic. Sports medicine surgeons in **Edina (USA)** set out to establish, for those patients likely to require a proximal hamstring reconstruction, if their outcomes were better with acute or chronic repair.¹ The group has been treating chronic ruptures for some time with the use of an Achilles tendon allograft when direct repair is not possible. Amazingly, the surgical team treated 72 patients over a ten-year period, all with a traumatic proximal hamstring avulsion. Of these, 51 were treated with acute surgical repair and 21 as symptomatic following a trial of conservative management. Incidentally, Achilles tendon allograft was required in 12 cases. Outcomes in both groups were assessed using clinical and functional outcome measures (Single Assessment Numeric Evaluation (SANE), Short Form-12 (SF-12), visual analogue scale (VAS), and satis-

faction rating). The chronic reconstruction group had their surgery, on average, over 14 months after injury and follow-up was achieved to 45 months. There were some differences between the two groups with the delayed reconstruction group achieving significantly poorer clinical activity scores (70.2% vs 80.3%) with a trend towards poorer outcomes in those with chronic tears for their activities of daily living scores. Allograft reconstruction was specifically associated with retraction of around 6 cm although there were no differences in patient satisfaction or VAS scores. This study cannot help us answer the question 'should proximal hamstring reconstruction be undertaken in all patients?', but it does provide data to support the practice of acute reconstruction in patients who are most likely to require reconstruction in the longer term.

Osteoarthritis a given in ACL injury, even with reconstruction?

■ The long-term outcomes of patients with traumatic ACL ruptures with regard to the development of osteoarthritis is a topic of hot debate. Advocates of early blanket ACL reconstruction assure hospital managers and national policymakers alike, that patients sustaining such an injury not treated with reconstruction are doomed to long-term osteoarthritis. This is, however, not universally accepted and with a lack of long-term outcome studies it is far from clear that ACL reconstruction does in fact avoid longer-term knee osteoarthritis. Researchers in

Stockholm (Sweden) report the long-term outcomes of a randomised controlled trial investigating quadrupled semitendinosus tendon (ST) and bone-patellar tendon-bone (BPTB) grafts.² Reasoning that reports in the literature suggest a 10% to 90% variation in the incidence of radiological OA, the research team used this long-term report of their level 1 study to examine the incidence of development of osteoarthritis between the two groups. Outcomes were assessed with radiographs (independently scored by musculoskeletal radiologists with the Kellgren-Lawrence score) and clinical outcomes scores (Tegner activity levels, and Knee injury and Osteoarthritis Outcome Score (KOOS)) in 82% (n = 135/164) of patients who were initially enrolled in this RCT. With results similar to other studies, the author of this impressively long-term follow-up study identified an osteoarthritis rate of 57% in the medial compartment ACL reconstructed knees (*versus* 18% in the contralateral knee). While there was a higher rate of OA in the ST graft knees than in the BTB knees (65% vs 49%), this result did not quite reach significance. The incidence of OA strongly correlated with poor KOOS scores, indicating clinically symptomatic OA was present and concomitant medial meniscectomy was a highly significant predictor of developing OA. This fascinating study ably demonstrates that ACL reconstruction certainly does not eliminate OA in the knee of patients following injury. Although there is no conservatively

treated comparator group in this study, others have shown a similar incidence of the development of OA with conservative management.

Chicken and egg: patellofemoral dysfunction and hip weakness

■ There is a definite association between patellofemoral pain and hip strength, however, picking apart what the precise relationship is a little tricky. The association is well described although causation is not. There is no consensus as to which causes which. Reasoning that understanding the cause and effect could be important in guiding treatment modalities in conservative management of anterior knee pain, a review team in **Aalborg (Denmark)** designed a systematic review to establish if the truth is in fact already out there.³ They designed their review to differentiate between hip strength as a risk factor for, or associated deficit in, PFP. In addition, they sought to establish differences in hip pain with patient demographics and, if at all possible, establish what the literature supporting hip strengthening was. The review team undertook a review of studies in the indexed literature, and two independent reviewers assessed the papers for suitability for inclusion in the review. This review presents moderately strong evidence from prospective studies that there is no association between hip strength and PFP, however, cross-sectional studies suggest that men and women with established PFP have lower isometric hip strength. Quite a confusing picture. However,

in their data synthesis the review team argue that this discrepancy (which appeared to them to be genuine) is likely to indicate that reduced hip strength is caused by PFP rather than the other way around. This obviously has implications for treatments as the addition of hip strengthening exercises may not treat the underlying symptoms.

Meniscal root tears as bad as we thought

■ Meniscal root tears are widely regarded as associated with poor outcomes and have, in the past, frequently gone unrecognised. The avulsion or tear of the root renders the meniscus non-functional by obliterating its ability to generate hoop stresses which are key in the shock absorbing role of the meniscus. Authors from **Chicago (USA)** thought it was high time for a review of the state of play with this uncommon but devastating injury. This concise review article is well worth the read and underlines the importance of early diagnosis and treatment.⁴ The authors comment that with the advent of routine MRI scanning for severe knee injuries, and better understanding of the anatomical and biomechanics of the meniscus root attachments, better treatments and a fuller understanding of the pathophysiology have been enabled. We would thoroughly recommend this article to all interested arthroscopic knee surgeons.

Outcomes in the meniscus

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■ Staying with the theme of meniscal injuries, a study team in **Amsterdam (The Netherlands)** asked how best to assess outcomes in this commonly treated area.⁵ Arguing that as the number of patient-reported outcome scores is high this leads to a disparate array of reporting strategies for studies, making meta-analysis and comparison of studies, interventions and outcomes more difficult. The study team argue that for a single diagnosis there is likely to be a 'best' instrument to describe outcomes and they set out to find which it is. The study aims to establish which of the

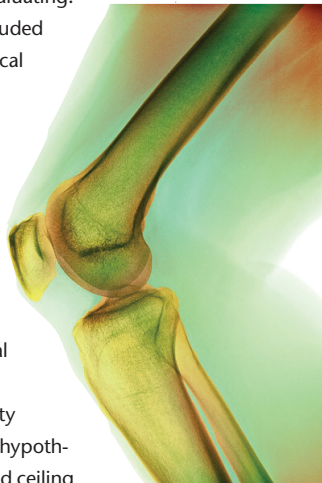
International Knee Documentation Committee (IKDC) Subjective Knee Form, Knee Injury and Osteoarthritis Outcome Score (KOOS), and Western Ontario and McMaster Universities Arthritis Index (WOMAC) were most effective in assessing the outcomes for patients with meniscal tears. They used a homogeneous group of patients, all with meniscal tears, in their prospective cohort study with the aim of determining and comparing the measurement properties of the scores they were evaluating.

The study team included patients with meniscal injury, both on the waiting list and up to six months after their surgery. Outcome measures were assessed for reliability (correlation co-efficient), internal consistency (Cronbach's alpha), validity (factor analysis and hypothesis testing, floor and ceiling effects) and the responsiveness (smallest detectable difference and measurement error). Across all domains the IKDC performed best in all measurement properties. The KOOS and WOMAC scores suffered from floor and ceiling effects within the smallest detectable difference of minimum and maximum scores. Although perhaps not thrilling reading, studies like this one are a key part of improving the evidence base on which trauma and orthopaedic surgery is built. Selection of the correct outcome instrument for both diagnosis and intervention is the first and most important step in any study design. After all, if you ask the wrong questions, the answers themselves are meaningless.

Topical NSAIDs have a measurable effect on synovitis

■ The application of topical NSAIDs is beloved of patients, but not always their surgeons. We are sure, here at 360 HQ, that we are not alone in

having seen more than the occasional patient slathering on diclofenac gel to their painful limb. We were, however, rather surprised to read a randomised controlled trial from **Marburg (Germany)** examining the efficacy of this practice.⁶ The study team designed a small randomised controlled trial of 39 patients who were randomised to receive two different concentrations of diclofenac topical spray on the knee for three days prior to joint replacement. The study was



designed to assess the penetration of the diclofenac into the tissues, and to that end samples of synovial fluid, synovium and plasma were taken at the time of total knee replacement, and the concentrations of diclofenac measured in all of these. The diclofenac concentration was 20 times higher in synovial tissue than in fluid or plasma in both treatment groups although there was no proportional link to the dose administered. Although sold as a 'randomised controlled trial' we are not certain how the study question was reached. Whilst this study contains important information about the bioavailability of topical NSAID preparations in the synovium, it really would have been more helpful to know how this compares with systemic administration, and what the effects on pain scores were. A fascinating study but perhaps some more thought needed in the design!

Nailing for tibial peri-prosthetic fracture x-ref

■ The burden of peri-prosthetic fractures has increased over the past few years with an ageing population, osteolytic older arthroplasties and increasing falls in the elderly population. It is difficult to see how this problem is going to go away. Peri-prosthetic fractures round the

tibia pose a particular problem. With little bone stock for plating and poor access for IM nailing, these injuries are amongst the most challenging to treat. Surgeons in **Salt Lake City (USA)** have developed a nailing technique that is suitable for treatment of peri-prosthetic fractures distal to a tibial base plate.⁷ Treatment with a nail would be ideal for many of these older patients by offering an option for early mobilisation without compromise of fixation. The techniques described in this interesting article provide the option of stable fixation with early mobilisation but do require a fracture distal to the tibial prosthesis. Definitely a paper to keep in the top drawer for that difficult moment on call!

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