has some real attractions in the vast majority of patients. Surgeons in **Aarhus (Denmark)**[9] published their interim results of structural grafts used in calcaneal lengthening osteotomies. They designed a radiostereometic analysis-driven study comparing tricortical graft with hydroxyapatite-tricalcium phosphate (HATCP). However, the report only details the first 11 patients, with six months of follow-up, as the study was stopped due to poorer outcomes with the hydroxyapatite graft. At six months' follow-up, the osteotomy had been compressed by 2 mm more in the HATCP group than in the autograft group and for this reason the study was stopped. One could question whether 2 mm of migration outweighs donor site morbidity, however, the more worrying factor was the ongoing migration of hydroxyapatite graft. The authors conclude that they would not recommend the use of this graft for calcaneal osteotomies in this form.

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Research

X-ref ***For other Roundups in this issue that cross-reference with Research see: Knee Roundups 5 and 8; Foot & Ankle Roundup 2; Trauma Roundup 8; Oncology 1.***

Prevention of surgical infection

We would draw the attention of all readers to the first ever publication of the WHO guidelines on the prevention of surgical infection. The rather extensive document draws together all of the evidence that currently exists on the best strategies to prevent peri-operative infection and where the best place is to concentrate effort. The author team based in **Geneva (Switzerland)**[1] has aimed to distil all of the evidence in a similar way to that in which national guidance is produced. The most interesting thing for us here at 360 is the emphasis. The guidance emphasises the importance of simple steps, and clearly underlines the evidence to support this approach: "*For many years, environmental contamination was considered to be less important than many other factors in contributing to HAI. However, recent evidence shows that a contaminated health care environment plays a significant role in the transmission of microorganisms.*"

Crossover analysis in meniscal tear: physiotherapy to surgery X-ref

There has been much in the academic press in recent times concerning the potential benefits (or usually, otherwise) of arthroscopic debridement of the knee, particularly in degenerative meniscal tears. The evidence would currently suggest that, at least in the setting of degenerative meniscal tears, arthroscopy has little benefit over physiotherapy. Of course, the caveat to this, and perhaps the saviour of the arthroscopic knee surgeon, is the high crossover rate in all published studies which, when undertaking an intention-to-treat analysis, could be said to skew the results somewhat. The academic team in **Boston, Massachusetts (USA)**[2] have undertaken a re-analysis with an attempt to quantify which patients are more likely to cross over from one to the other, i.e. which patients are most likely to benefit from surgery. The study is based around the MeTeOR study and includes 341 patients, of whom 177 were initially randomised to physiotherapy. There was an appreciable crossover rate of 27% (n = 48) who, although randomised to receive physiotherapy, went on to have surgery because their treatment failed. The authors undertook a secondary analysis whose aims were two-fold: to establish which factors were predictive of a crossover to the operative group; and what the six-month pain relief outcomes were on an 'as treated' basis, rather than on an intention-to-treat basis. The factors that appeared to be associated with a reported crossover (within 140 days of starting the trial) on multivariable analysis were a high Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) knee score (a score of > = 40 gave double the risk of crossover) and symptom duration of less than one year (relative risk 1.74). There were similar rates of success in all three groups, with an improvement of 10 points on the pain score in 73% of conservatively treated patients compared with around 80% of those treated either with primary debridement or crossover. This paper suggests that many patients may still benefit from arthroscopy after failed non-operative treatment, and specifically that these patients do just as well as those who were allocated straight to surgery. Putting this all together, a trial of physiotherapy with a three-month review and then proceeding to arthroscopic debridement, if things have not started to improve, seems a reasonable option.

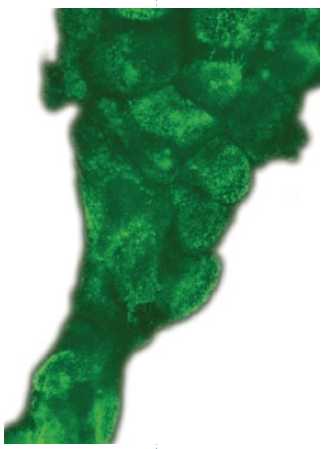
Vitamin D and osteoarthritis of the knee X-ref

The literature appears to be full of references to vitamin D, with large numbers of patients admitted for fragility fractures found to have depleted vitamin D levels. There are plenty of studies demonstrating its effect on combatting osteomalacia and osteoporosis. However, although low serum vitamin D levels have been linked to radiological progression of osteoarthritis (OA), there are few studies, and no large scale RCTs, to test the hypothesis that vitamin D supplementation may benefit these patients. A study team based in **Oxford (UK)**[3] set out to establish if vitamin D may indeed have a role

to play in the treatment of osteoarthritis. Using the knee as a model, the VIDEO study reports three-year outcomes of a double-blinded randomised controlled trial reporting the outcomes of 474 patients, all with radiographic knee OA. Patients were randomised to either 800 IU of cholecalciferol or placebo daily. Outcomes were assessed using the rate of joint space narrowing with a range of secondary outcomes including Kellgren-Lawrence grade, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain, function, stiffness and the 'up and go' test. To cut a long story short, there were no differences in any primary or secondary outcome levels other than serum vitamin D levels. This study really does put to bed the suggestion that vitamin D levels may be useful in the treatment of OA of the knee.

Does blood really need to be 'grouped and saved' prior to arthroplasty surgery? X-ref

■ The drive to reduce needless investigations, thereby removing additional unnecessary healthcare costs and pushing forward a 'value' agenda as health care becomes increasingly unaffordable, becomes more difficult. The addition of laboratory tests can add many hundreds of pounds to admission costs, and, as there has been a drive to reduce transfusion - both due to adverse effects and cost concerns - the transfusion rates have fallen dramatically in the peri-operative period. Surgeons in **Philadelphia, Pennsylvania (USA)**[4] have added pre-operative 'group and save' (typing and screening) tests to the list of potentially unnecessary screening tests. Reasoning that, as more total joint arthroplasties are being performed in ambulatory surgery centres and more outpatient surgery is being performed, the question of pre-operative lab utility is of importance. The authors focused on a retrospective notes review of 1034 consecutive patients, all having total joint arthroplasties at a specialty surgical hospital. They then matched these on a 1:1 matching with 964 patients presenting to a university hospital and having not had a 'group and save' performed. Overall, there were no emergency transfusions in either group and the transfusion rates in both centres were an expectedly low 2% to 3%. There were much higher rates of transfusion in simultaneous bilateral hip replacements, over 20%, although the numbers of patients were low. This study clearly demonstrated that there were low transfusion rates in this patient population, irrespective of the centre performing the surgery, and that for most patients it would be safe to avoid routine pre-operative 'group and save' tests. However, caution should be taken with bilateral total hip arthroplasty patients and patients with abnormal pre-operative haemoglobin. These patients should probably be more closely monitored in the post-operative period, and there may be an argument for targeted pre-operative screening.



Sacroiliitis and injections X-ref

■ Sacroiliac (SI) joint pain is hard to treat, and probably accounts for a large proportion of pre-operative back pain. This diagnosis can accompany not only lumbar spine disease, but also hip disease, and can sometimes present post-partum. The mainstay of treatment in the majority of centres is physiotherapy and non-steroidal anti-inflammatory drugs (NSAIDs). Treatment with these methods is at best supportive, whilst the natural history of many of these symptoms is a slow stabilisation, given time. However, patients do not always recover, and at times surgeons and patients will look for other options including radiologically guided injections. These are usually, as in all areas of orthopaedics, steroid-based. A trial team in **Chandigarh (India)**[5] set out to establish if there was any potential benefit in injection of platelet-rich plasma (PRP) over corticosteroids in individuals with low lumbar pain. They undertook a rather small randomised controlled trial of 40 patients, all with chronic low lumbar pain. The study design was a blinded randomised controlled trial, with patients receiving either steroids (1.5 mL methylprednisolone (40 mg/mL) and 1.5 mL 2% lidocaine with 0.5 mL saline) or 3 mL leucocyte-free PRP with 0.5 mL calcium chloride. Injections were undertaken under ultrasound guidance and outcomes were assessed using VAS pain scores, the Oswestry Disability Index and the SF-12 Health Survey. There were some significant differences in outcome, with significantly lower pain intensity scores seen at six weeks and three months in the PRP group, as compared with the steroid group, with efficacy reported as 25% in the steroid group and 90% in the PRP group. These results are impressive. However, we would apply a slight note of caution as obviously this is a small study and a further, perhaps multicentre, study would be of benefit to confirm these results. For now, here at 360 we are cautiously optimistic.

Nasal chondrocytes for cartilage regeneration X-ref

■ The holy grail of cartilage surgery – in whichever joint it is performed – is the regeneration of functional, fully differentiated cartilage with functional chondrocytes and hyaline cartilage. Over the years there have been a large number of attempts to regenerate cartilage either with mechanical stimulation, transplantation, autologous culture, scaffolds of all varieties, stem cells or a combination of therapies. The variety of treatment options perhaps belies the lack of a truly successful treatment. However, great strides have been made in improving treatments, and autologous transplantation in particular is starting to have some successful results. The difficulties with cellular engineering approaches, either stem cell or chondrocyte-related, are the variety of cellular options. Each month there seems to be a new candidate cell with a particularly unique lineage, with proponents laying claim to it being the 'next big thing'. The latest candidate in the long list is the humble nasal chondrocyte. The cell lineage potentially offers a number of advantages with easy access for harvest and the potential for plasticity in differentiation. We were excited to come across this first-in-man study from **Basel (Switzerland)**.[6] The study team isolated chondrocytes from a septal biopsy specimen and, after expansion and culture, they were implanted into ten patients with symptomatic full-thickness femoral condylar chondral defects. Outcomes were assessed at up to 20 months following surgery, and the aim of this study was really safety rather than efficacy. It was heartening to see an honest report of a developing technique. The authors were able to report that in all patients they were able to culture chondrocytes and manufacture a viable graft, and that in this small group of patients they were able to demonstrate improved clinical outcomes and radiological development of tissue approaching native cartilage on MRI assessment.

Nordic hamstring exercises and injury prevention X-ref

■ Prevention, as they say, is better than cure – and sadly this is something at which we, as surgeons, are rather poor. We tend to think of this as the domain of the family doctor and sports medicine practitioner,

forgetting that often it is to our consulting room that concerned athletes present after minor injuries. Suitable rehabilitation, or even better pre-habilitation, can have a dramatic impact on the long-term injury patterns for athletes, whether recreational, competitive or professional. Researchers in **Brisbane (Australia)**[7] set out to establish what, if anything, was the benefit of Nordic hamstring and hip extension exercises on hamstring architecture and morphology. The study revolved around ultrasound evaluation of 30 recreational athletes. The patients were allocated to one of the following groups: control; Nordic hamstring exercises; or hip stretches, and the effect of the interventions was established using ultrasound to evaluate fascile length. MRI scanning was utilised to determine hamstring muscle size before and after intervention. It turns out that both exercise regimes were able to lengthen muscle fascicles and increase the cross-sectional volume of the semitendinosus, however, there was a significant increase in the volume of the biceps femoris in favour of the hip extension exercises. It looks as though use of either exercise regime is able to produce real effects in the hamstring muscle which is likely to ameliorate injury. There doesn't, however, appear to be much to choose between the two regimes.

Copenhagen adduction training

Staying with the theme of pre-habilitation, we were delighted to see a second sensible paper evaluating adductor training, this time from **Copenhagen (Denmark)**.[8] Hamstring and adductor injuries are tricky to treat and results are considered mixed at best, so it is helpful to see the objective evaluation of some preventative strategies. Reasoning that football players with low adductor strength appear to be at greater risk of injury, the study team evaluated the Copenhagen adduction exercise which, although known to provoke significant activity in the adductors, has not been shown to improve adductor strength in athletes. The study team enrolled two youth (under 19 years) football teams and randomised 24 players to either supervised additional adductor training or standard training for a period of eight weeks. There were some significant improvements in strength in the intervention group of around 35% on the measure of hip adduction strength – this would seem to support the hypothesis that the Copenhagen adduction exercises can be used to improve hip adduction strength.

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Clarification

2016 Vol 5 Issue 4. Foot & Ankle pp 25-27

Foot & Ankle RoundUp: First metatarsophalangeal joint arthroplasties: perhaps some more work to do.

We wish to draw readers attention again to the Cartiva implant and it's reported outcomes in *360* as part of the MOTION study. The introductory paragraph references outcomes of the TOEFIT prosthesis which is referenced as such.[1] It is perhaps not clear enough that the TOEFIT is a traditional metallic first MTP which can be implanted as a hemiarthroplasty or total joint replacement. This approach has been abandoned due to high failure rates and is a different design to the viscoelastic press fit Cartiva SC device. The outcomes of Cartiva SC remain as reported in in the non-inferiority study[2] (2, and summarised in 360 and has a 10% failure rate at 2 years. Although high this was similar to the reported reoperation rate (14%) in the fusion group.

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