

ROUNDUP³⁶⁰

Foot & Ankle

Evolution again

■ Evolution of the hip may be a Feature Article in this issue of 360 but the ankle has also shown changes over time. Researchers from **Johannesburg (South Africa)** reported their findings for the foot and ankle of a well-preserved specimen of *Australopithecus sediba*. The ankle joint appeared to be mostly human in appearance with some evidence of an arch to the foot as well as an Achilles tendon. However, *Au. sediba* was more ape-like, with a gracile calcaneal body and a more robust medial malleolus than might be expected. The authors concluded that the *Au. sediba* might have practised a unique form of bipedalism as well as taking to the trees on occasion.¹

Osteochondral lesions and ankle sprains

■ Osteochondral lesions of the ankle are quite common after ankle sprains, a feature highlighted by workers from **Munich (Germany)**. They report on 26 talar lesions treated by means of Osteochondral Autograft Transfer System (OATS) and followed up for a mean of 84 months. Outcome scores and MRI were used as well as a visual analogue scale. Although MRI findings did not always match the clinical results, there was still a significant improvement in ankle joint function and a reduction in pain. However, those patients for whom OATS was a second procedure did worse than those for whom it was a primary operation.²

Supramalleolar osteotomy

■ Osteotomies around the ankle are said to be an effective treatment for osteoarthritis of the joint, a supramalleolar osteotomy being widely undertaken. However, the results are not always good, as noted by surgeons from **Seoul (Korea)**. Reporting on 16 supramalleolar osteotomies in 16 patients, and followed up for a mean of 2.3 years, the authors looked at the degree of post-operative talar tilt and the presence or absence of post-operative lateral subfibular pain. It appeared that the greater the pre-operative talar tilt the more it would be post-operatively. The optimal threshold was 7.3° of pre-operative talar tilt. The greater this angle, the worse a patient would do after supramalleolar osteotomy.³

Ankle replacement

■ Lower limb arthroplasties are clear risk factors for post-operative deep vein thrombosis (DVT). This is well known for the hip and knee; but for the ankle? Surgeons in **Liestal (Switzerland)** studied 701 ankle arthroplasties in 665 patients, all of whom received low-molecular-weight heparin prophylaxis. A total of 26 ankle replacements (26 patients) were associated with post-operative DVT, a rate of 3.9%. Most thrombi were located distally on the operated side.⁴ 360 notes that the significant risk factors for DVT formation were obesity and a lack of post-operative weight bearing. This DVT rate is roughly the same as that for total hip and knee replacement surgery.

Osteoporosis and ankle fractures

■ Ankle fractures are not typically regarded as osteoporotic injuries and bone quality in patients with low-trauma ankle fractures has not generally been explored. This has been rectified by a team from **New York (USA)** who measured the bone mineral density of 17 women with a low-trauma ankle fracture and compared that with 112 women without such an injury. It appeared that those with fractures, although above the osteoporotic range in terms of T-score, demonstrated a lower central trabecular bone density. Whole-bone stiffness was up to 17% lower at the radius and tibia for fracture subjects. It is thus evident that low-trauma ankle fractures should be considered similarly to other classically osteoporotic fractures such as the hip and vertebra.⁵

Ruptured Achilles tendon

■ Level I studies are not particularly common in orthopaedic surgery, so 360 was delighted to read of the prospective randomised controlled study on Achilles tendon ruptures undertaken by a team from **Mölnådal (Sweden)**. They wished to investigate the long-term results after an acute tendon rupture for patients treated both surgically and non-surgically. They reported on 42 patients treated surgically and 39 non-surgically and found significant functional deficits with the injured limb two years after injury, irrespective of the treatment used. Furthermore, only minor improvements occurred between one and two years

after injury. It thus appears that to improve outcomes, the focus should be on developing better treatments within the first year of injury.⁶ So should we operate or not on a ruptured Achilles tendon? 360's reading from this paper is that it does not matter two hoots.

■ It seems that surgeons from **Edinburgh (UK)** agree with us. They report on 80 patients with an acute rupture of the Achilles tendon. Open repair was performed on 39 patients and treatment in plaster for the remaining 41. The patients, who had been randomised, were followed up for one year and a variety of outcome measures used. These included clinical complications, range of ankle movement, muscle function dynamometry and the Short Musculoskeletal Function Assessment (SMFA). Although the mean SMFA scores were significantly better in the operative group by three months after surgery, by one year the scores were similar for both groups.⁷ In Edinburgh too, it seems, surgery for the ruptured Achilles tendon appears to offer little in the way of convincing functional benefit in the longer term.

■ And where would we be without further investigation of the effects of platelet-rich plasma (PRP)? This seems to be appearing everywhere in orthopaedic surgery these days. The Achilles tendon has not been spared, this time with another level I study. Surgeons in **Rotterdam (The Netherlands)** investigated 54 patients aged between 18 and 70 years, with

chronic tendinopathy between two and seven centimetres proximal to the tendon's insertion. Patients were randomised to receive either a blinded injection of PRP or saline, followed by an eccentric training programme. The main outcome measure was the Victorian Institute of Sports Assessment-Achilles score. Patient satisfaction was recorded, and ultrasound examination performed, at baseline and at follow-up. The results showed the scores improving in both groups, and that ultrasonographic findings were not significantly different at all by one year.⁸ It does appear as if PRP confers no true benefit in this scenario and 360 looks forward to learning of its effects in other conditions over the coming months and years.

Gait abnormalities

■ Joint moments are acknowledged as key factors in understanding abnormalities of gait. So say researchers from **Geneva (Switzerland)**. Gait velocity is also known to affect joint moments and foot pressures. To investigate this further, the team studied 20 healthy young adults as they crossed an eight-metre walkway at a set speed. The walkway was

equipped with a force and pressure platform. The results showed that ankle and knee joint moments significantly decreased with a decrease in stride length. The peak pressures were particularly reduced under the heel, toes and midfoot. It thus appears that stride length can materially influence both joint moments and foot pressures, findings that might certainly have clinically interesting indications.⁹

Ankle instability

■ Mechanical instability of the ankle joint can be a debilitating condition for some. The part played by the ankle flexors and extensors in such instability is clearly of interest.

Researchers from **Shanghai (China)** have looked into this with isokinetic testing of 20 patients with unilateral mechanical instability of the ankle. The contralateral, asymptomatic ankle

acted as control. The ankle flexors and extensors were investigated with measurements of relative peak torque, total work, average power and flexion-extension ratios being measured. The findings suggested that the ankle extensors played no part in mechanical instability but that dysfunction of the ankle flexors was certainly present.¹⁰ 360 feels that this finding may be of considerable use to those with mechanical instability of the ankle joint when it comes to directing appropriate rehabilitation before surgery is considered.

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