

# Management of common foot and ankle problems in primary care

A guide for General Practitioners

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## Overview

The foot is a complex structure which can be affected by many different conditions. Symptoms may be vague and the history difficult to elicit. In the foot and ankle clinic, I often see patients who could have been managed with simple advice or intervention in primary care.

The aim of this booklet is to act as an aide-memoire for general practitioners treating patients presenting with common foot and ankle problems so that appropriate conservative management can be instigated. For those patients requiring referral, I have included some information about the surgical procedure so that you may tell the patient what to expect.

Referral details can be found on the back of this booklet. If you would like to discuss a clinical problem, please contact me using the details on the back page.

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## EXAMINATION OF THE FOOT AND ANKLE

Follow the framework 'Look; Feel; Move'.

### 1. Look

**Expose** the patient adequately. Remove both shoes and socks and roll up trousers to the knee.

**Stand** the patient.

- **From the front** inspect the toes.
- **From the side** inspect the arches.
- **From behind** look for the position of the heel. Normally this should be 5-10° valgus. Both heels should be symmetrical.

Ask the patient to stand on tip-toes: the heel should rotate into varus and the arch should become more pronounced.

### 2. Feel

**Sit** the patient on the edge of the couch with legs dangling over the edge. Take a seat opposite the patient, with the heel resting on your knee. First, lift the foot and inspect the sole, looking for patches of hard skin or callus which represent areas of point loading.

**Palpate** systematically:

- Along peroneal tendons, across the front of the ankle and along the course of the tibialis posterior tendon.
- Across midfoot joints including talonavicular, naviculocuneiform and tarsometatarsal joints.
- Feel the first MTPJ.
- Palpate each lesser toe MTPJ.

### 3. Move

**Movement is assessed first passively:**

- **Ankle** – note maximum plantar flexion and dorsiflexion. Note crepitus or pain at extremes.
- **Subtalar joint** – stabilise the talus with the finger and thumb of one hand, cup the heel in the other and move the joint in inversion and eversion. Note stiffness, pain or crepitus.
- **Midfoot joints** – difficult to assess individually, but hold the heel stable in one hand, supinate and pronate the forefoot with the other hand.
- **Toes** – look at each toe individually, assessing the flexibility of each joint (MTPJ, PIPJ, DIPJ).

**Active movement** can be broken down by major muscles:

- **Tibialis anterior** – dorsiflexes ankle.
- **Calf flexors** (principally gastrocnemius, soleus) – plantarflexes ankle.
- With the foot in dorsiflexion, push the foot into **inversion** and ask them to straighten the foot out (peroneal tendons), then push the foot into **eversion** and push against you (tibialis posterior).
- Finally **extend the big toe** to check extensor hallucis longus.

**Sensation** – particularly important in diabetics, but should be assessed routinely.

- Dorsum of the foot (superficial peroneal nerve).
- 1st webspace (deep peroneal nerve).
- Lateral border of the foot (sural nerve).
- Sole of the foot (tibial nerve).

**Pulses** – finish by palpating the dorsalis pedis and tibialis posterior pulses.

## IMAGING

### Plain x-rays

These should ALWAYS be weightbearing. Please specify this on the request, or we will need to repeat them in clinic.

- **Forefoot problems:** Weightbearing AP and LATERAL foot
- **Midfoot problems:** Weightbearing AP, LATERAL, OBLIQUE foot
- **Hindfoot or ankle problems:** Weightbearing AP and LATERAL ankle

### Ultrasound, MRI and CT

- MRI is helpful for many problems, but it is very expensive, there are long waiting lists and it tends to be overused.
- Ultrasound is cheaper and often more informative for tendon problems, or soft tissue pathology such as Morton's neuroma.
- CT can be helpful in localising which joints are affected by arthritis.

It is often easier to refer patients to the foot and ankle clinic without advanced imaging and then make the decision which modality is most suitable.

## FOREFOOT

### Metatarsalgia

Pain under the forefoot is often caused by abnormal loading of the metatarsal heads. It is usually a symptom of another foot pathology which is affecting weight distribution, such as hallux valgus, hammer toes, cavus foot or tight heel cord.

### Symptoms

Pain beneath the metatarsal heads which is worse on walking distances. Feels 'like walking on pebbles'.

### Signs

- Callosities beneath metatarsal heads.
- Hammer toe deformity.
- May co-exist with hallux valgus.
- Tight heel cord (achilles or gastrocnemius contracture) – check ankle dorsiflexion first with knee flexed and then with knee extended.
- Often confused with a Morton's neuroma – check for neurological symptoms.

### Treatment

- Well padded footwear.
- Insole incorporating metatarsal bar to pad the metatarsal heads.
- Eccentric calf stretching exercises (heel dips on a step).

### Investigations

Weightbearing AP and lateral foot x-ray.

### Referral?

Co-existing hallux valgus, high arch (cavus) or hammer toe may need to be corrected. Persistent cases can be treated with calf muscle lengthening surgery or metatarsal osteotomies to elevate metatarsal heads. Muscle lengthening is performed under GA via a short incision on the medial aspect of the calf. If an osteotomy is required, the patient will be fully weightbearing in a stiff-soled shoe for six weeks. They will be unable to work or drive during this period.

## Hallux rigidus

This is arthritis of the big toe metatarsophalangeal joint. It may co-exist with severe hallux valgus, gout or rheumatoid arthritis. Often associated with historic repetitive injury.

### Symptoms

- Stiffness of big toe.
- Pain on movement of big toe.
- Bone spurs (osteophytes) rubbing on shoes.

### Signs

- Inflamed tender hallux MTPJ.
- Restricted dorsiflexion (normal  $>80^\circ$ ).
- Osteophytes.
- Hallux valgus may be present.

### Treatment

- Stiff-sole wide fitting shoes.
- Rocker-bottomed shoes reduce MTPJ movement (see page 27 re MBT shoes).
- Full length orthotic (ask for steel shank to prevent MTPJ movement).
- Analgesia (try topical NSAIDs).
- Activity modification.
- Injection. This can be difficult in very arthritic joints:  
*Try applying traction as you inject dorsomedially, angling slightly distally to account for the curve of the metatarsal head. Use blue needle, 40mg kenalog in 1ml 0.5% marcaine.*

### Investigations

Weightbearing AP and lateral foot x-ray.

### Referral?

There are two surgical options. Cheilectomy is debridement of the joint and removal of bone spurs. More severe cases require fusion. Both are day case procedures under GA. The patient will be fully weightbearing afterwards in a special shoe. Recovery is 2-4 weeks for cheilectomy (although stiffness may take longer to resolve), 6-8 weeks for fusion.

## Hallux valgus (bunion)

This is a very common problem caused by genetic influences and exacerbated by narrow footwear. In adolescents it is often associated with hypermobility.

### Symptoms

- Medial deviation of the metatarsal, lateral deviation of the toe.
- Resultant 'uncovering' of metatarsal head with painful inflamed bunion medially.
- May progress to overcrowd lesser toes resulting in hammer toe and metatarsalgia.

### Signs

- Deformity, worse on weightbearing.
- Assess movement of first MTPJ and presence of arthritis.
- Check sole of foot for callosities beneath metatarsal heads.
- Examine for lesser toe deformity or hammer toes.
- Look for presence of bunionette (see below).
- In adolescents check for generalised hypermobility.

### Treatment

- Wide fitting footwear.
- Various straps, spacers and pads exist which may reduce symptoms but will not alter rate of progression.

### Investigations

Weightbearing AP and lateral foot x-ray.

### Referral?

Most cases can be treated with appropriate shoes, but it can be difficult to persuade the patient! Cases in which pain is severe or there is lesser toe involvement may be suitable for surgery.

The treatment is to realign the first metatarsal with the second. Scarf osteotomy is the most frequently used technique: the bone is cut longitudinally and held with screws. An additional 'Akin' osteotomy of the proximal phalynx may also be required. Lesser toe deformity can be corrected at the same time.

Surgery is usually performed as a day case under GA. There is no need for plaster, but a special sandal is provided to allow heel-weightbearing afterwards. Return to work and driving are possible at 6-8 weeks, but the foot is often sore and swollen for up to 12 weeks.



## Bunionette

This is equivalent to a bunion of the little toe. There is lateral deviation of the fifth metatarsal leading to tenderness over fifth metatarsal head and medial deviation of little toe.

## Symptoms

- Painful swelling over fifth toe MTPJ, worse in footwear.
- Patients often prefer to wear sandals or flip-flops.

## Signs

- Painful swelling over fifth toe MTPJ.
- Prominent fifth metatarsal head.
- Callosity beneath fifth metatarsal head.
- The forefoot may appear wide.
- Often associated with hallux valgus.

## Treatment

- Wide-fitting footwear.
- Padding over tender metatarsal head may allow symptoms to settle.

## Investigations

Weightbearing AP and lateral foot x-ray.

## Referral?

Patients with persistent pain despite appropriate footwear or co-existing hallux valgus may be considered for surgery. Treatment is corrective osteotomy of the fifth metatarsal combined with resection of prominent bone. If hallux valgus is present this may be corrected too. Surgery is usually a day case, under GA. Patients require a stiff soled shoe afterwards, and should be heel weightbearing for six weeks. They may return to work and driving after 6-8 weeks.

## Lesser toe deformities

Hammer toes, mallet toes and claw toes are complex deformities. The aetiology is multifactorial but includes abnormal muscle tone, overcrowding due to hallux valgus or direct injury to the toe.

### Symptoms

- Pain caused by pressure and rubbing on footwear.
- Mallet and claw toes cause pain at tips of toes due to pressure on the ground.
- Hammer toes cause sores on top of proximal interphalangeal joints.
- Loss of the normal plantar fat pad position may result in metatarsalgia.

### Signs

- Painful deformity at joints of lesser toes.
- Check for correctability and flexibility.
- Assess MTPJ for presence of dislocation.
- Callosity beneath metatarsal head.
- May be associated with hallux valgus, cavovarus foot deformity or neurological dysfunction (cerebral palsy, post-compartment syndrome), so examine for these.

### Treatment

- Passively correctable deformity in one or two toes may respond to taping:  
*Use a loop of tape over the toe and secured to the sole of the foot to pull the toe down and straight.*
- Extra-deep shoes can reduce pressure symptoms;
- Metatarsal bar for metatarsalgia.

### Investigations

Weightbearing AP and lateral foot x-ray.

### Referral?

Cases which fail to respond to conservative treatment, and patients with multiple toe involvement, presence of neurological abnormality, cavus foot or severe hallux valgus should be referred. Treatment depends on the deformity, but surgery involves tendon re-balancing, soft tissue lengthening and fusion of stiff joints. Fusions are generally held with a wire which protrudes from the end of the toe. Patients can weightbear in a stiff-soled sandal. Wires are removed at six weeks in clinic. No driving or prolonged standing for 6-8 weeks.

## In growing toenail

A common problem, often in young men. Usually affects medial edge of the big toe nail. Causes include tight footwear, repetitive microtrauma and poor foot hygiene. Infection may be severe in diabetics or immunosuppressed patients.

### Symptoms

- Recurrent infection.
- Pain.
- Hypertrophy of nail folds.

### Signs

- Painful swelling.
- Foul discharge.
- Tenderness.

### Treatment

- Acute episodes of infection should be treated with oral antibiotics. Gram positive organisms are common, although consider broad spectrum antibiotics to cover gram negatives and anaerobes in diabetics and the immunosuppressed.
- Saline soaks and packing beneath the corner of the nail help to discourage further ingrowth.
- Patients should be encourage to cut the nail square and improve hygiene if this is an issue.

### Investigations

No specific investigations are required, although microbiology swabs can be helpful.

### Referral?

Recurrent cases can be treated with excision of all or part of the nail. This can be performed under local anaesthetic. The nail bed is removed and treated with phenol to prevent regrowth. Patients will have an exposed nail bed which takes several weeks to heal and will require simple dressings during this period.

## Stress fracture

Repetitive micro-trauma to bone results in a stress fracture. They can occur anywhere in the skeleton, but the metatarsals are the most common site. Also known as a 'march fracture', it occurs when running or walking activity is suddenly and markedly increased, for example in training for a marathon or in new military recruits. Stress fracture can also occur if the metatarsal is abnormally loaded, such as in severe hallux valgus.

## Symptoms

- Activity-related pain in the mid or forefoot.
- Tends to resolve with rest but recurs when activity is resumed.

## Signs

- May be associated with swelling or palpable lump on the metatarsal shaft.

## Treatment

- Rest and avoid running or walking long distances. This can be very trying for dedicated runners. Alternative forms of exercise such as swimming or cycling may be suggested.
- Supportive shoes with stiff soles help in the recovery period.
- Average time to return to running is around 12 weeks.
- Vitamin D and calcium supplementation is helpful in speeding recovery.

## Investigations

- Weightbearing AP, lateral and oblique foot x-rays should be performed.
- Vitamin D insufficiency is under-recognised and very common, especially in females.
  - If a stress fracture fails to heal, check calcium and hydroxylated vitamin D levels. The expected value for 25(OH)D is 50nmol/L. Vitamin D supplementation can be given in the form of Ergocalciferol 800 units daily.*
- Stress fractures of the midfoot, talus and calcaneum may require surgical stabilisation.

## Referral?

Idiopathic stress fracture as a result of excessive exercise rarely needs surgical intervention. However, fractures as a result of hallux valgus or other form of mechanical derangement may require surgery and these cases should be referred.

## Morton's neuroma

A swelling of the nerve between the metatarsal heads. Often associated with tight shoes or high heels. It is most common between 3<sup>rd</sup> and 4<sup>th</sup> metatarsal heads, but may occur between 2<sup>nd</sup> and 3<sup>rd</sup>. Rarely is it found elsewhere. It may be difficult to differentiate from metatarsalgia, stress fracture or MTPJ synovitis.

### Symptoms

- Pain between third and fourth toes.
- Worse on prolonged standing or in tight shoes.
- May radiate into toes.
- 'Electric shock' or numbness in webspace.

### Signs

- Focal tenderness between metatarsal heads.
- Palpable swelling in webspace.
- Positive 'Mulder's click':  
*Pinch the webspace from above and below, while you squeeze the metatarsal heads together with the other hand. A positive finding is a painful click as the neuroma is squeezed out from between the metatarsals.*
- It is very important (and often difficult) to differentiate Morton's neuroma from other causes of metatarsalgia – look for plantar callosity, irritable or unstable MTP joint which may indicate another diagnosis.

### Treatment

- Wide-fitting shoes can help alleviate symptoms.
- An injection may be diagnostic as well as therapeutic.  
*Use 1ml lignocaine and 40mg kenalog with a blue needle. Inject from the dorsum of the foot right between the metatarsal heads, aiming to get the needle just tenting the plantar skin. Withdraw 2-3mm, aspirate and inject.*

### Investigations

- Weightbearing AP and lateral x-ray will exclude other diagnoses such as stress fracture.
- Ultrasound is better than MRI as targeted injection can be performed simultaneously if a neuroma is identified.

### Referral?

Suspected neuromata or cases where the diagnosis remains unclear should be referred. Treatment is excision under GA through a dorsal incision. Patients can fully weightbear immediately but need to keep the wound dry until healed. Return to work and driving is possible in 7-10 days.

## MIDFOOT

### Tibialis posterior dysfunction

Also known as adult acquired flat foot, this is a common problem in middle-aged women. The tibialis posterior tendon runs behind the medial malleolus and inserts principally into the navicular. It inverts the foot in plantarflexion and acts as a dynamic support of the arch. It may become degenerate and tear or rupture. The result is initial pain and swelling followed by collapse of the arch, hindfoot valgus, inability to stand on tip toes and, if left untreated, arthritis of the subtalar and ankle joints.

### Symptoms

- Initially there is pain and swelling behind medial malleolus and along border of midfoot, but the arch and ability to stand on tip-toe is maintained.
- Later, collapse of arch and hindfoot valgus (planovalgus) occur.
- Finally, arthritis develops and the deformity cannot be passively corrected.

### Signs

- A high index of suspicion is essential.
- Palpation along the tibialis posterior tendon is painful.
- With the patient standing, check if the arch is maintained and assess heel alignment.
- Ask the patient to single stance heel raise:  
*Ask the patient to stand on the bad leg and go up onto tiptoes, using the wall for support. Watch to see if the heel rotates into varus (normal) or remains in valgus (pathological).*
- Assess power of tibialis posterior (see page 4).
- Check if a planovalgus foot is correctable by moving the subtalar joint (page 4).

### Treatment

Treatment depends on the stage of the disease:

- If caught early, whilst the arch is still maintained, an insole may halt progression. Request a full-length arch support with medial hindfoot posting. This will take the pressure off an inflamed tendon.
- If the arch has already collapsed, refer the patient to the clinic.

### Investigations

Weightbearing AP, lateral and oblique foot x-rays will reveal the extent of the deformity and the presence of arthritis; Ultrasound can be helpful in confirming the diagnosis in early disease.

### Referral?

Early cases suitable for orthotic treatment can be managed in primary care. If symptoms progress, or in the presence of an established planovalgus foot, please refer. Early cases of tendinopathy where the tendon remains intact can be treated with tendon debridement and orthotics. If deformity has developed but the foot remains flexible, a tendon transfer, soft tissue reconstruction and calcaneal osteotomy is performed. The patient will be in plaster for six weeks followed by six weeks in a boot. If arthritis has developed, a triple fusion of subtalar, talonavicular and calcaneocuboid joints is performed. The same recovery protocol applies.

## Midfoot arthritis

The exact symptoms and examination findings are dependent on which of the joints in the midfoot are affected by osteoarthritis or rheumatoid arthritis.

### Symptoms

- Pain, worse on weightbearing.
- Swelling.
- Bony spurs (known as midtarsal boss) which may rub on shoes.
- Collapse of the arch or flat foot deformity.

### Signs

- Joints affected by arthritis will be tender to palpation and stiff and irritable on stressing.
- Tarsometatarsal arthritis may result in stiff flat foot (planus) deformity.
- Identifying the location of the arthritis is not always possible clinically, and arthritis often exists in several joints.

### Treatment

- Analgesia, weight loss and activity modification should be tried initially.
- Stiff soled shoes or those with a rocker-bottom may be helpful.
- Orthotics in the form of rigid arch supports can be tried.

### Investigations

- Weightbearing AP, lateral and oblique foot x-rays should be performed.
- CT can be helpful in confirming which joints are affected.

### Referral?

If conservative management fails, surgical options include:

- Targeted injections, with the objective of being both diagnostic and therapeutic. Affected joints are injected under GA with radiographic guidance.
- Fusion of affected joints eliminates pain and corrects deformity. Patients are in plaster for 6 weeks followed by 6 weeks in a boot. Recovery may be longer in diabetics.



## Cavovarus foot

Cavovarus deformity is a combination of a high arch (cavus) and in-turned heel (varus). Clawing of the toes, repeated ankle sprains and metatarsalgia is often also present. Causes may be idiopathic or neurological, including spina bifida or Charcot-Marie-Tooth disease.

### Symptoms

- Abnormal foot shape with difficulty getting shoes to fit.
- Recurrent ankle sprains or instability.
- Metatarsalgia.
- Clawing of the toes.
- Sensory changes.

### Signs

- Varus heel position, best observed from behind with the patient standing.
- Increased arch height, comparing both feet.
- Callus on the lateral border of the foot indicating abnormal weightbearing.
- Check flexibility of subtalar and midfoot joints.
- Examine the spine and perform a neurological examination.

### Treatment

In mild cases, orthotics may help reduce pain and stabilise the ankle. Often they are bulky and require custom shoes to be made. If the ankle is unstable, a calliper or AFO may be required.

### Investigations

- Weightbearing AP and lateral ankle and AP, lateral and oblique foot x-rays.
- In presence of abnormal neurology or if diagnosis unclear, nerve conduction studies and MRI lumbar spine.

### Referral?

Patients should be referred if the deformity is progressing or asymmetrical, or symptoms are unmanageable with orthotics. Surgical correction is complex and often comprises several staged procedures. Options include calcaneal osteotomy, midfoot osteotomies, tendon transfers and soft tissue releases. In severe cases with stiff joints, extensive fusions may be required.

## Ganglion

A 'bulge' of a joint capsule in which a one-way valve effect creates a gradually enlarging swelling. In the foot they may arise from any joint but are most common in the joints of the midfoot.

### Symptoms

- A painless swelling which may fluctuate in size.
- May irritate overlying skin and rub on shoes.
- May be related to previous trauma or underlying arthritis.

### Signs

- Fluctuant swelling over a joint.
- Will transilluminate, but this is difficult to demonstrate in practice.

### Investigations

Generally a clinical diagnosis, but ultrasound may be helpful.

### Treatment

- Conservative if not symptomatic. 20% reduce in size spontaneously, 20% enlarge and 60% stay the same.
- Aspiration may be performed in the clinic. This confirms the diagnosis and also offers a 50% chance that it will be permanently resolved (although a 50% chance of recurrence).

*Using a green needle, aspirate directly over the swelling. The fluid is often too thick to draw into the needle, so through the same skin entry point, make several holes in the capsule of the ganglion, remove the needle and express the fluid manually. Steroid injection is not recommended because of the skin changes and depigmentation that can result.*

### Referral?

For recurrent cases or those where the patient does not want aspiration, surgical excision offers an 80% chance of permanent resolution but will leave a scar which may be tender.

## Hindfoot and ankle

### Plantar fasciitis

The plantar fascia runs from the medial calcaneal tubercle to the metatarsals and acts to maintain the arch of the foot and absorb shock. Plantar fasciitis results from inflammation and microtears of the insertion of the fascia into the calcaneum. It is a common problem, particularly in the presence of obesity, cavus foot, achilles contracture and repetitive loading. It is normally self-limiting but may take up to two years to resolve.

### Symptoms

- Pain on plantar-medial aspect of heel.
- Worse after rest, classically for the first few steps in the morning.

### Signs

- Focal tenderness on plantar medial aspect of heel.
- Assess for high arch (cavus).
- Check for tight achilles or gastrocnemius contracture.
- Check sensation in the sole of the foot (tarsal tunnel syndrome or entrapment of branches of the tibial nerve, may mimic plantar fasciitis).
- Diffuse heel tenderness may indicate calcaneal stress fracture.

### Treatment

- Stretching of plantar fascia and tight calf muscles is key treatment. Eccentric stretches are best, achieved by doing heel dips on a step. Exercises must be done for 20 minutes, twice a day.
- Rolling the foot over a frozen plastic water bottle may offer pain relief.
- Silicone heel cups and well padded shoes.
- Avoid running or repetitive impact.
- Steroid injection may be helpful:

*To inject in clinic use a green needle, 40mg kenalog in 2ml marcaine. Insert the needle at 45° to skin at point of maximum tenderness and advance to bone. Withdraw 1mm, aspirate and inject slowly. More than three injections in 12 months risks plantar fascia rupture and heel fat pad atrophy. If one injection has failed, refer for injection under GA.*

### Investigations

Normally, diagnosis is clinical and no imaging is needed. There is often confusion regarding heel spurs seen on x-ray. Heel spurring is a sign of plantar fasciitis, not a cause.

### Referral?

- Most cases are successfully treated with physiotherapy although may take months or years to resolve. The majority of resistant cases are due to lack of compliance with physiotherapy.
- The patient must have seen a physiotherapist, do their exercises regularly, be wearing heel cups and be of healthy weight before referral.
- Steroid injection is best performed under GA as the periosteum can be injected – if one injection in clinic has failed, refer for further GA injection.
- Plantar fascia release or calf muscle lengthening may be performed in resistant cases, but 40% will not benefit from surgery.

## Achilles tendonitis

A common problem in middle-age. Described as insertional or non-insertional depending on the site of tenderness. Microtears result in areas of painful scar tissue within or around the achilles tendon.

### Symptoms

- Pain and swelling in the achilles tendon.
- Worse first thing in the morning or after a period of rest.

### Signs

- Tenderness and swelling;
- Bony lump at the back of the heel, called a Haglund deformity.
- It is vital to exclude rupture of the achilles.  
*Perform Simmond's test – kneel the patient on a chair and squeeze the calf. Normally the foot should plantarflex. Absence of movement may indicate rupture – refer the patient to A&E for plaster cast and urgent fracture clinic appointment.*

### Investigations

- Ultrasound is more sensitive, specific and cheaper than MRI.
- Weightbearing lateral ankle x-ray will demonstrate intratendinous calcification or Haglund deformity.

### Treatment

- Physiotherapy is key, especially eccentric stretches by doing heel-dips on a step.
- A heel-raise wedge may take tension off the tendon and reduce pain.
- Steroid injection is contraindicated as it may precipitate tendon rupture.

### Referral?

Cases resistant to physiotherapy should be referred for consideration of tendon debridement. This usually requires 2-6 weeks in cast. Extensive debridement may require tendon transfer to reconstruct the achilles.

## Anterior impingement of the ankle

A common problem known as 'footballer's ankle'. Repetitive extreme plantar flexion results in traction spurs forming at the front of the ankle. Often seen in men in their forties who were keen footballers in their youth.

### Symptoms

- Pain at the front of the ankle, particularly on dorsiflexion or walking up stairs.

### Signs

- Tenderness along the anterior joint line of the ankle.
- Range of movement may be restricted.
- Bone spurs may be palpable.
- Positive impingement sign:  
*Impingement test: pain when the ankle is brought into dorsiflexion with the examiner's thumb on the joint line.*

### Investigations

- Weightbearing AP and lateral ankle X-ray will demonstrate osteophytes on the anterior tibia and often also on the talar neck.
- MRI is helpful to exclude a talar osteochondral defect or generalised osteoarthritis.

### Treatment

- Activity modification.
- Analgesia.
- Consider steroid injection into the ankle.

### Referral?

Most cases respond well to arthroscopic debridement in which the bone spurs are removed from the front of the ankle joint. Arthroscopy also allows evaluation of the rest of the joint, including the presence of talar osteochondral defects. Patients are usually treated as a day case under GA, are fully weightbearing afterwards and require 2-4 weeks off work.

## Ankle arthritis

Arthritis of the ankle may be due to inflammatory arthropathy, primary osteoarthritis or as a result of previous injury.

### Symptoms

- Pain, swelling and reduced range of movement.
- In severe cases the ankle may drift into varus or valgus.

### Signs

- Tenderness around the ankle joint.
- Reduced range of movement.
- Inspect the hindfoot from behind to assess varus/valgus malalignment.

### Investigations

Weightbearing AP and lateral ankle x-rays.

### Treatment

- Analgesia.
- Glucosamine (1500mg od) has been proven to help in OA of the knee, so may be helpful in ankle OA, although there is no evidence for this.
- Weight loss.
- Physiotherapy to improve and maintain range of movement.
- Walking boot or ankle brace.
- Steroid injection:
  - Palpate the 'soft-spot' along the anterior joint line, medial to the tibialis anterior tendon, approximately 1cm proximal and lateral to the tip of the medial malleolus; using a blue needle angled 20° towards midline and proximal, inject 40mg kenalog in 10ml marcaine.*

### Referral?

When conservative Treatment has failed, the two surgical options are ankle fusion or total ankle replacement. The former can usually be performed arthroscopically and eliminates all movement at the ankle. This reduces stride length and patients will be unable to run, but is very effective at alleviating pain. There is some concern about subsequent development of midfoot arthritis after an ankle fusion. Ankle replacement has a higher complication rate but is a good option in low-demand, older patients without significant deformity.

## Ankle sprains and instability

The lateral ligaments (principally the ATFL – anterior talofibular ligament) may be torn following inversion of the ankle. Although painful for up to three months, 95% will make a full recovery. A few patients will experience ongoing problems due to pain or instability.

### Symptoms

- Acutely: pain, swelling and bruising over anterior border of distal fibula;
- Chronically: pain or instability.

### Signs

*Acutely:*

- Reduced range of movement, tenderness and swelling.

*Chronically:*

- Tenderness over anterior joint line suggests osteochondral defect.
- Pain behind fibula or weakness of eversion suggests peroneal tendon tear.
- Instability, demonstrated by anterior drawer test:  
*Hold tibia firmly around anterior ankle, grasp heel and pull forwards. Excessive anterior translation compared to the uninjured side indicates ligament tear.*

### Investigations

- Weightbearing AP and lateral ankle x-ray will demonstrate avulsion fractures or large osteochondral defects of the talus.
- MRI will demonstrate ATFL tears and tendon pathology, but if performed within three months of injury has a high false-positive rate.

### Treatment

*Acute* – rest, ice and elevation.

*Chronic* – physiotherapy to restore range of movement and improve proprioception.

- Ankle braces and elasticated bandages may improve confidence and proprioception.

### Referral?

Failure to recover after three months should prompt referral. Ligaments can be reconstructed with a Brostrom procedure, which requires six weeks in plaster.



## Foot and ankle problems affecting children

### Flat feet

All children have flat feet at birth. As they grow, an arch develops to a variable extent. Some people will always have flat feet, which is a variant of normality. Flat feet are only abnormal if they are painful or rigid.

### Signs

- Check to see if an arch can be restored using Jack's test:  
*With the child seated, dorsiflex the big toe, an action which tensions the plantar fascia. Normally an arch will form.*
- Check for subtalar flexibility – a fixed subtalar joint may represent tarsal coalition, where the tarsal bones do not fully separate during development.

### Treatment

Flexible flat feet do not normally need treatment. Insoles and orthotics do not improve function, do not permanently restore the arch and are often uncomfortable.

### Investigations

X-rays are not necessary for the majority of cases.

### Referral?

If a child has a persistent pain, a flat foot which does not produce an arch with Jack's test, has a rigid subtalar joint or is asymmetrical compared to the other foot, please make a referral. Coalitions may be treated with resection of bony bars or fusion of select joints in the foot.

## In-toeing

During growth, there is a natural progression from feet pointing inwards (in-toeing) as seen in toddlers, to the feet pointing outwards (out-toeing) as seen in adults. The speed of progression is variable and there is a range of normality as some children become out-toeing more slowly than others.

## Symptoms

The child is usually unaware of a problem, but anxious parents may attribute their child's in-toeing gait for many problems including poor performance at sport.

## Signs

- Assess the forefoot progression ankle, which is the ankle subtended by the long axis of the foot with the direction of travel whilst walking.
- Pathological in-toeing may be caused by cerebral palsy, spina bifida, arthrogryposis, hip dysplasia or Perthes' disease. Therefore, always examine the hips, leg lengths, spine and neurology.

## Investigation

Clinical examination is usually all that is required for most cases.

## Referral?

If there is asymmetry, pain, spasticity, progression in the 'wrong' direction or marked deviation from normal alignment, please make a referral.

## Useful Links

[Patient information can be found at www.footanklespecialist.com](http://www.footanklespecialist.com)

Also at: [British Foot and Ankle Society www.bofas.org.uk](http://www.bofas.org.uk)

## Accommodative Shoes

[www.hotter.com](http://www.hotter.com) 0800 083 8490

[www.shoetailor.com](http://www.shoetailor.com) 07812 318000

MBT shoes (rocker bottom for ankle/midfoot OA)

[www.shop.mbt.co.uk](http://www.shop.mbt.co.uk) 0845 450 3702

## Limbo cast protectors

[www.limboproducts.co.uk](http://www.limboproducts.co.uk) 01243 753217

## Wheeled walking aid (for those unable to use crutches)

[www.strideon.co.uk](http://www.strideon.co.uk) - who offer a rental service whilst patients recover from surgery

## Private referrals

**KIMS Hospital,**  
Newnham Court Way,  
Weaving, Maidstone,  
Kent, ME14 5FT

Tel: 01622 237727  
Email: [reservations@kims.org.uk](mailto:reservations@kims.org.uk)  
[www.kims.org.uk](http://www.kims.org.uk)

**Spire Sussex Hospital,**  
The Ridge,  
St Leonards On Sea,  
East Sussex, TN37 7RE

Tel: 01424 757455  
Email: [info@spiresussex.com](mailto:info@spiresussex.com)  
[www.spirehealthcare.com/sussex/](http://www.spirehealthcare.com/sussex/)

## NHS referrals

**Conquest Hospital,**  
The Ridge,  
St Leonards On Sea,  
East Sussex, TN37 7RE

Tel: 01424 755277 ext 2011  
Fax: 01424 758113  
PA email: [kerry.collins10@nhs.net](mailto:kerry.collins10@nhs.net)

Direct email for clinical questions:  
[info@footanklespecialist.com](mailto:info@footanklespecialist.com)

**For any questions, advice or referrals,  
please contact my secretary on:**

**01424 834115**

**[info@footanklespecialist.com](mailto:info@footanklespecialist.com)**