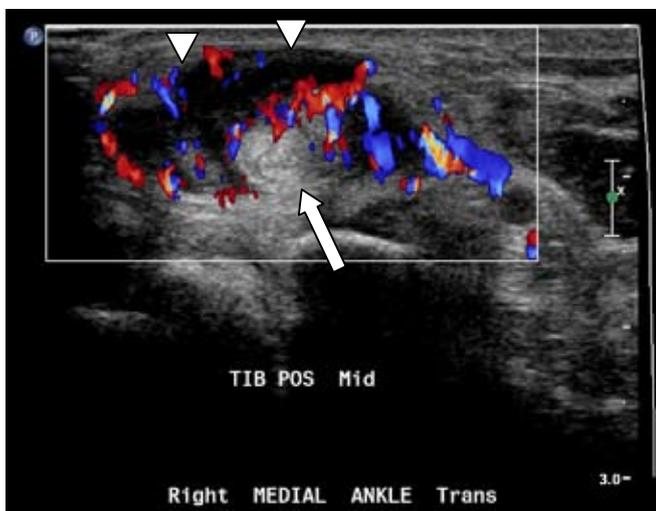


## Ultrasound of the Hindfoot

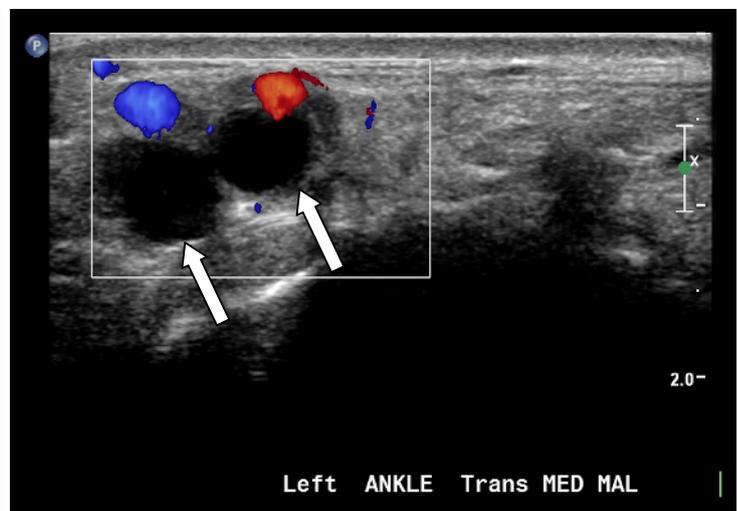
### The strengths of ultrasound are:

- Comparing symptomatic and asymptomatic sides
- Its high resolution for superficial structures, particularly tendons and nerves
- It can evaluate long segments of superficial tendons and nerves better than MRI
- Dynamic assessment of peroneal tendons for subluxation and dislocation
- Differentiating between cystic and solid masses
- Assessing veins and arteries
- Ability to detect neovascularity which may be seen with tendinopathy, synovitis and bursitis.



**Figure 1**

Medial ankle region: Short axis image shows enlarged tibialis posterior tendon (arrow) with distended tendon sheath (arrow heads) and neovascularity (colour), indicating tenosynovitis.



**Figure 2**

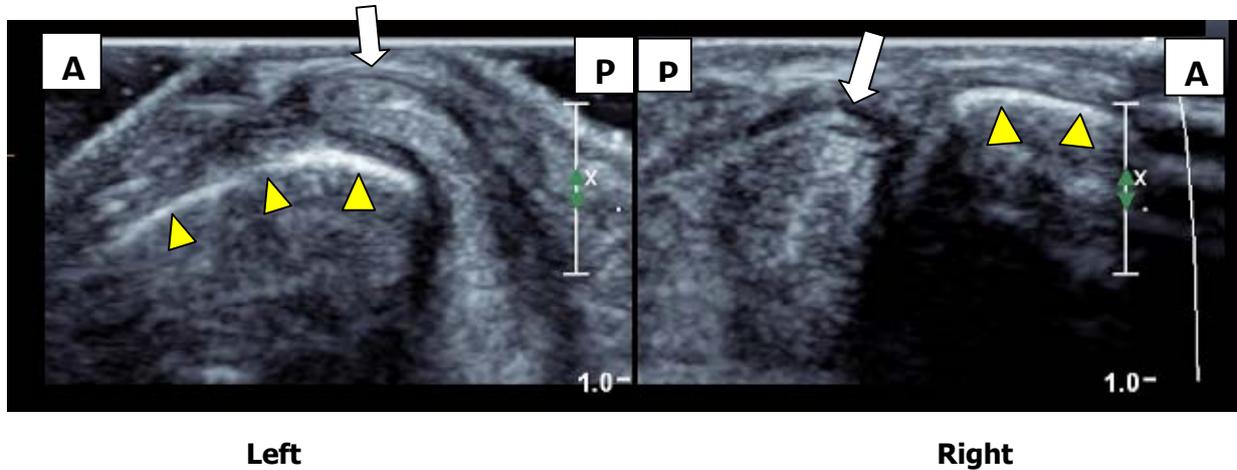
Medial ankle region: Short axis image in region of tarsal tunnel shows a ganglion (arrows) deep to the posterior tibial vessels (shown in colour). This is compressing the tibial nerve.

It is not possible to do justice to evaluating all of the structures about the ankle in an allocated 30 minute examination time. Ultrasound of the foot is most useful when targeted at a specific region. When requesting an ultrasound of the hindfoot please indicate clearly which region of the hindfoot you would like examined.

1. Medial
  - ◆ Tibialis posterior tendon; only a limited segment of the flexor digitorum longus and flexor hallucis longus tendons can be visualised at the ankle because they lie deep in the plantar aspect of the mid foot
  - ◆ Tarsal tunnel which includes the above tendons , tibial nerve, artery and veins
2. Lateral
  - ◆ Peroneal tendons
3. Anterior
  - ◆ Joint effusion
  - ◆ Tibialis anterior, extensor hallucis longus and extensor digitorum longus tendons
  - ◆ Branches of the superficial and deep peroneal nerves
4. Posterior
  - ◆ Achilles tendon
  - ◆ Retrocalcaneal and superficial calcaneal bursae

- 5. Plantar
  - ◆ Plantar fascia
- 6. Assessment of a soft tissue lump

Common pathology about the hindfoot which is well imaged with ultrasound includes tendinopathy, plantar fasciitis and soft tissue lumps which commonly turn out to be ganglia, tenosynovitis or bursitis.

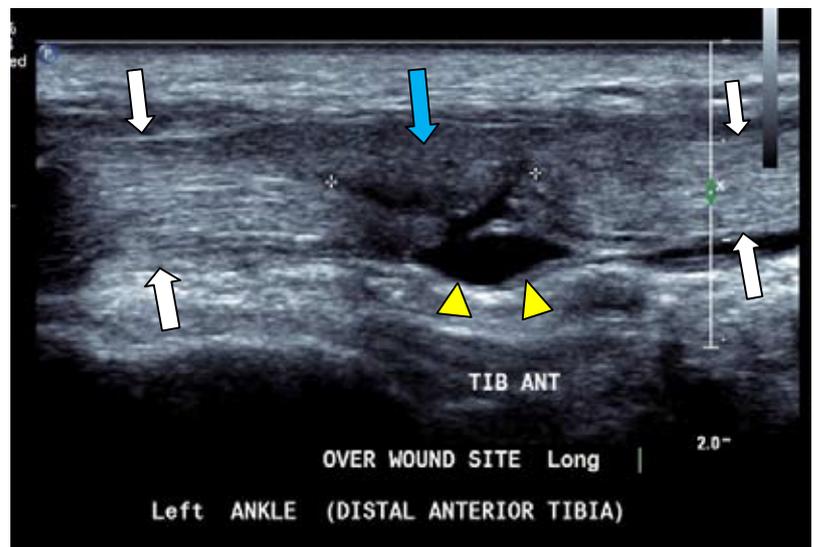


**Figure 3**

Lateral ankle region: Short axis comparison images of left and right peroneus longus tendons at lateral malleolus. On the left the peroneus longus tendon (white arrow) is subluxed lateral to lateral malleolus (arrow heads). On the right the peroneus longus tendon is normally positioned posterior to lateral malleolus (yellow arrow heads). A= anterior. P = posterior.

Ultrasound should not be used to diagnose an acute ankle sprain - this is a clinical diagnosis!

Ultrasound cannot see the calcaneocuboid, posterior talofibular or deep component of the deltoid ligaments very well; it cannot accurately distinguish between acute and chronic ligament changes and cannot grade (the stability/severity) of ligament injuries any better than clinical examination.



**Figure 4**

Anterior ankle region: Long axis of the tibialis anterior tendon (white arrows) with a laceration in the tendon (blue arrow) and fluid in tendon sheath (yellow arrow heads).

**Neal Stewart**

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