



**SMUG**

SPORTS MEDICINE ULTRASOUND GROUP

# **RAISING THE STANDARDS OF MSK ULTRASOUND**

**TECHNICAL MSKUS GUIDELINES**

**ANKLE (V2)**

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### Ankle

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[Lateral ankle ligaments](#)

[Calcaneofibular ligaments and peroneal tendons](#)

[The art of scanning the ATFL and CFL](#)

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## The talocrural joint and the extensor tendons.

### Patient position

To assess the talocrural joint and the extensor tendons of the ankle joint, place the patient in long sitting with the knees extended. Alternatively, flex the knee to 45 degrees with the foot resting flat on the plinth.

## Assessing the talocrural joint and the extensor tendons of the ankle in transverse axis.

Place the probe on the distal third of the tibia in transverse section (in a medial to lateral direction). Slide the probe distally with light pressure to identify the small anechoic, pulsating structure, the dorsalis pedis. This is a useful landmark and normally sits below extensor hallucis or between the extensor hallucis longus and the extensor digitorum longus tendons. The location of the artery can vary. Too much probe pressure will compress the artery. Doppler can be used to confirm the location. The deep peroneal nerve can also be visualised next to the artery.

The extensor tendons of the ankle are located superficial to the talocrural joint and can be identified as small hyperechoic oval structures. The extensor tendons, from medial to lateral, are as follows: the tibialis anterior (TA), the extensor hallucis longus (EHL) and the extensor digitorum longus (EDL). “Tom (TA), Harry (EHL) and Dick (EDL)” can be helpful to memorise the tendons (medial to lateral). The extensor tendons of the ankle can be individually followed proximally towards their musculotendinous junction and muscle belly and distally to their bony insertion.

### To help identify each tendon:

- 1) Ask the patient to dorsiflex their ankle to visualise and palpate the largest and most medial tendon, tibialis anterior.
- 2) “Wiggle” the patients big toe to help identify the EHL tendon
- 3) Follow the EDL tendon (most lateral) and observe for the tendon dividing into the four slips. If it does not divide it is not EDL.

## Notes

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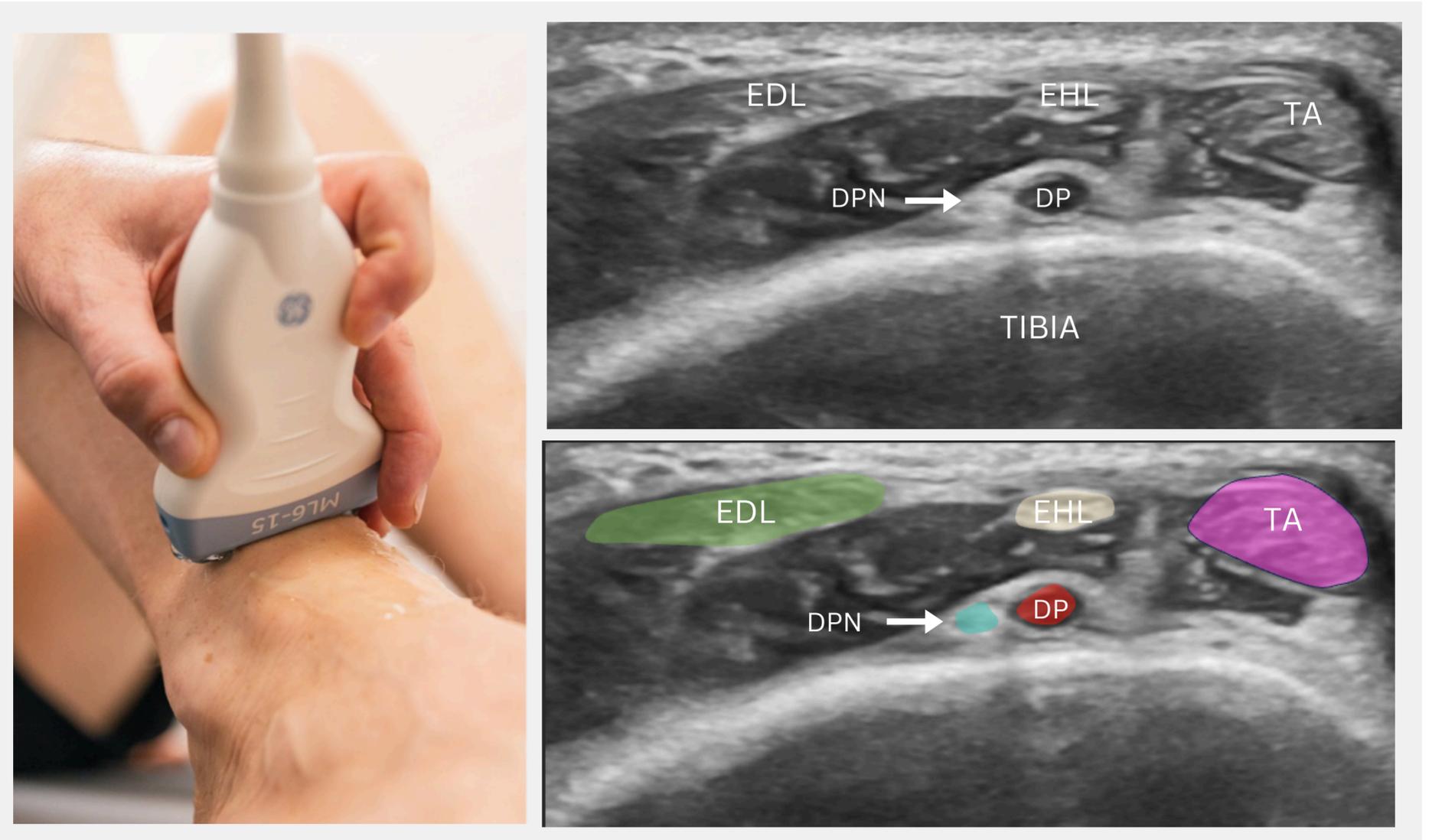
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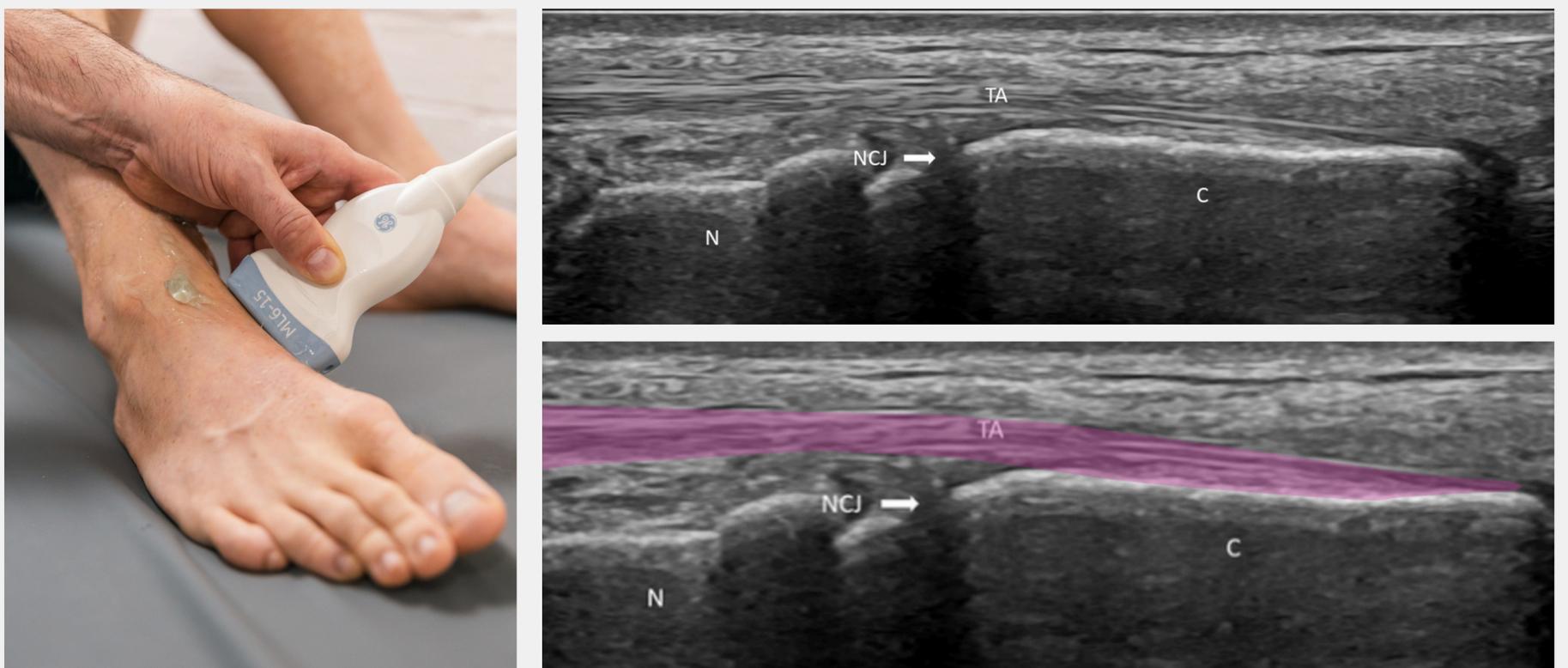
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## Assessing the extensor tendons of the ankle in longitudinal axis.

To assess the extensor tendons create a transverse axis image as described. Select a tendon to scrutinise and pivot the probe throughout 90-degrees. Follow the longitudinal axis fibres of the tendon proximally towards its musculotendinous junction and muscle belly and distally towards its insertion.

For example, produce a transverse section of the tibialis anterior. Rotate 90 degrees on the tendon to visualise the tendon in longitudinal section and follow the tendon to its distal attachment onto the medial cuneiform.



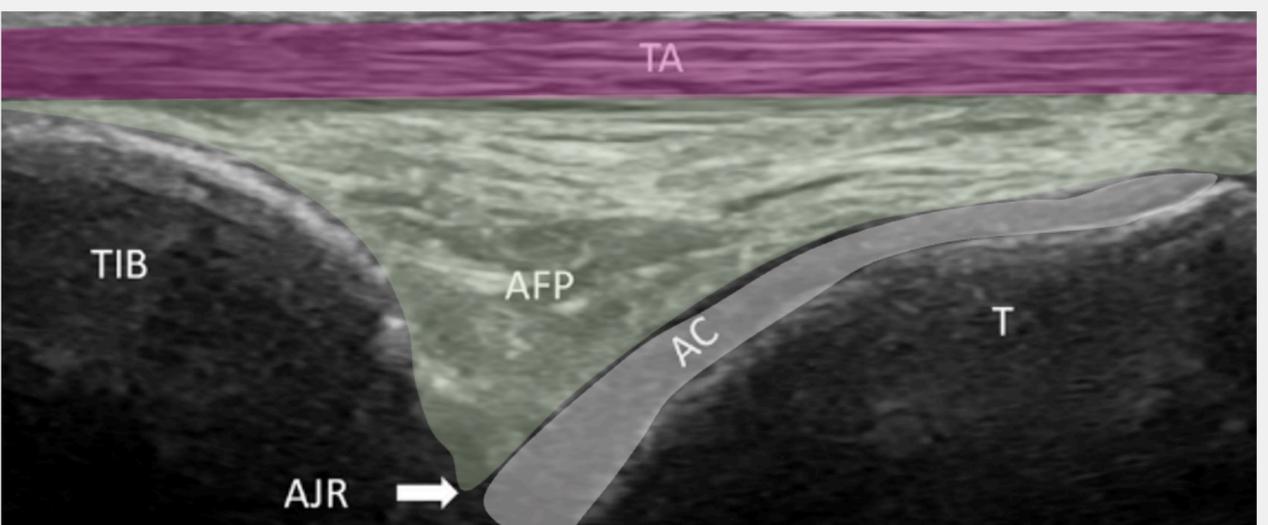
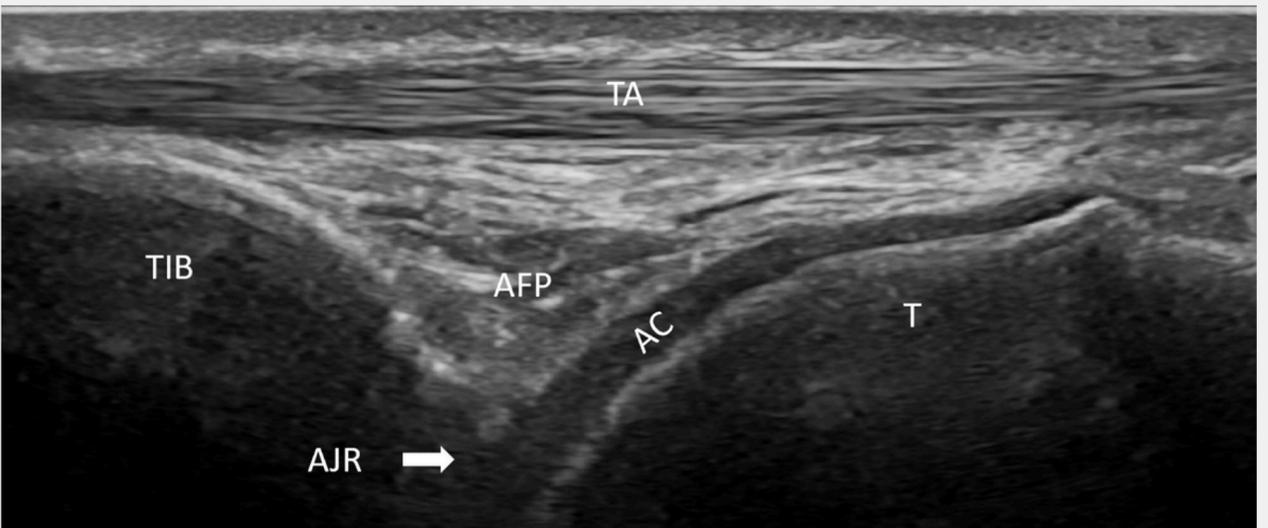
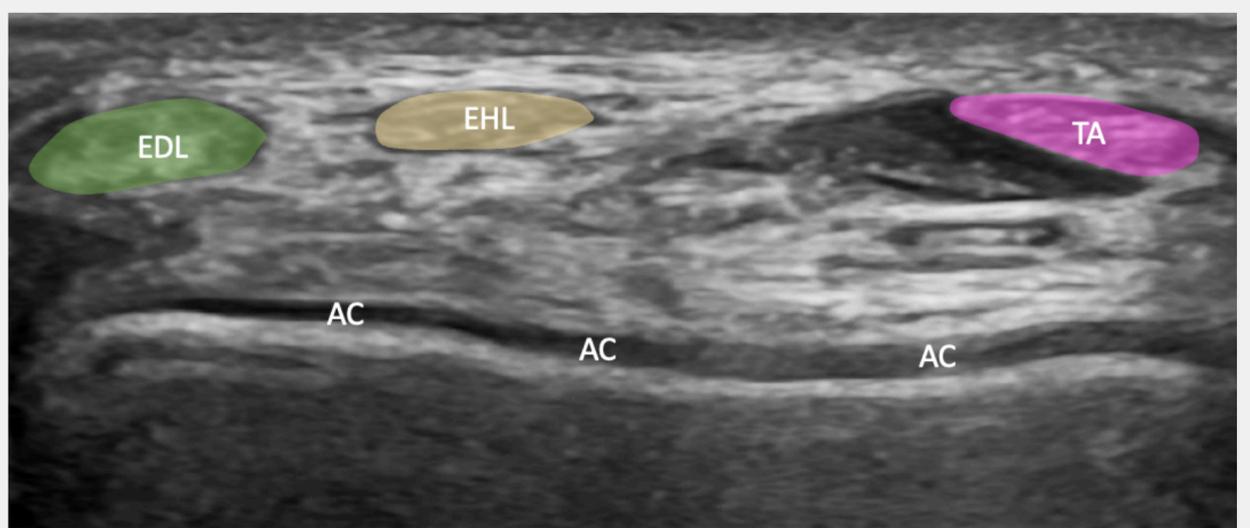
Legend: TA = Tibialis anterior. EHL = Extensor hallucis longus. EDL = Extensor digitorum longus. T = Talus DPN = Deep peroneal nerve. DP = Dorsalis pedis = Tibialis anterior. NCJ = Navicular-cuneiform joint. N = Navicular C = Medial cuneiform.

## Assessing the talocrural joint in longitudinal axis.

Firstly, create a transverse image of the talar dome and corresponding articular cartilage. Pivot the probe throughout 90-degrees. The resulting image reveals the anterior recess of the talocrural joint comprising of the tibia and the talus. The talus can be identified by its covering of hypoechoic articular cartilage. Gentle passive dorsiflexion can be used to identify a joint effusion.

The anterior fat pad is located in the anterior recess of the talocrural joint and appears as a hyperechoic triangle. The capsule is a thin hyperechoic band running from tibia to talar head). The joint capsule can be difficult to visualise if there is no joint effusion or synovitis. Superficial to the talocrural joint one of the many extensor tendons, in longitudinal axis, can be observed.

The dorsal talonavicular joint along with the talonavicular ligament, a hypoechoic band of fibrillar tissue which crosses the joint, can be observed in longitudinal axis, by moving the probe distally from the talocrural joint.



Legend: TA = Tibialis anterior. AC = Articular cartilage. T = Talus. TIB = Tibia. AFP = Anterior fat pad. AJR = Anterior joint recess. EHL = Extensor hallucis longus. EDL = Extensor digitorum longus.

## The anterior inferior tibiofibular ligament (AITFL).

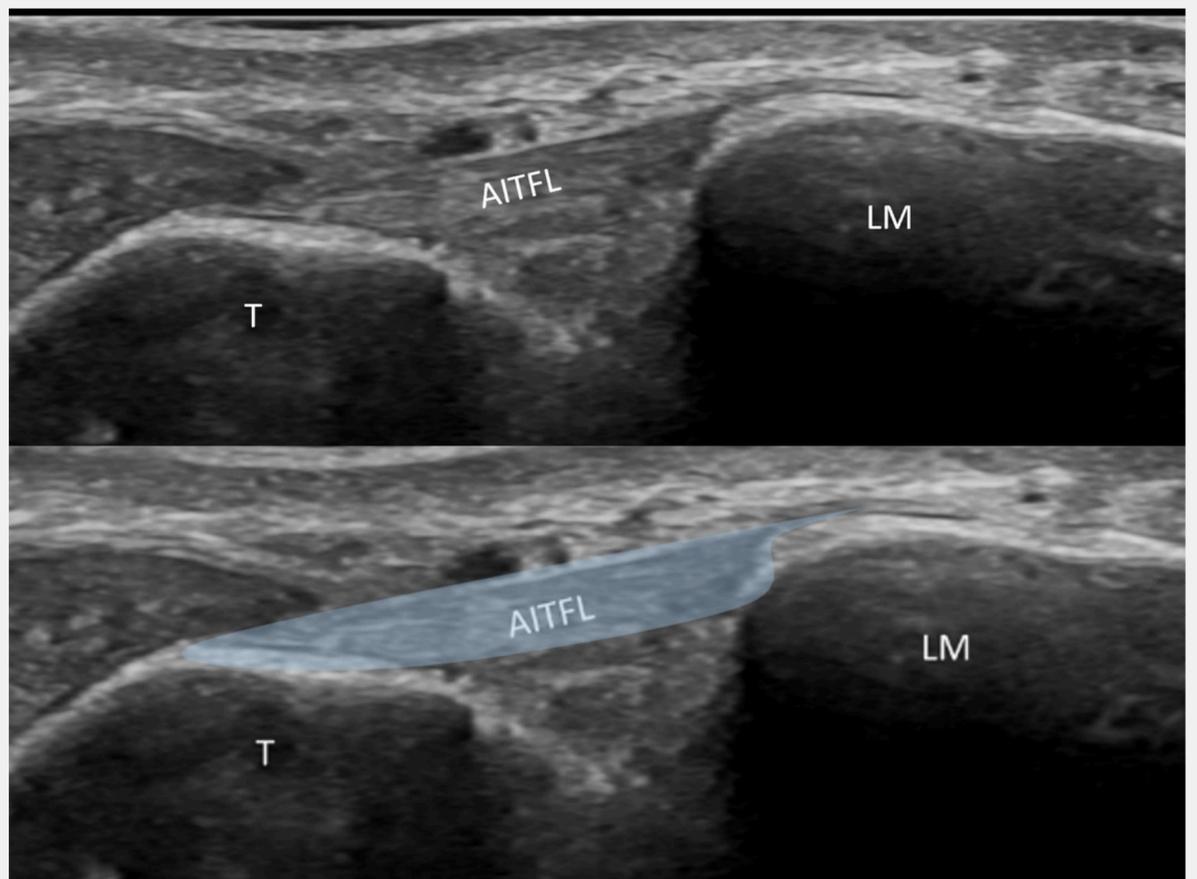
### Patient position

To assess the anterior inferior tibiofibular ligament (AITFL) place the patient in supine lying or long sitting with the ankle hanging freely. The addition of slight medial rotation of the leg allows for easier access to the lateral side of the ankle. Alternatively, ask the patient to lie on their side.

### Assessing the anterior inferior tibiofibular ligament in longitudinal axis.

To assess the anterior inferior tibiofibular ligament in longitudinal axis place the probe over the lower third of the lateral aspect of the fibula and tibia in transverse section. The fibula has a characteristic “sharks fin” appearance. Slide the probe distally in transverse section until you see the tibia fall away and the lateral talus appears. The talus at this point has the appearance of a “pyramid”. Then slide the probe proximally until the top of the tibia appears (this is the most distal portion of the tibia). ‘Fishtail’ the anterior aspect of the probe proximally (towards the opposite knee if the patient is supine), until you see a fibrillar hyperechoic band of tissue between the tibia and fibula. This is the anterior inferior tibiofibular ligament (AITFL).

For a step by step guide visit the [SMUG YouTube channel](#).



Legend: AITFL = Anterior inferior talofibular ligament. LM = Lateral malleolus. T = Tibia



## The anterior talofibular ligament (ATFL).

### Patient position

To assess the anterior talofibular ligament place the patient in supine lying or long sitting with the ankle hanging freely at the end of the plinth. The addition of slight medial rotation of the leg allows for easier access to the lateral side of the ankle. Alternatively place the patient on their side with the affected side uppermost and a pillow between the legs for comfort. A small rolled up towel can be used to allow you to assess dynamically.

### Assessing the anterior talofibular ligament in longitudinal axis.

To assess the anterior talofibular ligament in longitudinal axis place the probe in transverse section across the distal fibula, to reveal the characteristic shape of a 'sharks fin'. Slide the probe towards the lateral malleolus, keeping the fibula and tibia in view. Slide distally until the tibia falls away and reveals the characteristic 'pyramid' shape of the lateral talus. The hypoechoic layer of the articular cartilage can be seen on top of the talar dome. At this point keep the probe on the lateral malleolus and 'fishtail' the other end of the probe towards the patients' big toe until you see the hyperechoic, fibrillar structure of the anterior talofibular ligament which attaches to both the lateral malleolus and talus. The lateral joint recess of the talocrural joint can be visualised deep to the anterior talofibular ligament.

For further instruction and guidance please see our [SMUG YouTube Channel](#).





## The peroneal tendons and the calcaneofibular ligament (CFL).

### Patient position

To assess the peroneal tendons and the calcaneofibular ligament place the patient in supine lying or long sitting with the ankle hanging freely from the end of the plinth. If supine, the addition of slight medial rotation of the leg allows for easier access to the lateral side of the ankle. A side lying or prone position can also be utilised.

### Assessing the peroneal tendons transverse axis.

To assess the peroneal tendons and the calcaneofibular ligament firstly identify the peroneus brevis and longus tendons. Place the probe in transverse section over the posterior aspect of the lower third of the fibula, identify the "sharks fin, and locate the peroneus brevis and longus tendons i to the fibula. The tendons are two hyperechoic oval structures adjacent to one another, resembling a "coffee bean". The brevis tendon normally sits closest to the fibula ("b"= "brevis by the bone").

Slide the probe distally keeping the two tendons in the middle of the screen. The superior retinaculum can be seen superficial to the tendons at the tip of the lateral malleolus. The peroneal tendons wrap around the lateral malleolus as they pass into the lateral foot and so regular probe adjustments are required to maintain good visualisation, particularly "tilting" of the probe.

Continue to move the probe distally and ensure you remain transverse on the tendon. If the tendon becomes more oval or you see the 'fibrillar' structure of the tendon then you are no longer transverse on the tendon. The peroneus longus and peroneus brevis tendons can be seen to separate at the level of the peroneal tubercle, a hyperechoic bony protuberance on the calcaneus. The size of the peroneal tubercle varies and can be absent.

The peroneus longus continues under the foot and the peroneus brevis attaches to the base of the fifth metatarsal.

### Notes

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## The peroneal tendons sequential images: proximal to distal.

Image 1

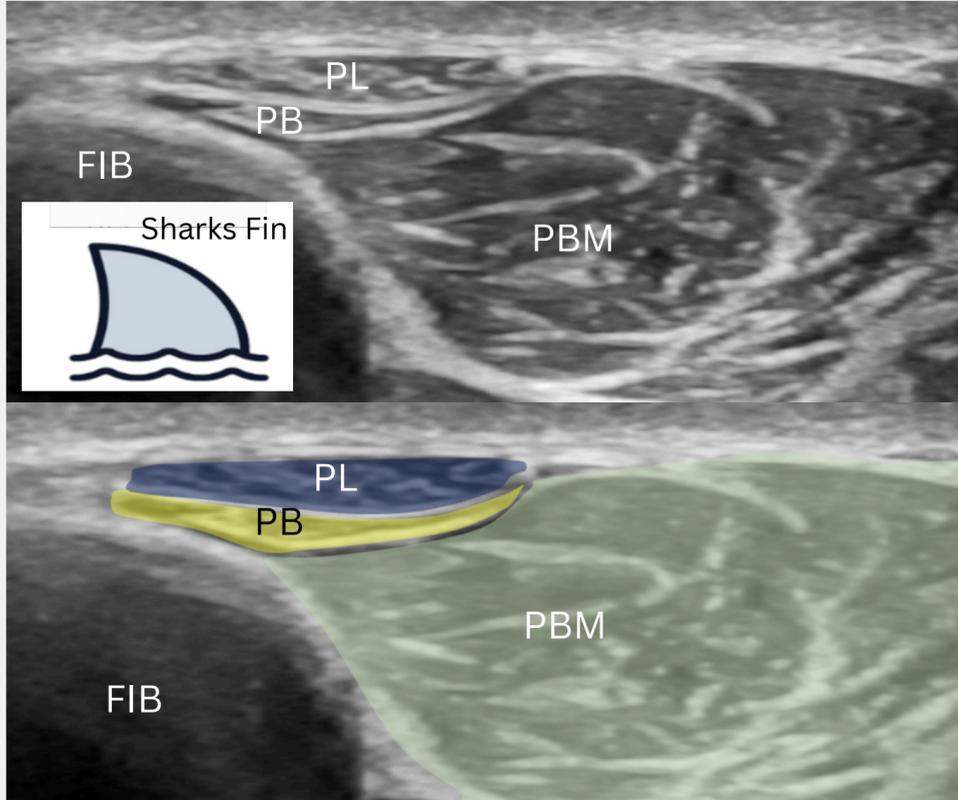
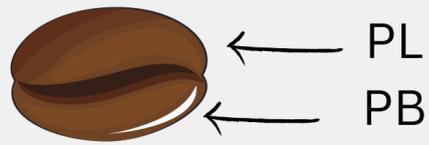


Image 2

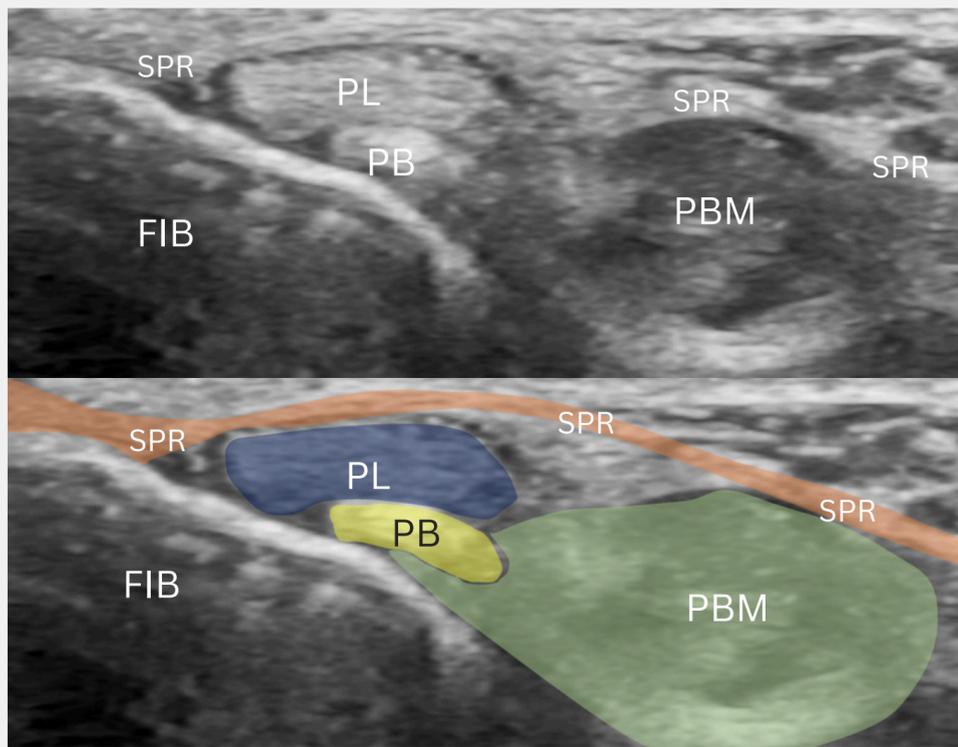
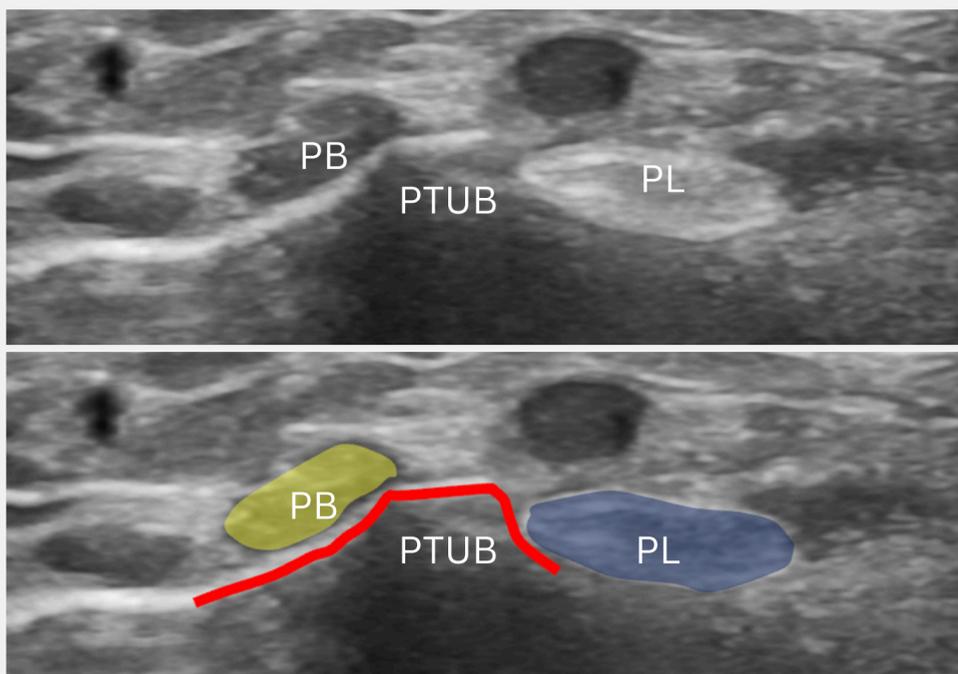


Image 3



## The calcaneofibular ligament (CFL).

### Patient position

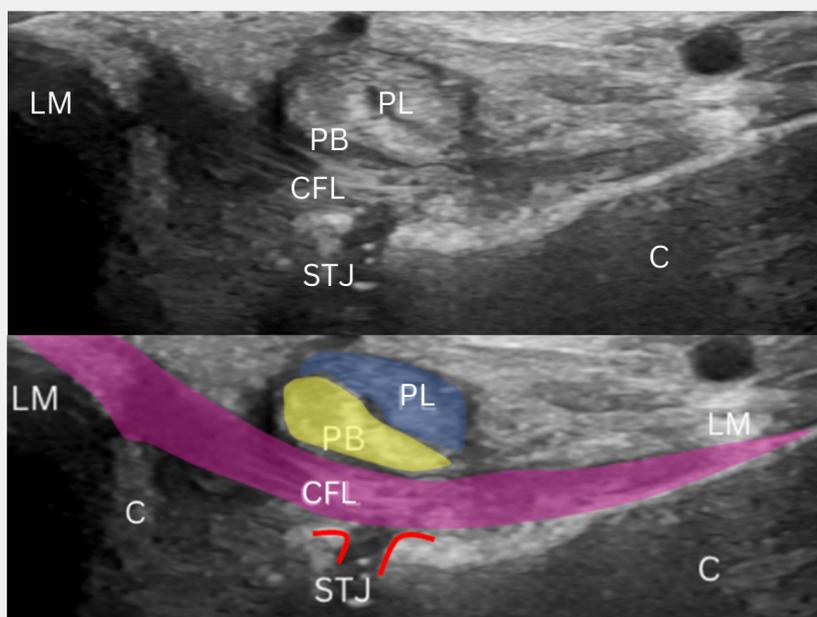
To assess the peroneal tendons and the calcaneofibular ligament place the patient in supine lying or long sitting. If supine, the addition of slight medial rotation of the leg allows for easier access to the lateral side of the ankle. A prone position can also be utilised if struggling to visualise the CFL.

### Assessing the calcaneofibular ligament (CFL) in longitudinal axis.

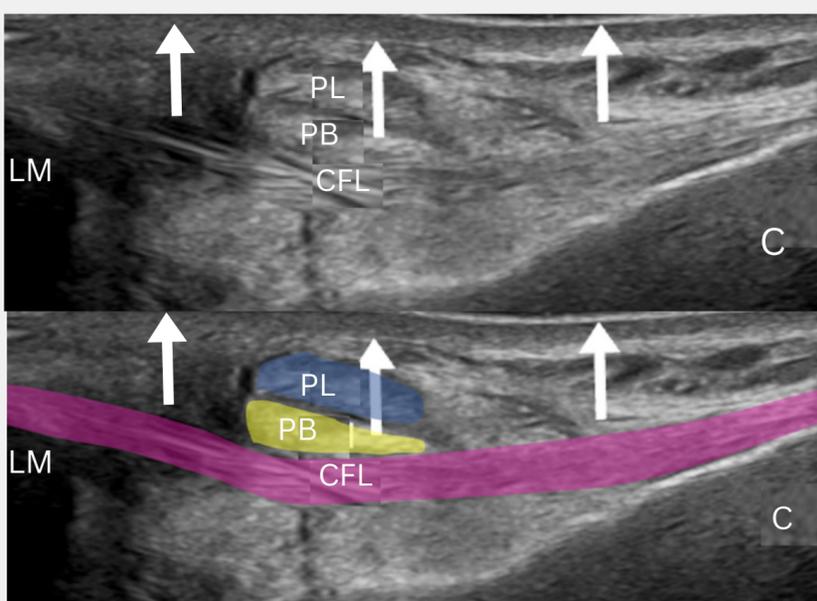
Follow the peroneal tendons in transverse section as they wrap around the lateral malleolus. As the tendons start to move away from the fibula, look underneath the tendons and you will visualise the CFL. The CFL, is visualised as a fibrillar band of tissue, which can be observed running deep to the peroneal tendons superior to the sub-talar joint.

Dynamic assessment of the CFL is completed by maintaining the probe position over the ligament and adding passive dorsiflexion and/or inversion of the rear foot. An intact and functional calcaneofibular ligament will tighten and lift the peroneal tendons (see white arrows).

#### Image 1 - relaxed



#### Image 2 - with dorsiflexion and ST inversion



## The flexor hallucis longus tendon (transverse axis).

### Patient position (transverse axis view)

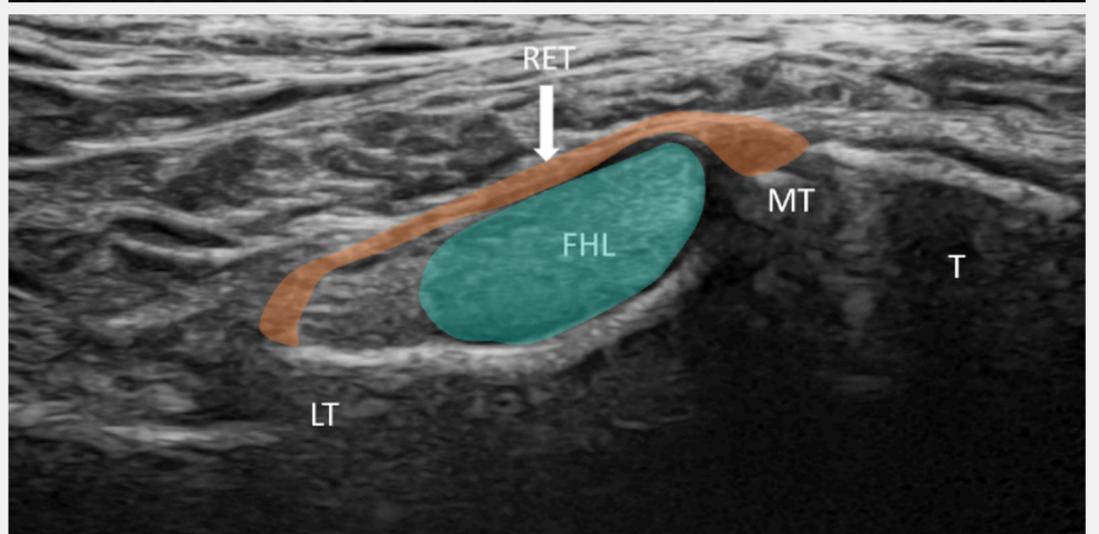
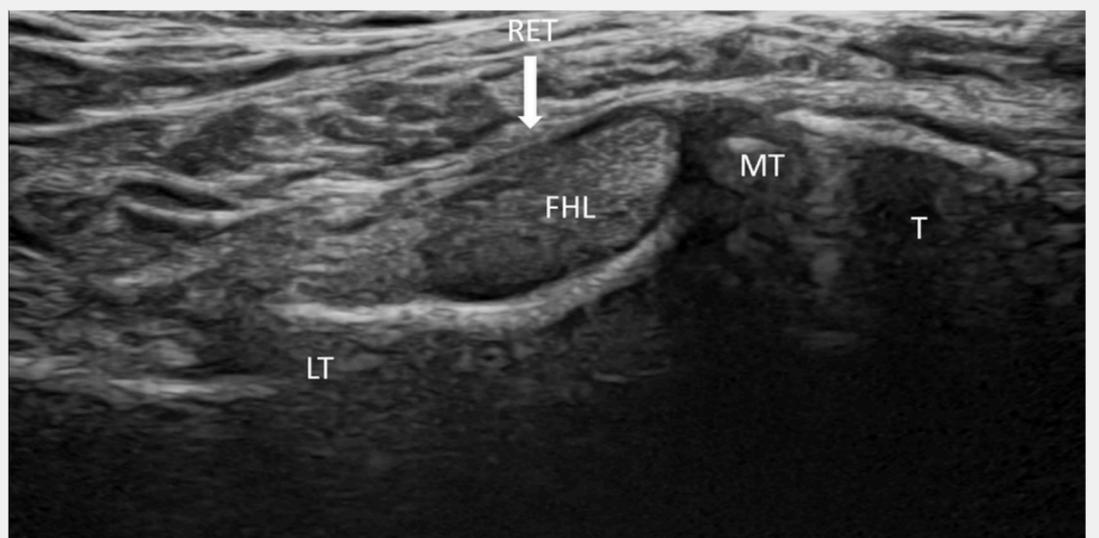
To assess the flexor hallucis longus tendon, in transverse axis, place the patient in supine lying or long sitting with the lower limb externally rotated to allow easy access to the medial ankle.

## Assessing the flexor hallucis longus tendon in transverse axis.

To assess the flexor hallucis longus tendon (FHL), in transverse axis, place the proximal aspect of the probe over the distal tip of the medial malleolus. The distal aspect of the probe should be positioned slightly obliquely, aiming towards the heel.

The FHL tendon can be identified as a hyperechoic oval structure situated in a shallow trough, known as the FHL groove, between the lateral and medial talar tuberosities. Superficial and anterior to the flexor hallucis longus tendon sits the tibial vein, artery and nerve as well as the flexor digitorum longus and tibialis posterior tendons.

Keeping the FHL tendon in focus move the probe distally. The FHL tendon can be observed to pass below the sustentaculum tali of the calcaneus and under the foot where it crosses the flexor digitorum longus tendon at the location known as the "Knot of Henry". To complete a transverse axis view of the FHL tendon move the probe proximally to assess the musculotendinous junction.



## The flexor hallucis longus tendon (longitudinal axis).

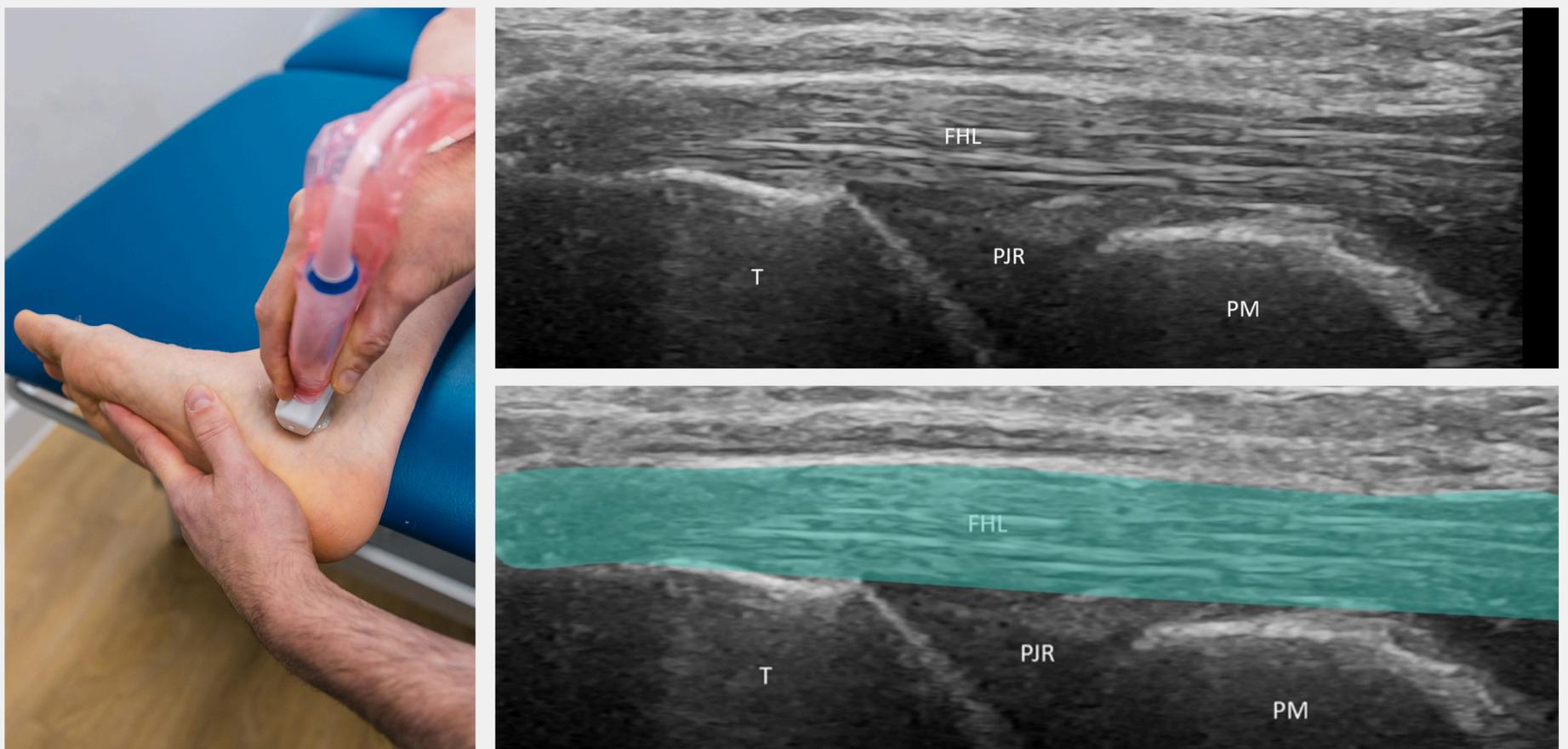
### Patient position (longitudinal axis view)

To assess the proximal portion of the FHL tendon, in longitudinal axis, place the patient side lying or prone with the foot hanging freely over the bottom of the plinth.

## Assessing the proximal portion of the flexor hallucis longus tendon in longitudinal axis.

To assess the proximal portion of the flexor hallucis longus (FHL) tendon, in longitudinal axis, place the probe in an oblique sagittal orientation over the medial aspect of the posterior ankle (medial to the Achilles tendon). Alternatively, review the tendon in transverse section and rotate 90 degrees into a longitudinal section. The created image reveals the tendon (identified as a hyperechoic fibrillar band of tissue) running superficial to the posterior talocrural joint (consisting of the posterior tibial malleolus, the hyperechoic posterior fat pad, the posterior joint recess and the talus).

Dynamic assessment of the FHL tendon can be undertaken, in both transverse and longitudinal axis, by passively flexing and extending the big toe.



Legend: FHL = Flexor hullucis longus. PM = Posterior malleolus. PJR = Posterior joint recess. T = Talus

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## The tibialis posterior and the flexor digitorum longus tendons.

### Patient position

To assess the tibialis posterior (TP) and the flexor digitorum longus (FDL) tendons in transverse axis place the patient in supine lying or long sitting with the lower limb externally rotated to allow easy access to the medial ankle. Slight dorsiflexion can assist in following the TP tendon around the medial malleolus, and on towards its insertion onto the navicular. Additional support can be provided with a pillow or towel under the lateral malleolus if required.

## Assessing the tibialis posterior, flexor digitorum longus and flexor hallucis tendons in transverse axis (“tarsal tunnel view”).

To assess the TP and the FDL tendons, in transverse axis, place the anterior aspect of the probe over the distal tip of the medial malleolus. The posterior aspect of the probe should be positioned slightly obliquely, aiming towards the heel.

The image created reveals the medial malleolus, the TP tendon (a hyperechoic oval structure sitting against the medial malleolus in shallow groove), the FDL tendon (a hyperechoic circular structure adjacent to the tibialis posterior tendon) and the tibial vein, artery and nerve. The flexor retinaculum can be identified as a thin, hyperechoic band of fibrillar tissue running superficial to and encapsulating the aforementioned structures. The FHL tendon also be seen sitting in the FHL groove.

The FDL tendon can be followed distally past the sustentaculum tali of the calcaneus. It attaches under the foot onto the plantar surface of the distal phalanges of the 2nd to 5th digits.

The TP tendon wraps around the medial malleolus and therefore, regular probe adjustments are required to maintain an optimal image. As the TP tendon passes the medial malleolus, the subtalar joint, located deep to the tendon, can be observed. It is normal to have a small amount of fluid in the sheath of the TP tendon. Comparison to the other side can be a useful. Close scrutiny of the TP tendon at its navicular insertion is required to assess for the presence of an os navicularis.

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## The deltoid ligament.

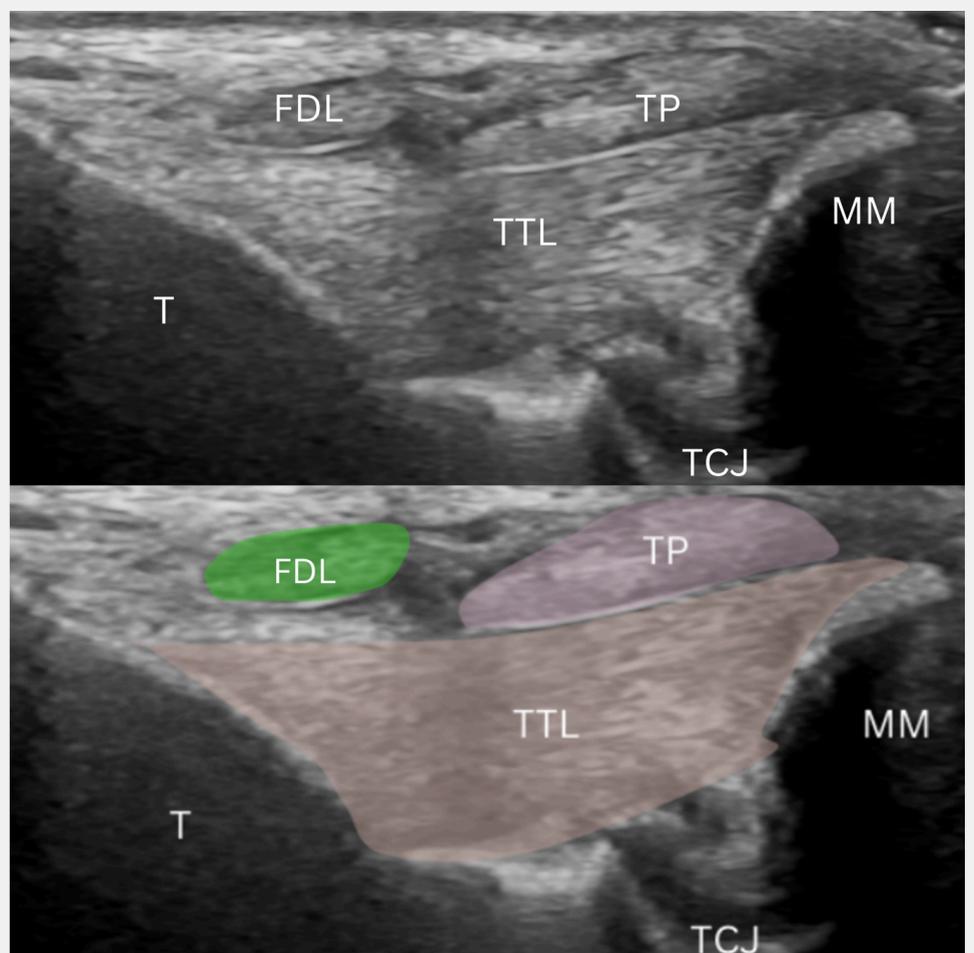
### Patient position

To assess the deltoid ligament of the medial ankle the patient should be placed in long sitting or supine on a plinth. The hip should be externally rotated to allow easy access to the medial ankle. Alternatively a side lying position can be used with the leg to be scanned closest to the plinth.

### Assessing the deltoid ligament in longitudinal axis.

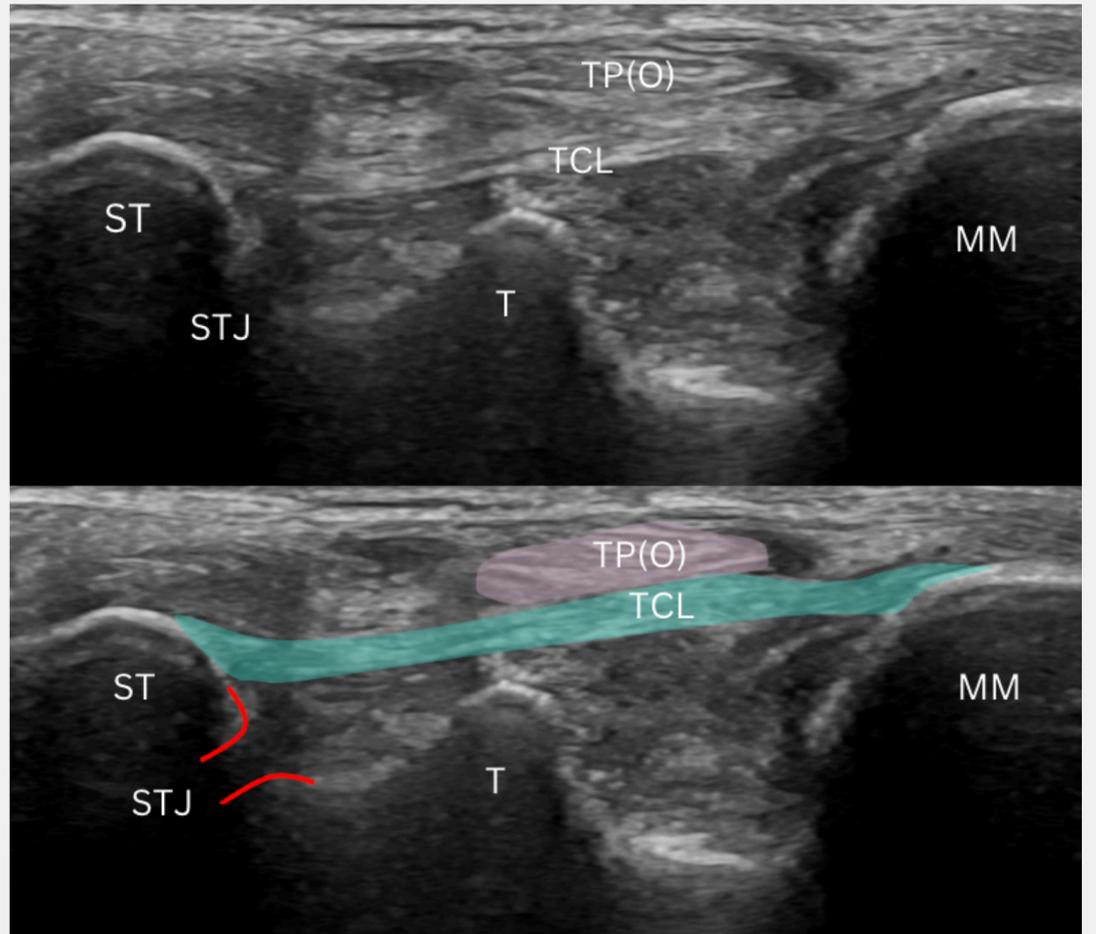
The deltoid ligament of the medial ankle is one continuous expanse of ligamentous tissue that fans out from the medial malleolus to attach to the talus, the calcaneus, the spring ligament and the navicular. The deltoid ligament can be divided into separate bands all of which require individual scrutiny. Each band requires a different probe and ankle position to carry out an accurately assessment. The spring ligament is not included in these guidelines.

1) The posterior tibiotalar ligament - the ankle should be dorsiflexed to stretch the ligament to improve image quality by reducing potential anisotropy. Identify the tibialis posterior tendon in transverse section, place the tendon in the middle of the image and slide the probe distally around the medial malleolus. As you move around the malleolus observe below the tendon and you will visualise a relatively thick, fibrillar, ligamentous structure, the tibiotalar ligament, passing between the distal aspect of the medial malleolus and the talus. The probe will be angled obliquely and posteriorly towards the heel. The tibiotalar ligament band is the most common portion of the deltoid ligament to be injured.

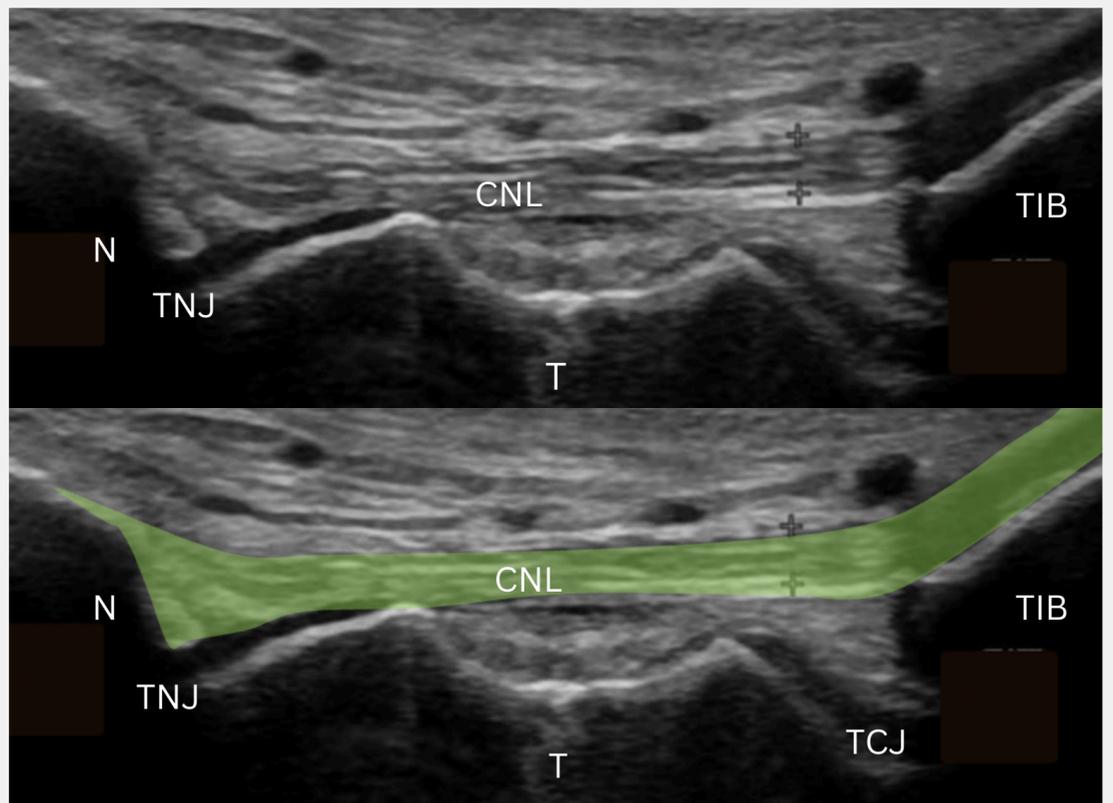


## The deltoid ligament.

2) The tibiocalcaneal ligament - the ankle should be at plantigrade (eversion can also help) to optimise image quality and to avoid anisotropy. To assess the tibiocalcaneal ligament, the proximal aspect of the probe should be placed over the distal tip of the medial malleolus and the distal aspect of the probe should be placed over the sustentaculum tali of the calcaneus. "Fishtail" the probe until you visualise a fibrillar, ligamentous structure. The tibiocalcaneal ligament can be seen to cross between these two bony landmarks.



3) The tibionavicular ligament - the ankle should be plantarflexed and everted to stretch the ligament to optimise image quality and avoid anisotropy. Place the proximal aspect of the probe over the distal tip of the anterior aspect of the medial malleolus and the distal aspect of the placed over the navicular where the ligament terminates. In a normal ankle this is the hardest of the three bands to visualise.



Legend: C = Calcaneus. N = Navicular. T = Talus. MM = Medial malleolus. ST = Sustentaculum tali  
TCL = Tibiocalcaneal ligament. CNL = Calcaneonavicular ligament. STJ = Subtalar joint. TP(O) = Tibialis posterior (oblique - not true transverse).

## The Achilles tendon.

### Patient position

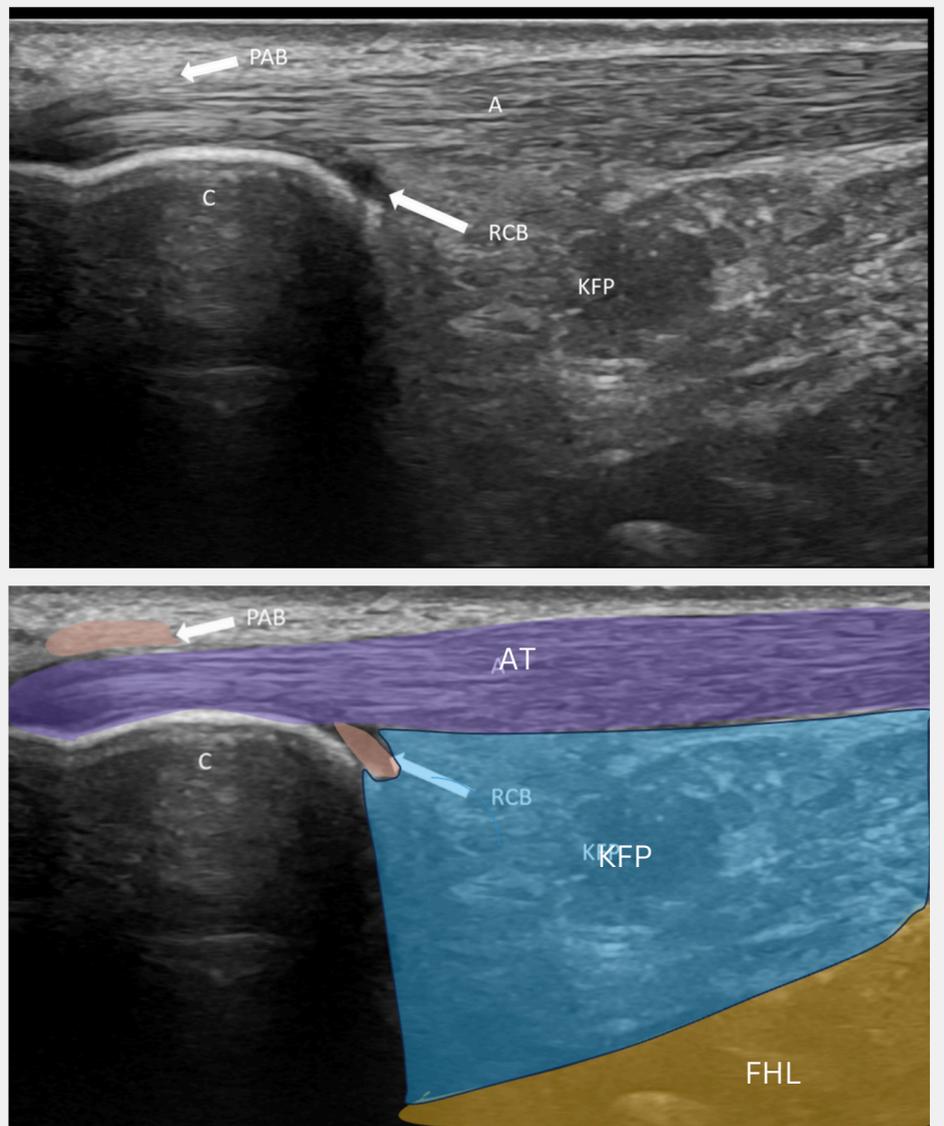
To assess the Achilles tendon place the patient in prone with the ankle hanging freely over the end of the plinth.

### Assessing the Achilles tendon in longitudinal axis.

To assess the Achilles tendon, in longitudinal axis, place the distal aspect of the probe in a longitudinal plane over the calcaneus. "Fishtail" the proximal end of the probe until you line up with the fibrillar structure of the Achilles tendon.

The image created reveals the calcaneus, Kager's fat pad, and the Achilles' tendon and insertion. The two associated bursae (the retrocalcaneal bursa and the preachilles bursa), if distended with fluid, can also be observed. Gentle probe pressure is required to accurately assess these delicate structures as a firm hand can compress any fluid.

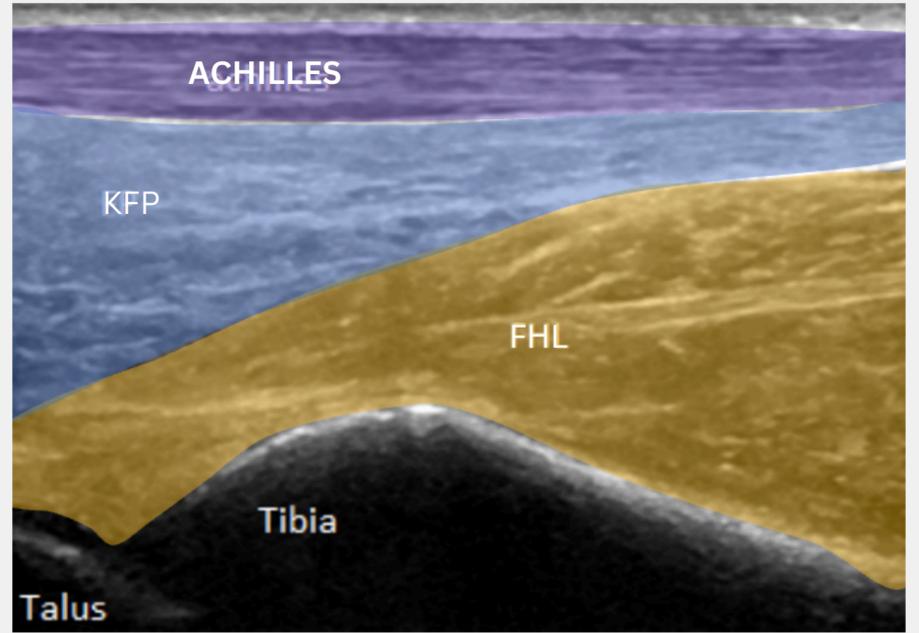
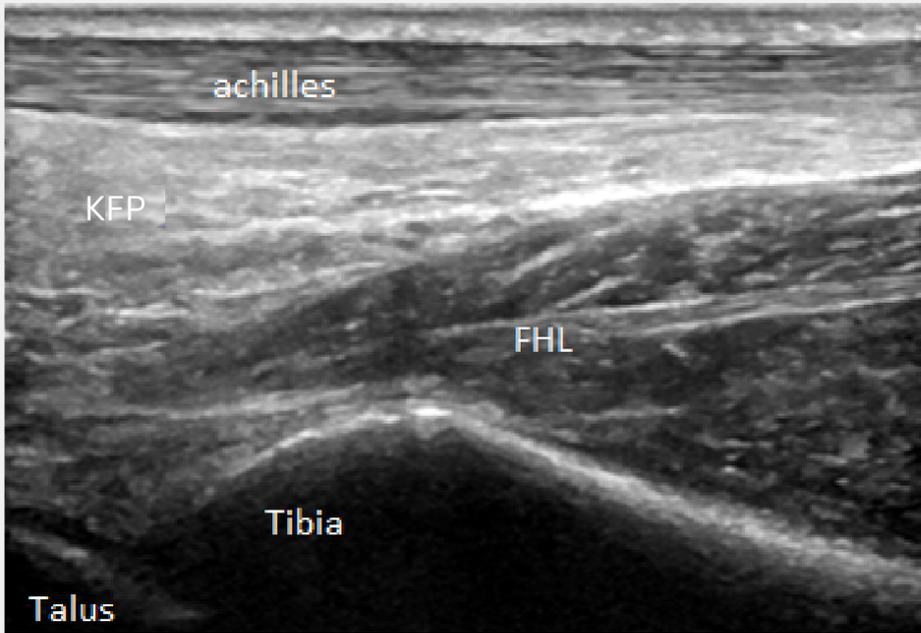
Move the probe proximally until you visualise the musculotendinous junction of soleus and into the muscle belly of the medial and lateral gastrocnemius located above the Achilles tendon. Note the size of the FHL muscle belly. Visualise the aponeurosis located between the medial and lateral gastrocnemius muscle bellies and soleus. This is a common site for injury, often referred to as "tennis" leg.



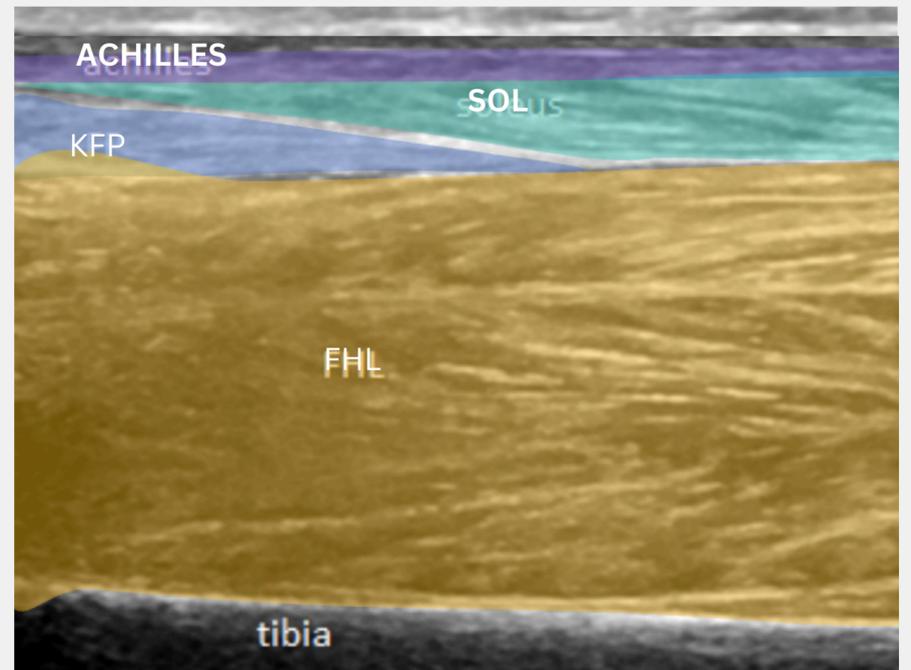
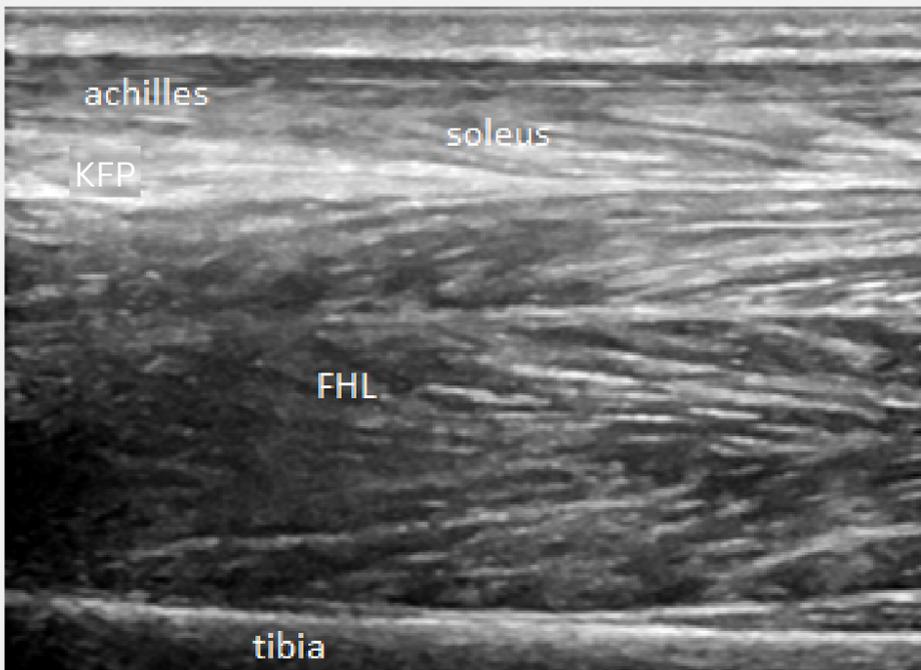
Legend: PAB = Pre achilles bursa. AT = Achilles. RCB = Retrocalcaneal bursa. KFP = Kager's fat pad. C = Calcaneus. FHL = Flexor hallucis longus muscle belly.

## Longitudinal achilles tendon view

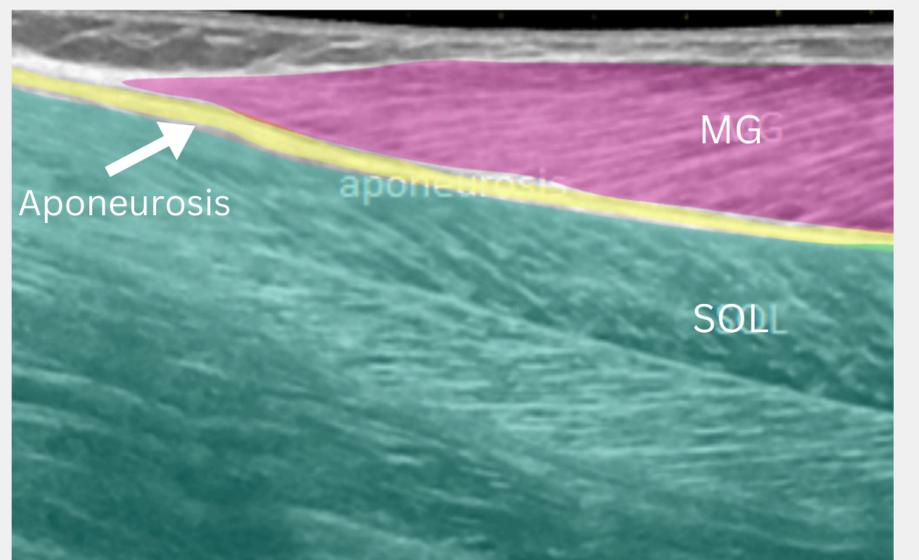
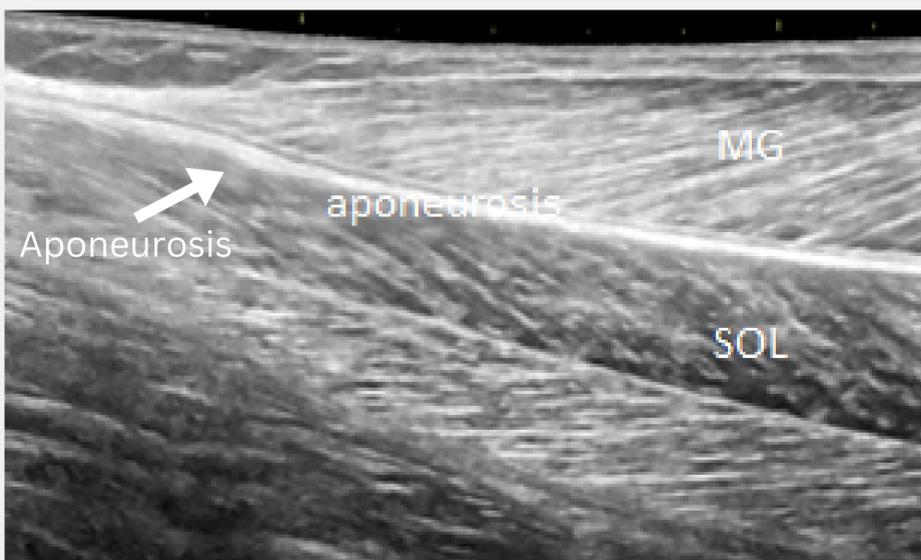
### 1) At the level of the distal tibia



### 2) At the level of musculotendinous junction soleus muscle



### 3. At the level of musculotendinous junction gastrocnemius muscle

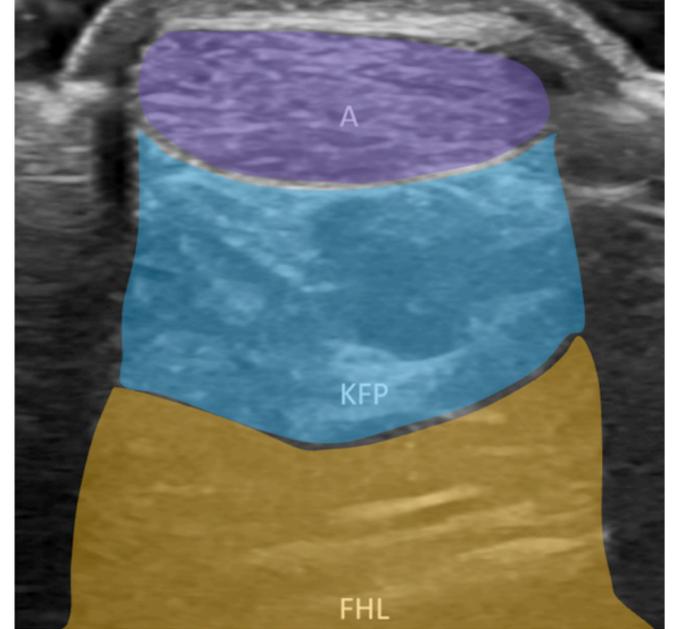


Legend: FHL=flexor hallucis longus. MG=medial gastrocnemius. SOL=soleus. KFP= Kager's fat pad.

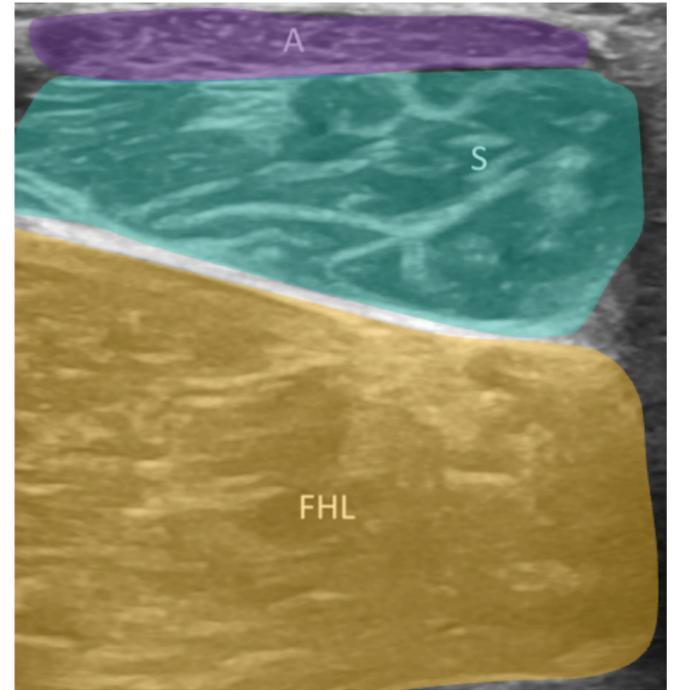


## The Achilles tendon in transverse axis. Sequential images (distal to posterior)

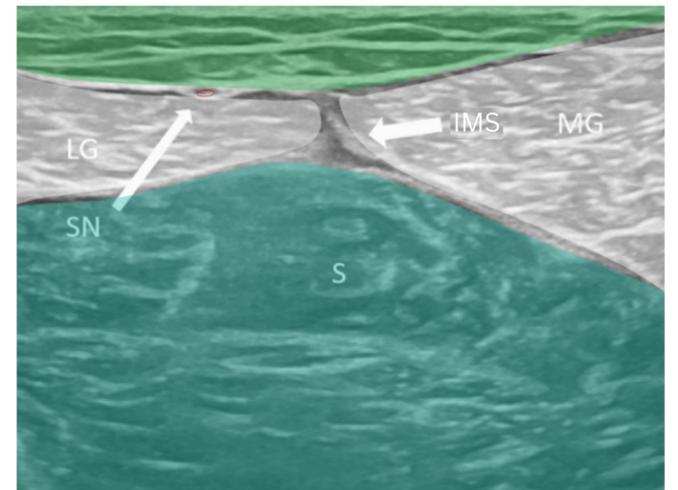
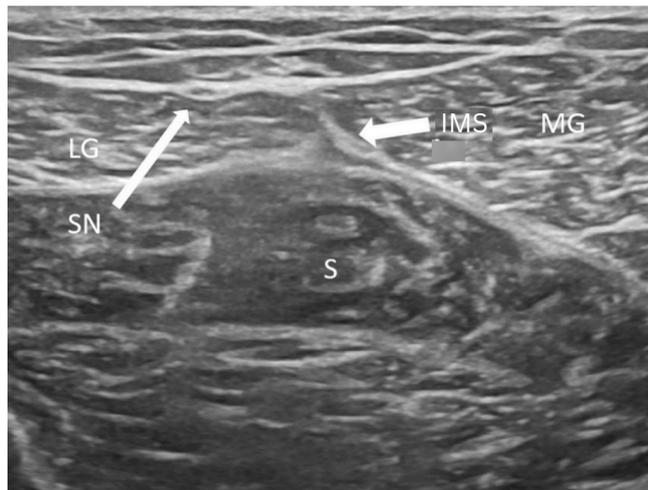
**Image 1**



**Image 2**



**Image 3**



Legend: A = Achilles. KFP = Kager's fat pad. C = Calcaneus. KFP = Kager's fat pad. S = Soleus.  
MG = Medial gastrocnemius. LG = Lateral gastrocnemius. IMS = intermuscular septum. SN = Sural nerve.

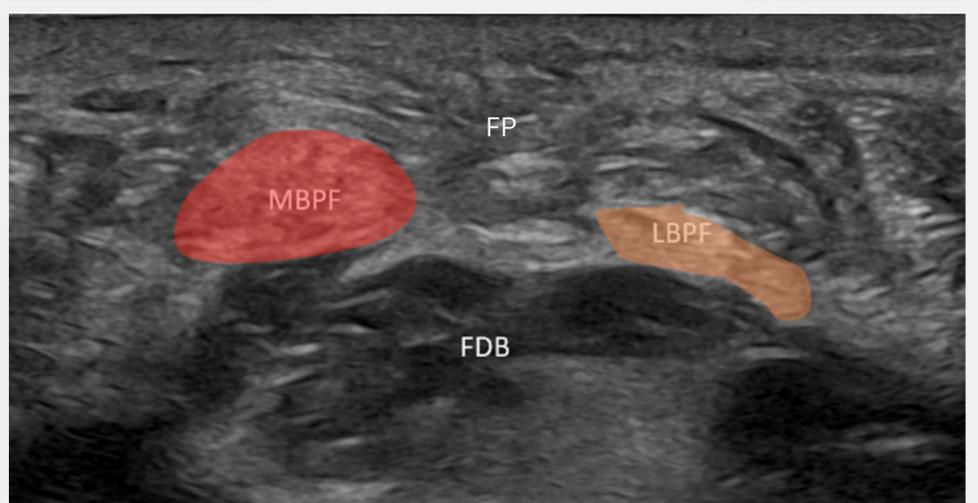
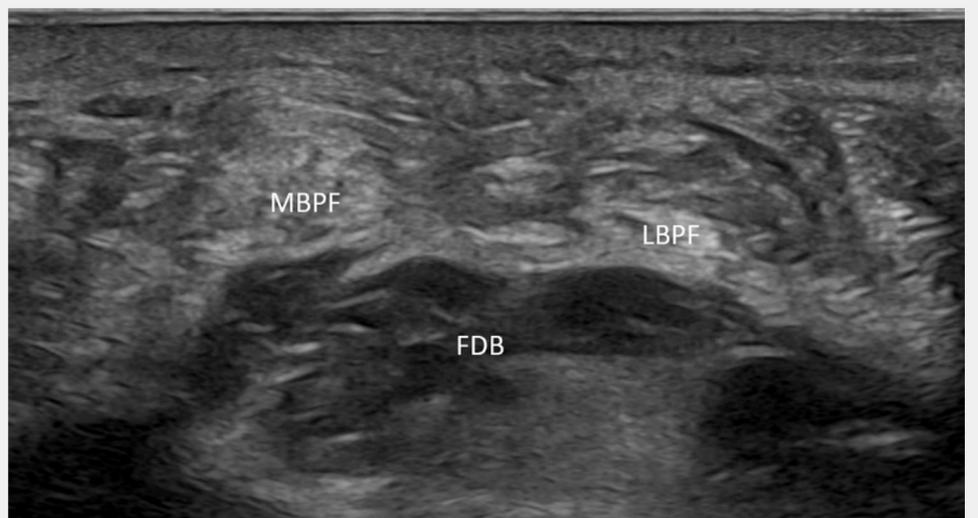
## The plantar fascia (medial and lateral bands).

### Patient position

To assess the plantar fascia place the patient in prone with the ankle hanging freely over the end of the plinth. Lowering the probe frequency and increasing the 'gain' can assist in achieving good quality images of the sole of the foot.

## Assessing the medial and lateral band of the plantar fascia in transverse axis.

To assess the medial band and lateral bands of the plantar fascia, in transverse axis, place the probe across the plantar aspect of the calcaneus, in a medial to lateral direction. The insertion of the medial band of the plantar fascia can be identified as a hyperechoic oval structure resting on top of the calcaneus. Move the probe distally to continue the sonographic assessment of the middle and distal portions of the medial band of the plantarfascia. To assess the lateral band of the plantar fascia, in transverse axis place the probe across the plantar aspect of the calcaneus, in a medial to lateral direction. The insertion of the lateral band of the plantar fascia can be identified as a hyperechoic oval structure resting on top of the lateral aspect of the calcaneus. Move the probe distally to continue the sonographic assessment of the middle and distal portions of the plantar fascia.



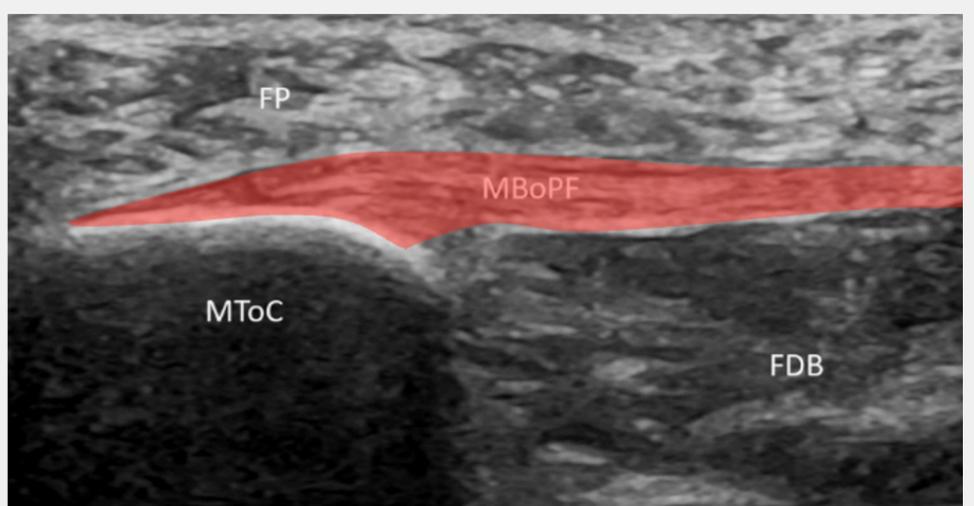
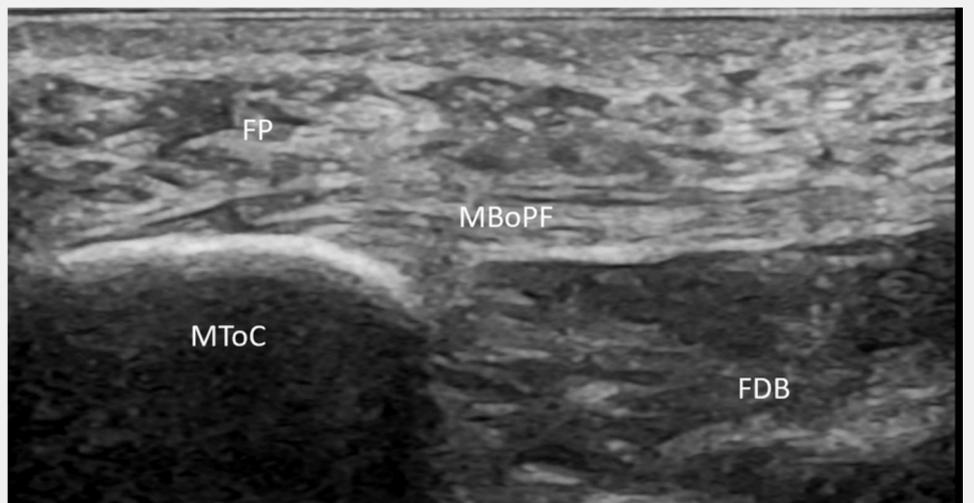
Legend: MBPF = medial band of plantar fascia, LBPF = Lateral band of plantar fascia, FDB = Flexor digitorum brevis, FP = Fat pad

## Assessing the medial band of the plantar fascia in longitudinal axis.

To assess the medial band of the plantar fascia, in longitudinal axis, place the proximal aspect of the probe over the plantar aspect of the calcaneus. The distal aspect of the probe should be aimed towards the big toe. "Fishtail" the probe until you line up with the fibres of the plantar fascia.

The image reveals the hyperechoic calcaneus with the hyperechoic fibrillar pattern of the plantar fascia. The fat pad of the heel can be visualised superficial to the plantar fascia. The fat pad can reduce visibility of the underlying plantar fascia. The flexor digitorum brevis muscle is located deep to the plantar fascia.

Move the probe distally from the calcaneus to assess the middle and distal portions of the plantar fascia. A plantar fibroma (hypoechoic ovoid structures within the plantar fascia tissue) is a common observation found within the mid portion of the plantar fascia.



Legend: MToC = Medial tubercle of the calcaneus. MBoPF = Medial band of the plantar fascia. FP = Fat pad.  
FDB = Flexor digitorum brevis.



## Pitfalls and tips

### Anterior ankle

The retinaculum of the extensor tendons, particularly the extensor digitorum tendon, can be quite thick and should not be mistaken for fluid.

Do not apply too much pressure with the probe as this may compress fluid collections such as joint fluid and vessels such as the dorsalis pedis artery.

### Posterior ankle

The most distal fibres of the Achilles tendon are prone to anisotropy due to the change in fibre orientation and will appear darker (hypoechoic). A heel to toe manoeuvre, in longitudinal section, will help to visualise the fibres.

Be aware of the presence of a plantaris tendon next to the Achilles tendon. Plantaris is a small tendon with a variable path, but most commonly seen on the medial side of the Achilles tendon.

The presence of an enthesophyte at the Achilles insertion is a common asymptomatic finding and should be correlated with clinical findings.

The soleus muscle belly varies in its location. Be aware of an accessory soleus and a low riding (distal) soleus muscle belly.

### Lateral ankle

The peroneal tendons can be difficult to scan as they wrap around the lateral malleolus. Whilst following the peroneal tendons around the lateral malleolus it is essential to tilt the transducer to keep the probe perpendicular to the avoid anisotropy and misdiagnosis.

It is essential to obtain a clear image of the lateral ligaments (AITFL, ATFL and CFL) and assess them dynamically to assess for ligament laxity.

Do not underestimate the role of ultrasound in the diagnosis of fractures particularly avulsion fractures not seen on X-ray.



1. In the tarsal tunnel, what is the order of structures from tibia to calcaneus?

AV= Artery and veins

FDL= Flexor Digitorum Longus tendon

FHL=Flexor Hallucis Longus tendon

TN= Tibial Nerve

TP=Tibialis Posterior tendon

a) TP, FHL, FDL, TN, AV

b) TP, FDL, AV, TN, FHL

c) FDL, TP, AV, TN, FHL

d) FDL, TP, FHL, AV, TN

2) The dynamic stress test for the AITFL involves?

a) Dorsiflexion

b) Plantarflexion

c) Inversion

d) All of the above

3) The dynamic stress test for CFL (calcaneo-fibular ligament) involves?

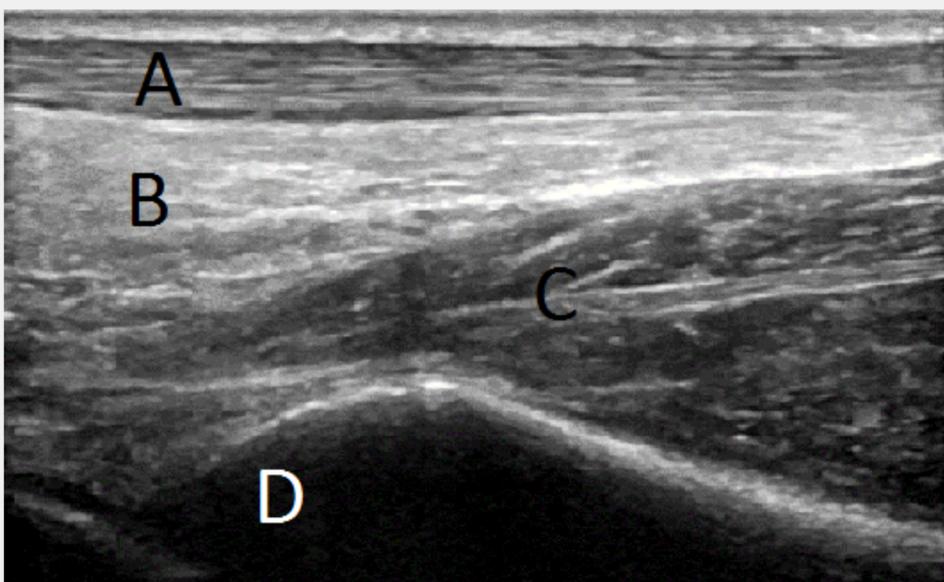
a) Plantarflexion tibiotalar joint with inversion subtalar joint

b) Dorsiflexion tibiotalar joint with inversion subtalar joint

c) Plantarflexion tibiotalar joint with eversion subtalar joint

d) Dorsiflexion tibiotalar joint with eversion subtalar joint

4) Name the layers and the bony landmark:



a) A=Achilles tendon, B=flexor hallucis longus muscle, C=Kager's fat pad, D=distal tibia

b) A=Achilles tendon, B=Kager's fat pad, C=flexor hallucis longus muscle, D=distal tibia

c) A=Achilles tendon, B=flexor hallucis longus muscle, C=Soleus, D=talus

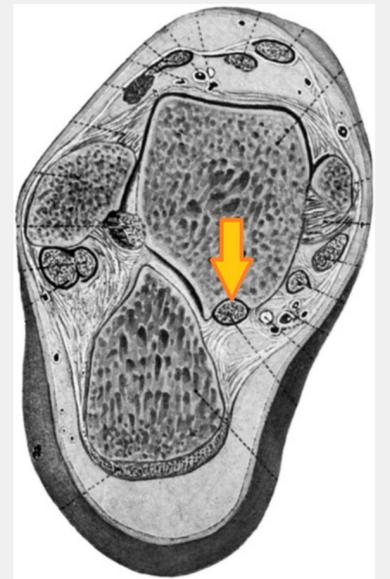
d) A=Achilles tendon, B=Kager's fat pad, C=flexor hallucis longus muscle, D=talus

5) This nerve provide sensory input for the lateral heel and foot and is located superficially within the fascia between peroneal compartment and soleus/Achilles, just proximally of the ankle.

- a) Tibial nerve
- b) Superficial peroneal nerve
- c) Deep peroneal nerve
- d) Sural nerve

6) What tendon is visualised adjacent to its characteristic groove on the medial aspect of the tibia?

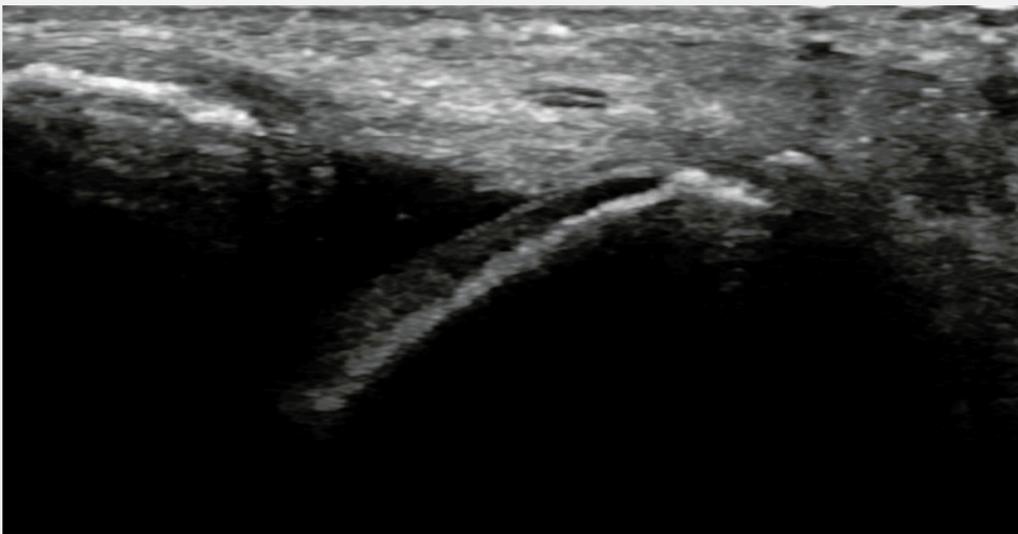
- a) Tibialis posterior
- b) Tibialis anterior
- c) Flexor digitorum longus
- d) Flexor hallucis longus



7) Where is the Calcaneofibular ligament (CFL) is located?

- a) Deep to the peroneal tendons, superficial to the calcaneus.
- b) Distal to the fibula, superficial to the tibiotalar joint
- c) Deep to the peroneal tendons, superficial to the calcaneus and subtalar joint
- d) Deep to the peroneal tendons, superficial to the calcaneus and anterior talofibular ligament.

8) What ligament is seen here?



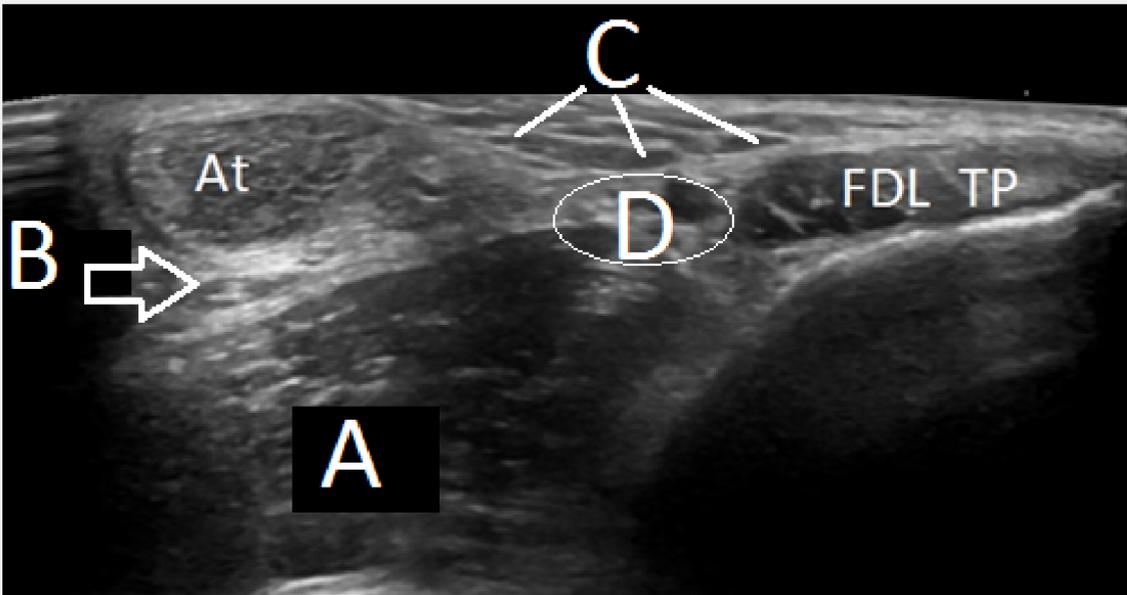
- a) Calcaneofibular ligament
- b) Deltoid ligament
- c) Anterior inferior tibiofibular ligament
- d) Anterior talofibular ligament

9) Which tendons cross-over at the knot of Henry?

- a) FHL and Tibialis posterior
- b) FHL and FDL
- c) FDL and Tibialis posterior

10) Name the structures in this posterior ankle, transverse view:

TP=Tibialis posterior At=Achilles tendon



- a) A=flexor hallucis longus muscle, B=Kager's fat pad, C=Flexor retinaculum, D=tibial nerve
- b) A=flexor hallucis longus muscle, B=soleus, C paratenon, D=tibial nerve
- c) A=flexor hallucis longus muscle, B=Kager's fat pad, C=fascia, D=tibial nerve
- d) A=Soleus, B=Kager's fat pad, C=flexor retinaculum, D=tibial nerve

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[Lateral hip and trochanteric bursa](#)

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[MCL assessment](#)

[Posteromedial knee and PCL](#)

[Posteromedial knee](#)

[Posteromedial knee - Bakers cyst](#)

[Lateral Knee](#)

[Lateral knee - Distal ITB dynamic assessment](#)

["T junction" - short and long head of biceps](#)

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[Calcaneofibular ligaments and peroneal tendons](#)

[The art of scanning the ATFL and CFL](#)

[Medial ankle and tarsal tunnel](#)

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[Ulnar collateral ligament of the thumb](#)

[Flexor digitorum tendons, pulleys and volar plate](#)



