

AIUM Practice Guideline for the Performance of the Musculoskeletal Ultrasound Examination

ANKLE & FOOT EXAMINATION

Ankle Examination

- Ultrasound exam divided into 4 quadrants (ant, med, lat, and post) is usually tailored to clinical presentation.
- Exam of the foot is also tailored to the clinical presentation

Anterior

- Supine, knee flexed and plantar foot flat on the table.
- The anterior tendons are assessed in longitudinal and axial planes from their musculotendinous junctions to their distal insertions. From medial to lateral, this tendon group includes the TA, EHL, EDL, and peroneus tertius tendons (the latter being congenitally absent in some patients).
- The anterior joint recess is scanned for effusion, loose bodies, and synovial thickening.
- The anterior joint capsule is attached to the anterior tibial margin and the neck of the talus, and the hyaline cartilage of the talus appears as a thin hypochoic line.
- The ATF ligament is assessed by moving the transducer proximally over the distal tibia and fibula, superior and medial to the lateral malleolus, and scanning in an oblique axial plane.

Medial

- Same position as in the anterior exam.
- The PT, FDL, and FHL tendons (located in this order from anterior to posterior) are initially scanned axially proximal to the medial malleolus to identify each tendon.
- They are assessed in longitudinal and axial planes from their proximal musculotendinous junctions.

Lateral

- Supine, knee flexed, plantar foot on table with slight inversion.
- The PB and PL tendons are identified proximal to the lateral malleolus on an axial scan, and they can then be assessed in longitudinal and axial planes from their proximal (supramalleolar) musculotendinous junctions to their distal insertions.
- The PL can be followed in this manner to the cuboid groove, where it turns to course medially along the planter aspect of the foot to insert on the base of the 1st MT and medial cuneiform. This latter aspect of the tendon can be scanned in the prone position, as described below.
- The PB tendon is followed to its insertion on the base of the 5th MT. The PB and PL tendons are assessed for subluxation using realtime images with dorsiflexion and eversion.
- The lateral ligament complex is examined by placing the transducer on the tip of the lateral malleolus in the following orientations:
 - Anterior and posterior horizontal oblique for the anterior and posterior talofibular ligaments
 - Posterior vertical oblique for the calcaneofibular ligament.

Posterior

- Prone with feet extending over the end of the table.
- The Achilles tendon is scanned in the longitudinal and axial planes from the musculotendinous junctions (medial and lateral heads of the gastrocnemius and soleus muscles) to the site of insertion on the posterior surface of the calcaneus.
- Dynamic scanning with plantar and dorsiflexing may aid in the evaluation of tears.
- The plantaris tendon lies along the medial aspect of the Achilles tendon and inserts on the posteromedial calcaneus. It should be noted that this tendon may be absent as a normal variant but is often intact in the setting of a full-thickness Achilles tendon tear.
- The retrocalcaneal bursa, between the Achilles and superior calcaneus, is also assessed.
- The plantar fascia is scanned in both planes from its proximal origin on the medial calcaneal tubercle distally where it divides and merges into the soft tissues.
