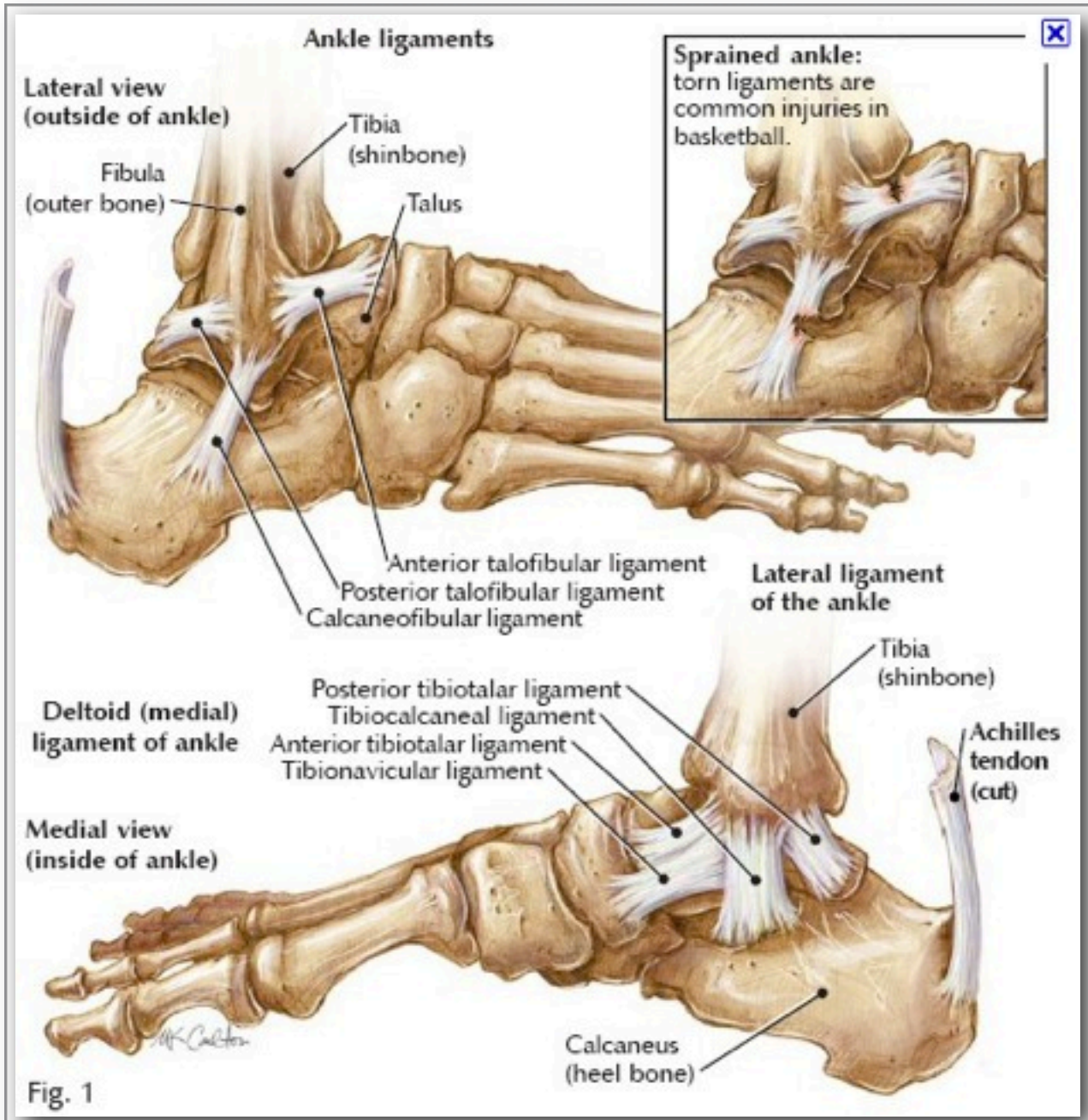


ORTHOPEDIC ANKLE EXAMINATION



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Subjective examination

Mechanism of injury

Previous similar injuries

Medical history

Level of activity

Skill level

Occupation

etc are all extremely relevant, as well as ascertaining what the athlete/patient has in their periodised training programme.

Objective Examination

Look

Gait and Biomechanics

Move

Feel

Special tests

Neurological Vascular (if applicable)

Look

Note the presence of ankle / foot effusions

Any Visual deformities / asymmetry

Asses; Skin , ulcers, hairlessness, calluses - sign of abnormal loading

Muscle wasting

Toe deformities- Hallux valgus, claw toes, hammer toes.

Look at shoes / foot wear for wear pattern

Assessment of Gait and movement patterns

Observe any Trendelenburg vs antalgic gait patterns

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look for sagittal, coronal and frontal asymmetry during gait.

Asses for abnormal ground contact / reaction.

Note whether gait is heel to toe (normal), flat foot, or toe to heel (c/w equinus contracture);

If possible conduct simple FMS (Functional movement pattern) squats etc

If possible asses sport specific movement patterns

During walking gait concentrate on the foot and ankle, specifically look at the three rockers.

- No 1 rocker- From heel strike to foot flat, the anterior compartment of the leg (tibialis anterior) contracts eccentrically, thus lengthening, while the gastroc soleus is quiescent. Can be abnormal if achilles tendon tight causing failure of heel strike or tibialis anterior weakness causes slapping foot
- No. 2 rocker- During foot flat the gastroc soleus complex is contracting eccentrically, and the tibialis anterior is relatively in active. The momentum of the body dorsiflexes the ankle. Can be abnormal if ankle stiff.
- No. 3 rocker- During heel rise the gastroc, soleus complex contracts concentrically, and the tibialis anterior (anterior compartment) is quiescent. Can be abnormal if weak tendoachilles or lack of movement or pain at 1st Mtp joint. (Ringleb et al 2005)

Move

Compare both sides

Ankle

Active

dorsiflex
plantarflex
Inversion
Eversion

Passive

As above Feel and observe the quality of movement

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Subtalar - Apply varus and valgus stress with the hand on the calcaneus feeling for movement of the talus (at extremes of subtalar motion) with the other hand. Holding talus rather than the tibia isolates subtalar from ankle motion. (Normal = 5 degrees in each direction)

Midtarsal (Talo-navicular & Calcaneo-cuboid joints) Hold the calcaneus with one hand and move the forefoot medially & laterally with the other hand = adduction (20 degrees) & abduction (10 degrees). This movement cannot be seen, but can be felt. •

Tarsometatarsal joints Active motion is zero, but test the joints for stability (by pushing each joint up & down)

1st MTP Joint Normal ROM = 70-90 degrees DF; 45 degrees PF. Normal toe-off requires 35-40 degrees DF. • Other toes Assess flexibility of any lesser toe deformities.

Feel

Check:

Ankle

Feel for an effusion, synovitis, deformity, bony prominence and loose bodies.

The anterior joint line

The lateral gutter and lateral ligaments

The syndesmosis

The posterior joint line.

The medial ligament complex

The medial gutter

Hindfoot and midfoot

Palpate the following structures from Lateral to Dorsum to Medial surfaces: Lateral (from distal to proximal)

Styloid process of fifth metatarsal

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Groove in the cuboid for Peroneus Longus tendon (just posterior to 1)

The peroneal tubercle (a small lateral extension of the calcaneus, separating the peroneus longus & brevis tendons)

Sinus Tarsi - soft tissue depression just anterior to the lateral malleolus. (Sinus Tarsi is filled with EDB & fat pad & ligaments)

Dome of Talus (made prominent by plantarflexing ankle)
Medial (from proximal to distal)

First Metatarso-cuneiform joint.

Navicular Tubercle - most obvious bony prominence in front of medial malleolus. (insertion of Tibialis Posterior tendon)

Head of Talus - felt just behind the navicular, by everting & inverting the mid foot.

Sustentaculum Tali - one finger breadth below medial malleolus. (serves as an attachment for the spring ligament & supports the talus)

Medial Malleolus.

Forefoot Palpate the all bones and joints in a circle, paying particular attention to:

First Metatarsal head
First MTPJ
Metatarsal heads
Web spaces

Feel for Dorsalis pedis and Posterior tibial pulses if clinically relevant.

Special tests (Muscle power / integrity)

Tibialis posterior

Get the patient to contract the tibialis posterior in the plantar-flexed/inverted position against resistance. Palpate the tendon too. The tendon may be weak, impalpable or palpably thin. Always examine for an Achilles contracture which is present in most people with tibialis posterior insufficiency and may only be apparent with the heel held in neutral or varus.

Tibialis anterior

Manual test = the patient should sit on the edge of the examination table. Test resisted dorsiflexion and inversion. Palpate the tibialis anterior muscle as you perform the test. Ask

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the patient to walk on his heels with his feet inverted. The tibialis tendon can be seen prominent.

Peroneals

Manual test = Secure the ankle by stabilising the calcaneus and with the other hand feel the peroneal tendons while testing resisted eversion. (Reverse of the Tibialis Anterior test)
Peroneal Snapping = DF & PF the ankle with the foot everted and palpate for 'snapping' of the peroneal tendons over the lateral malleolus

Stability tests

Ankle anterior draw test, Test with the patient in Sitting:

when patient is sitting, knee should be flexed over edge of bench or table and the ankle should be allowed to fall into equinus;

Examiner then stabilizes distal part of leg with one hand and applies anterior force to the heel with the other hand, in attempt to sublunate the talus anteriorly from beneath the tibia.

Be sure to allow the talus to rotate slightly medially which relaxes the deltoid ligament (which otherwise might give a false negative test)

Mulder's click : a specific test for mortons neuroma. Squeeze forefoot from medial and lateral sides , may feel a click as the neuroma flips between the metatarsal heads.

Fibular draw test:With disruption of the syndesmotic ligaments, the examiner may initiate increase in posterior displacement which usually reproduces pain.

Squeeze test: Compression of the proximal calf causes pain at the distal syndesmosis; - anatomically, squeezing the proximal calf will cause separation of the distal fibula and specifically will cause separation of the anterior tibiofibular ligament

Examination of the achilles tendon • Simmonds/ Thompson test. Lie the patient prone and squeeze the calf to elicit movement at the ankle = intact TA ? validity.

Palpate for gaps and tenderness. Distinguish between insertional tendonopathy, non- insertional tendonopathy and retro-Achilles bursitis.

For examples of a foot / ankle examinations follow the link;
<http://www.youtube.com/watch?v=ZZmKG8uvLsQ>