433 Teams

ORTHOPEDICS

Foot and ankle examination

جامعة الملك سعود
King Saud University

Foot and ankle examination

Objectives

To be able to perform examination of the foot and ankle and to distinguish and identify an abnormal finding that suggests pathology.

Examination

WIPE

Wash your hands.
Introduce your self & confirm patient ID.
Position patient (standing position + supine position)and insure Privacy.
Explain examination and take consent.
Exposure (Bilateral exposure of both legs from mid leg or below the knee downwards).

Look:Standing position(Inspect front , side and back / Compare both Right and Left)

Start by:

1)Gait : Normal , Antalgic , Steppage (foot drop) , Flat foot .

Gait	Explanations	Videos
Antalgic	Develops as a way to avoid pain while walking.	https://www.youtube.com/watch?v=rLyEZubc4tk https://www.youtube.com/watch?v=be7l9xp3kas
Steppage (Foot drop)	Ankle dorsiflexion weakness : compensate by exaggerated hip and knee flexion.	https://www.youtube.com/watch?v=8c4bGhvK0Qs https://www.youtube.com/watch?v=SWvEU8FYMFc
Flat foot	Plantar flexor weakness : rupture of the Achilles tendon	https://www.youtube.com/watch?v=rch06yvzgHk

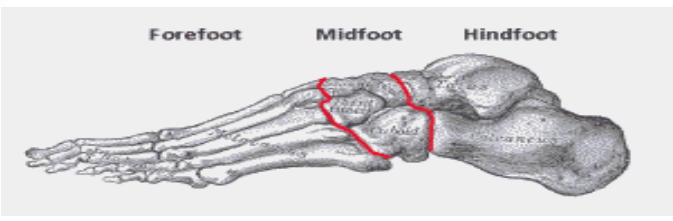
2)Alignments :

Hindfoot: Alignment of the ankle joint from behind.

Midfoot: Alignment of the arch.

Forefoot: Alignment of the first metatarsophalangeal joint.

Any abnormality can result in deformity

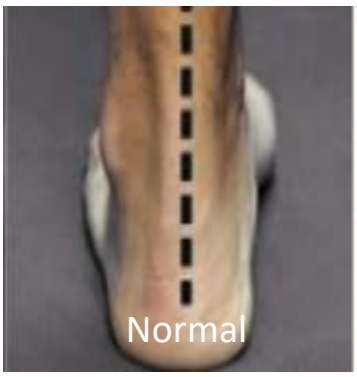


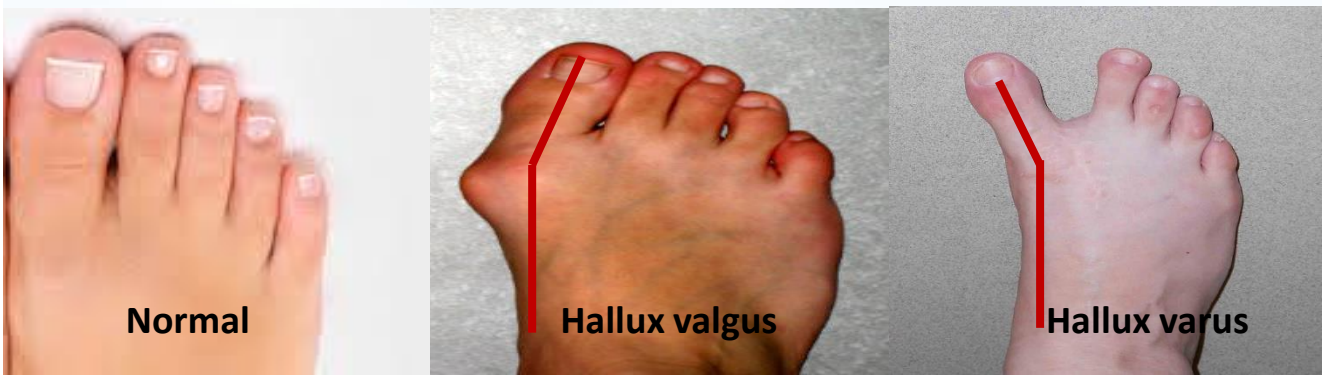
3)Deformities:

Hindfoot: Rearfoot valgus or Rearfoot valrus

Midfoot: Cavus (high arch) or flat foot.

Forefoot: Hallux valgus or Hallux varus





4)Muscle wasting (cuff muscle)

5)Skin changes (callosities:piece of skin that has become thickened as a result of repeated contact and friction)

6)Scar

7)Swelling or mass

Feel: Supine position(Warm your hands and ask if patient is in any pain)

Always look at patient face

1)Temperature (use dorsum of the hand)

For tenderness

2)Bony prominences:

First metatarsal head(Osteoarthritis , Bunion)

Fifth metatarsal base (Tenderness-avulsion fracture)

Medial malleolus

Lateral malleolus

Calcaneal tuberosity

3)Soft tissues :

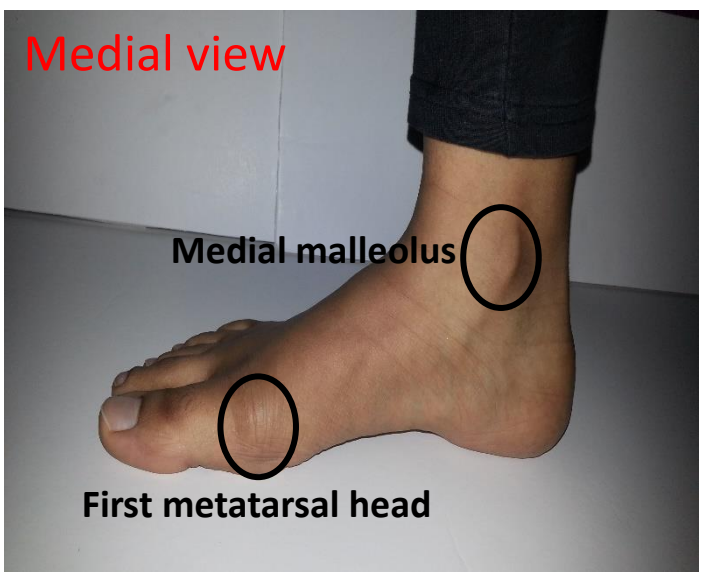
Achilles tendon

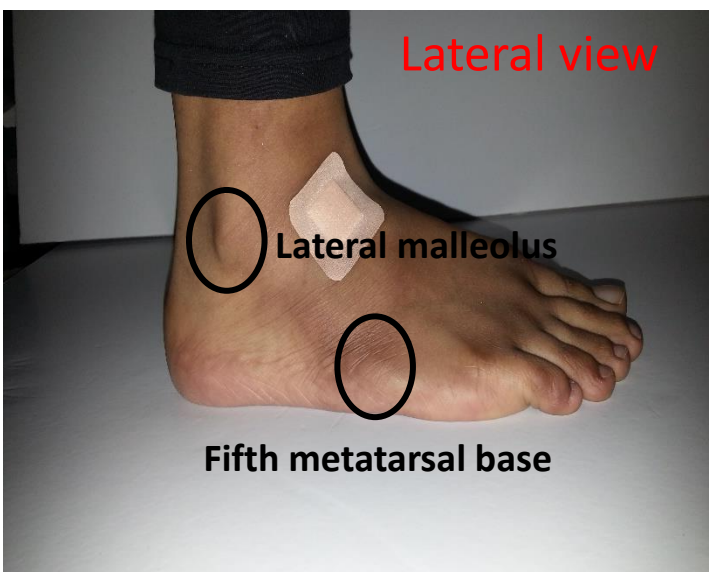
Plantar fascia (Fasciitis)

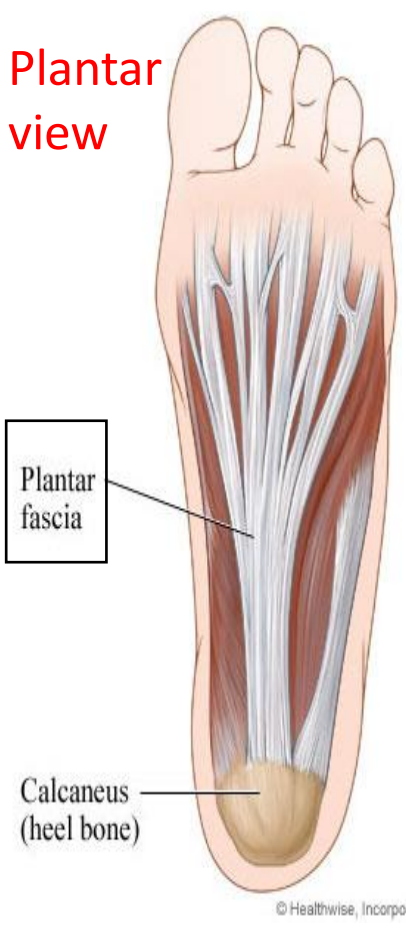
Medial collateral ligaments (Deltoid ligaments)

Lateral collateral ligaments (Anterior talofibular,Posterior talofibular and calcaneofibular ligaments)

4)Joint line anteriorly.





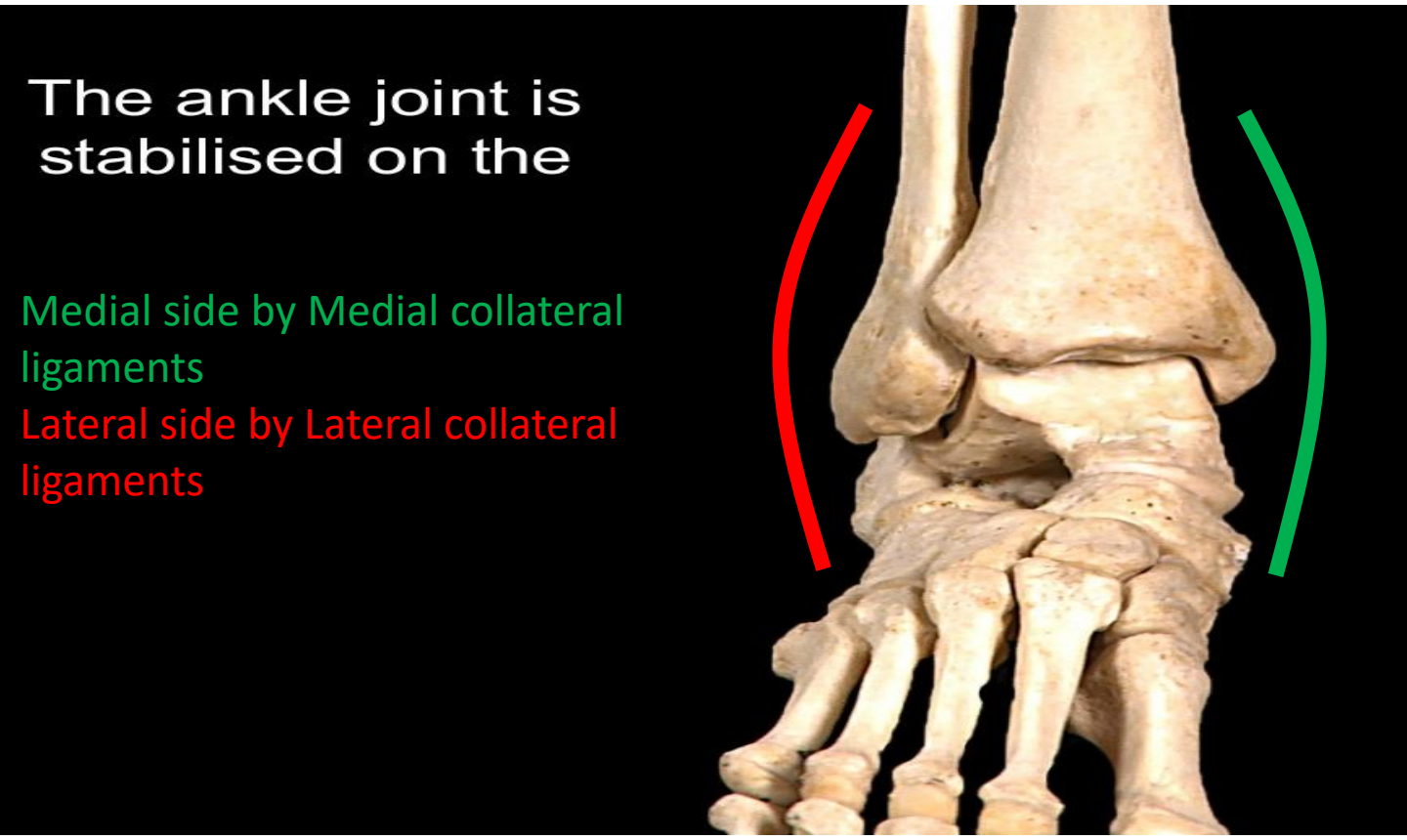


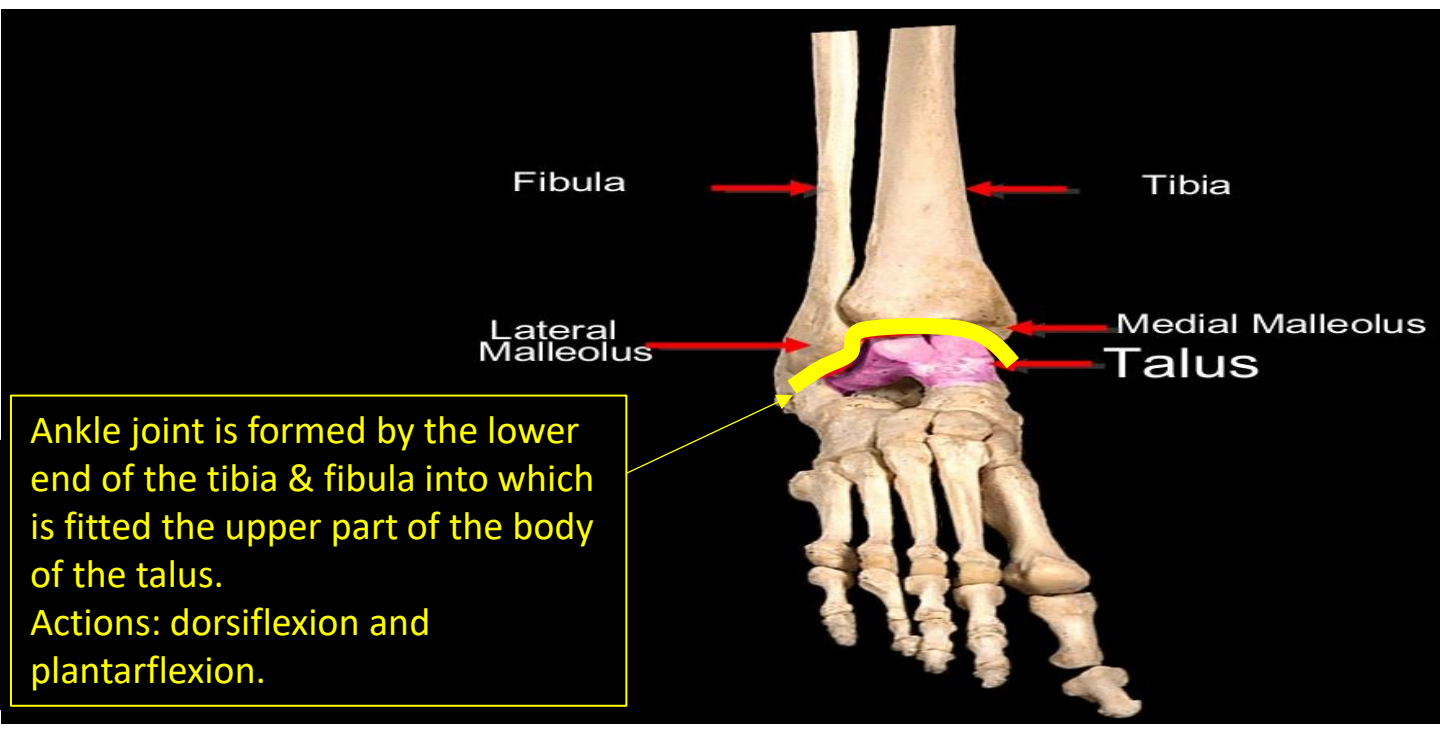
Anatomy

The ankle joint is stabilised on the

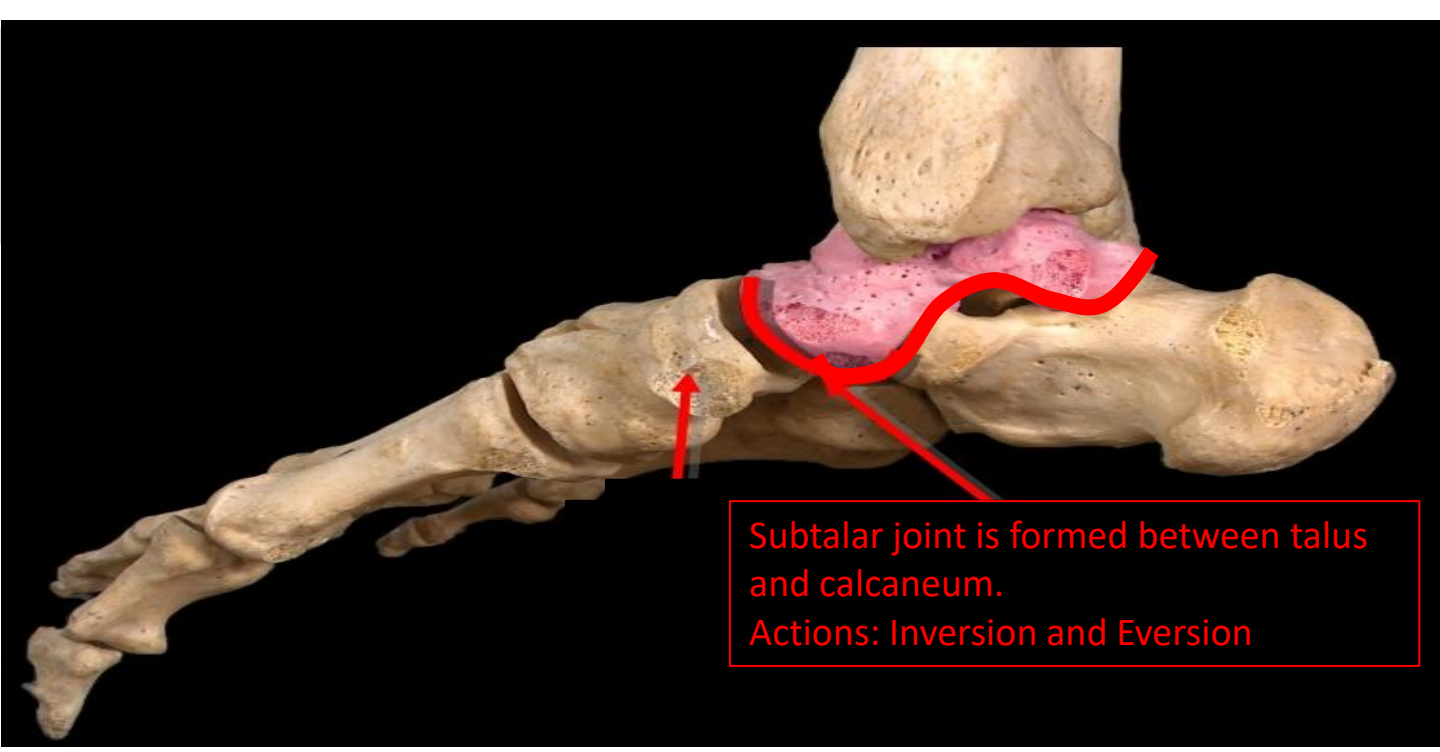
Medial side by Medial collateral ligaments

Lateral side by Lateral collateral ligaments

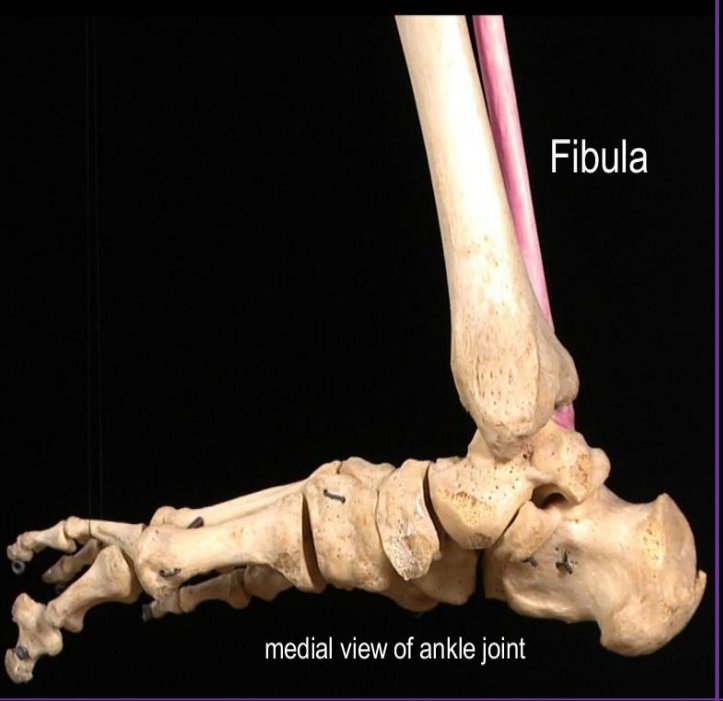


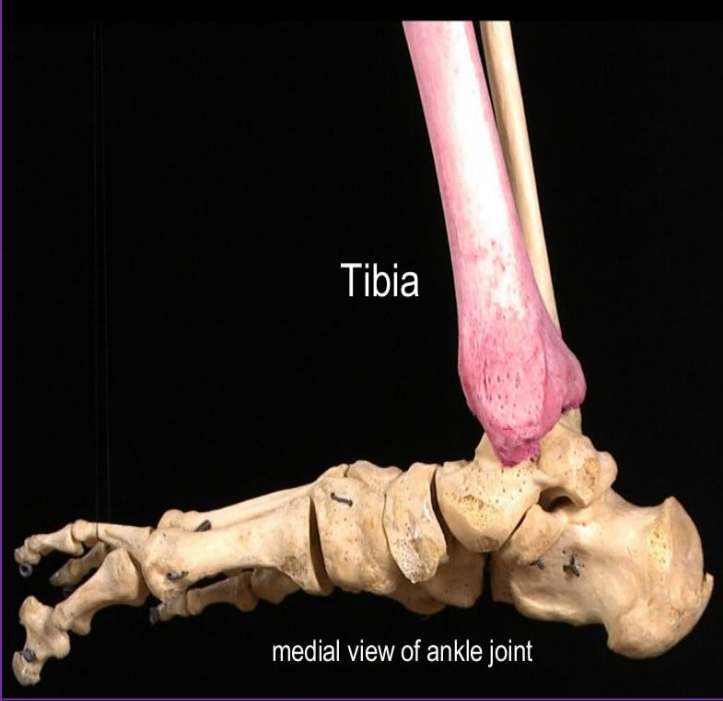


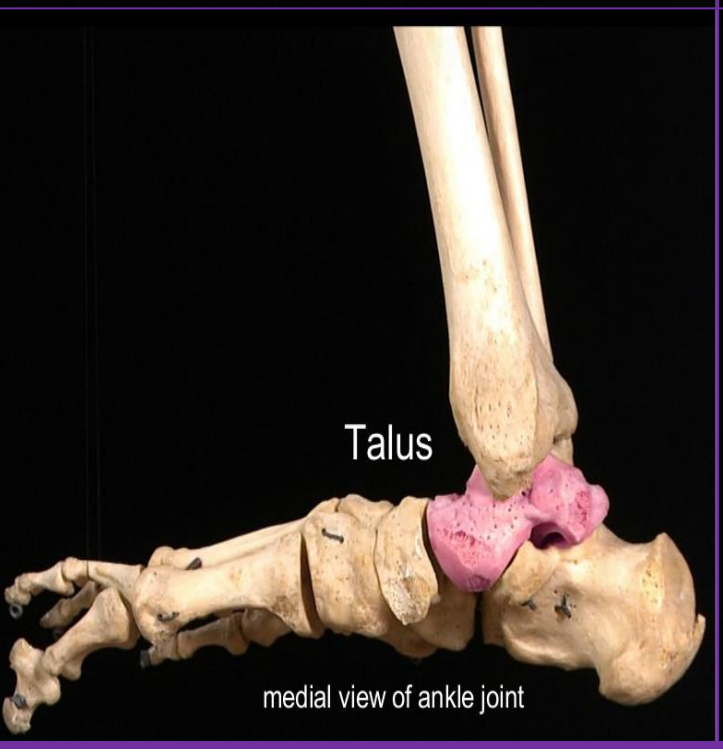
Ankle joint is formed by the lower end of the tibia & fibula into which is fitted the upper part of the body of the talus.
Actions: dorsiflexion and plantarflexion.

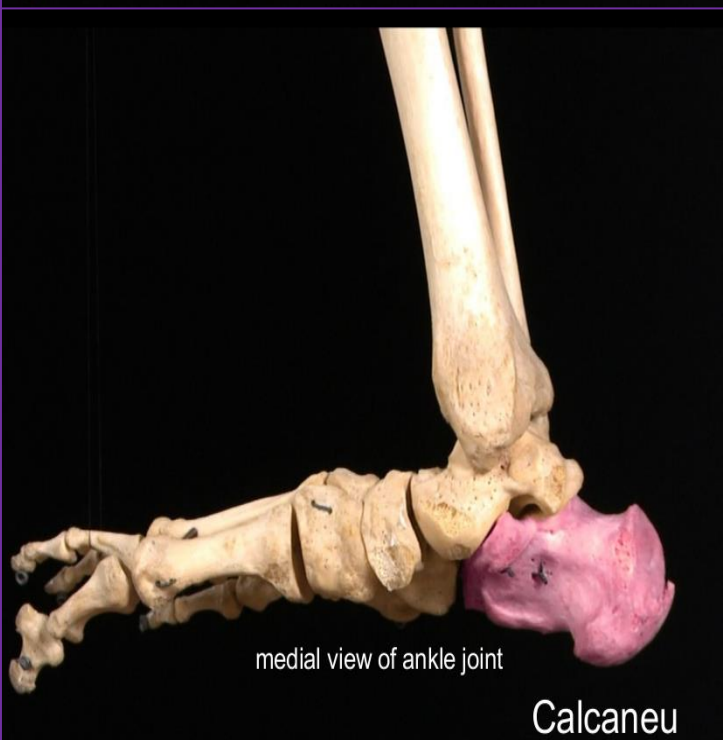


Subtalar joint is formed between talus and calcaneum.
Actions: Inversion and Eversion

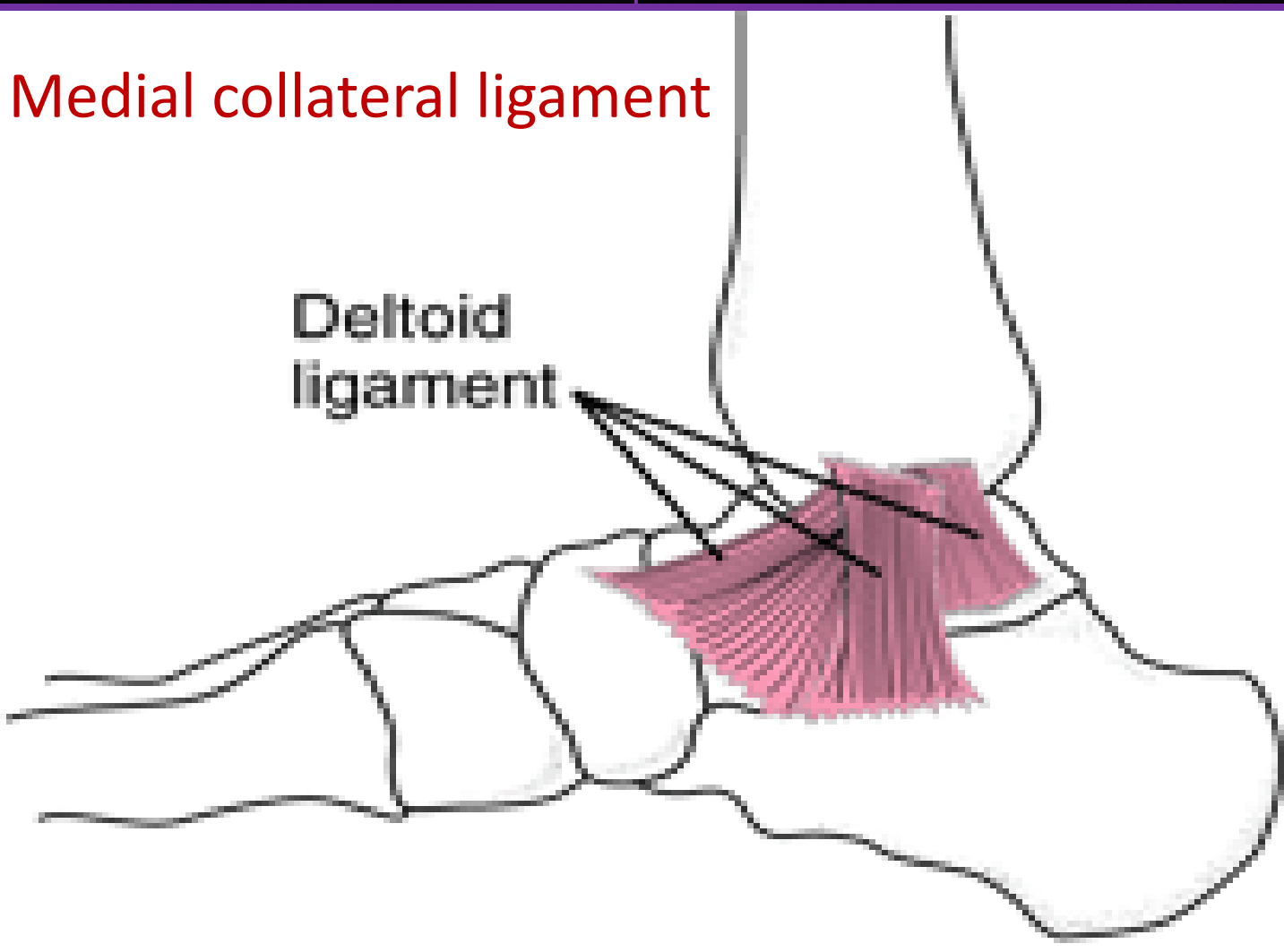


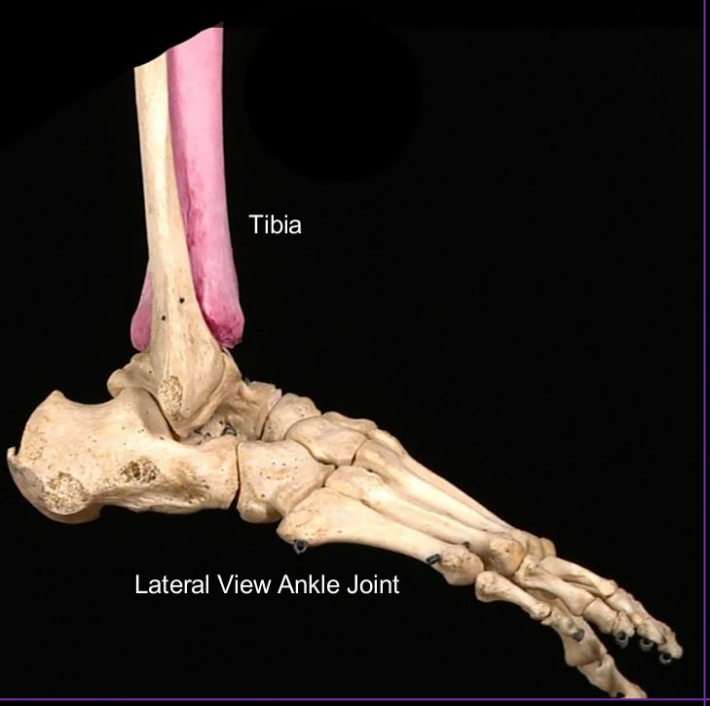


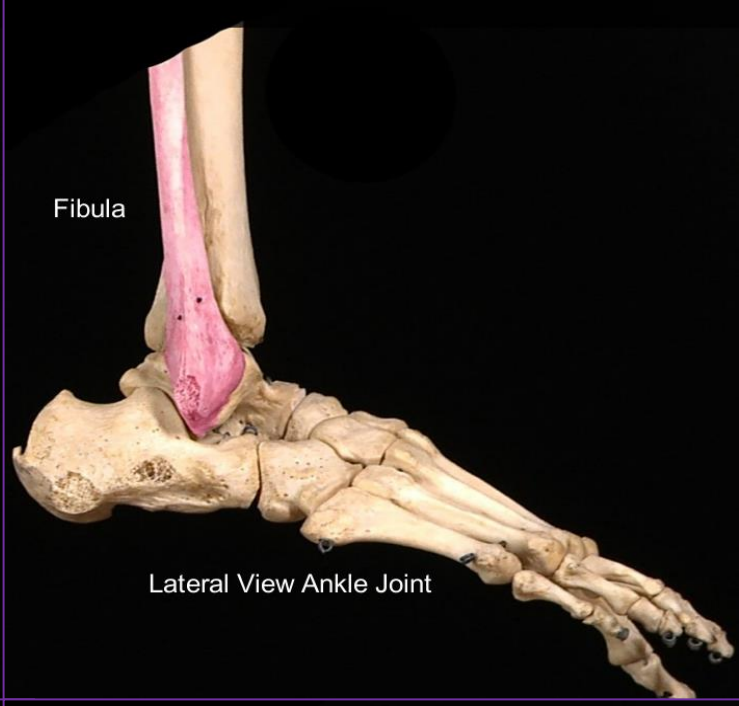


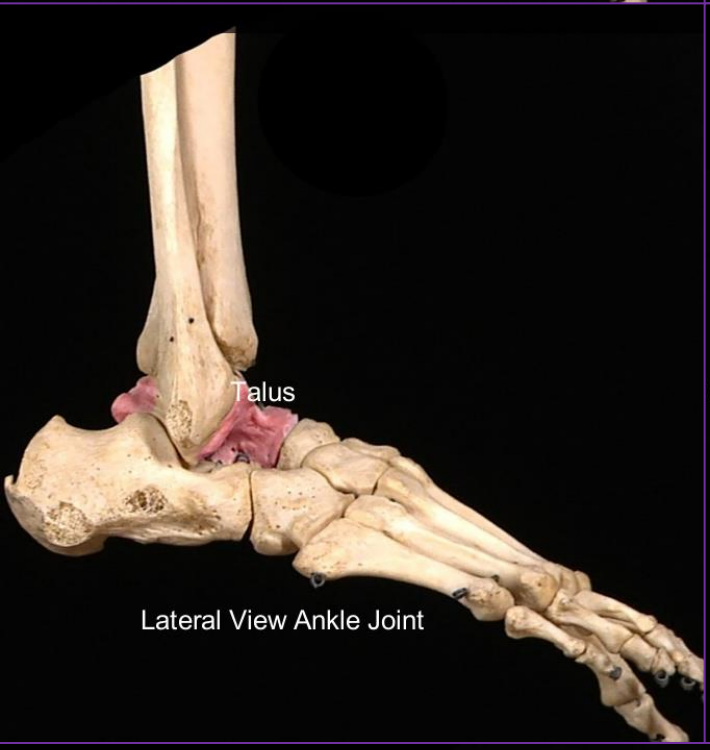


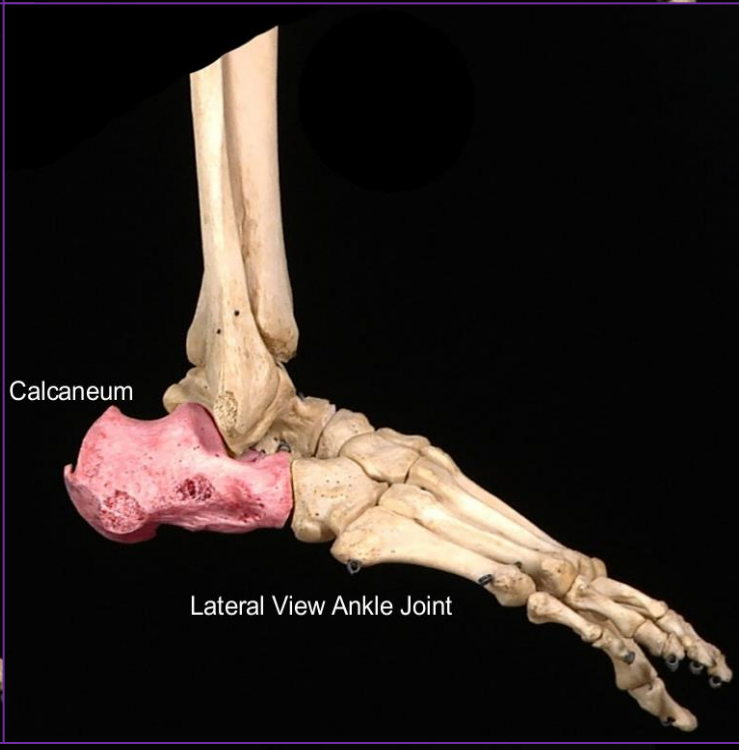
Medial collateral ligament

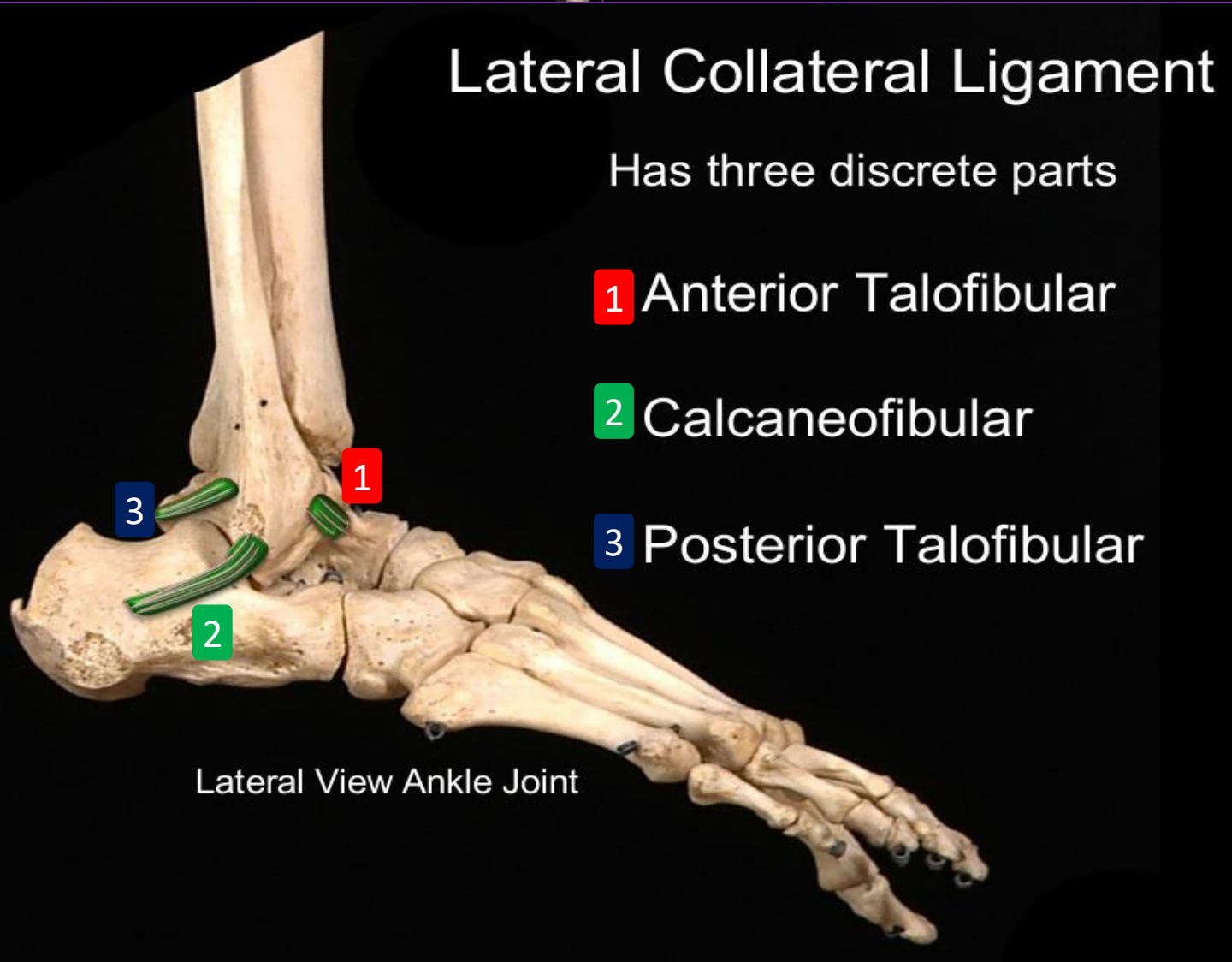



Tibia
Lateral View Ankle Joint


Fibula
Lateral View Ankle Joint


Talus
Lateral View Ankle Joint


Calcaneum
Lateral View Ankle Joint


Lateral Collateral Ligament
Has three discrete parts
1 Anterior Talofibular
2 Calcaneofibular
3 Posterior Talofibular
1
2
3
Lateral View Ankle Joint

Move (note if painful or painless)

1)Active ankle ROM : Ask patient to dorsiflex and planterflex their ankles.

If the patient is unable to do dorsiflexion: Ask him to do it when the knee is flexed.

*Able to do it:patient has gastrocnemius muscle tightness.

*Unable to do it:either soleus tightness or mechanical joint problem.

If the patient can't do dorsiflexion at all do dorsiflexion passively .

2)Passive ankle ROM : Hold the heel by left hand and midfoot by right hand then assess plantar flexion (0–40°) and dorsiflexion (0–15°).

3)Passive subtalar ROM : Ankle to neutral and stabilized then apply inversion and eversion.

Special tests

1)Anterior drawer test with ankle plantarflexion to evaluate anterior talofibular ligament integrity (Stabilize the lower extremity with one hand and grab the heel with the other then pull the talus anteriorly > 8mm difference is positive)

https://www.youtube.com/watch?v=sIWuEtbHEQ4 (Technique)

https://www.youtube.com/watch?v=OtQV9XtAJdI (Positive)

2)Thompson test to evaluate achilles tendon integrity (Patient should be in prone position > squeeze the calf muscle and look at the achilles tendon > check for plantar flexion.

Normal : there will be plantar flexion.

Rupture achilles tendon : no plantar flexion.

https://www.youtube.com/watch?v=8kxPFjSJj0k (Technique)

https://www.youtube.com/watch?v=AmDi08rlR3I (Positive)

3)If patient has flat foot: you will ask the patient to tip toe to check if it is flexible or rigid flatfoot, you have to observe if the heel will correction from valgus to varus or not as well as mid foot arch reconstitution.

https://www.youtube.com/watch?v=gT15MdBfDqM

https://www.youtube.com/watch?v=eK3AakEYmr8

How to differentiate between Achilles tightness or only gastrocnemius Tightness? By dorsal flexion of ankle while the knee extended then flexed will help for spine session but not for ankle and foot itself.

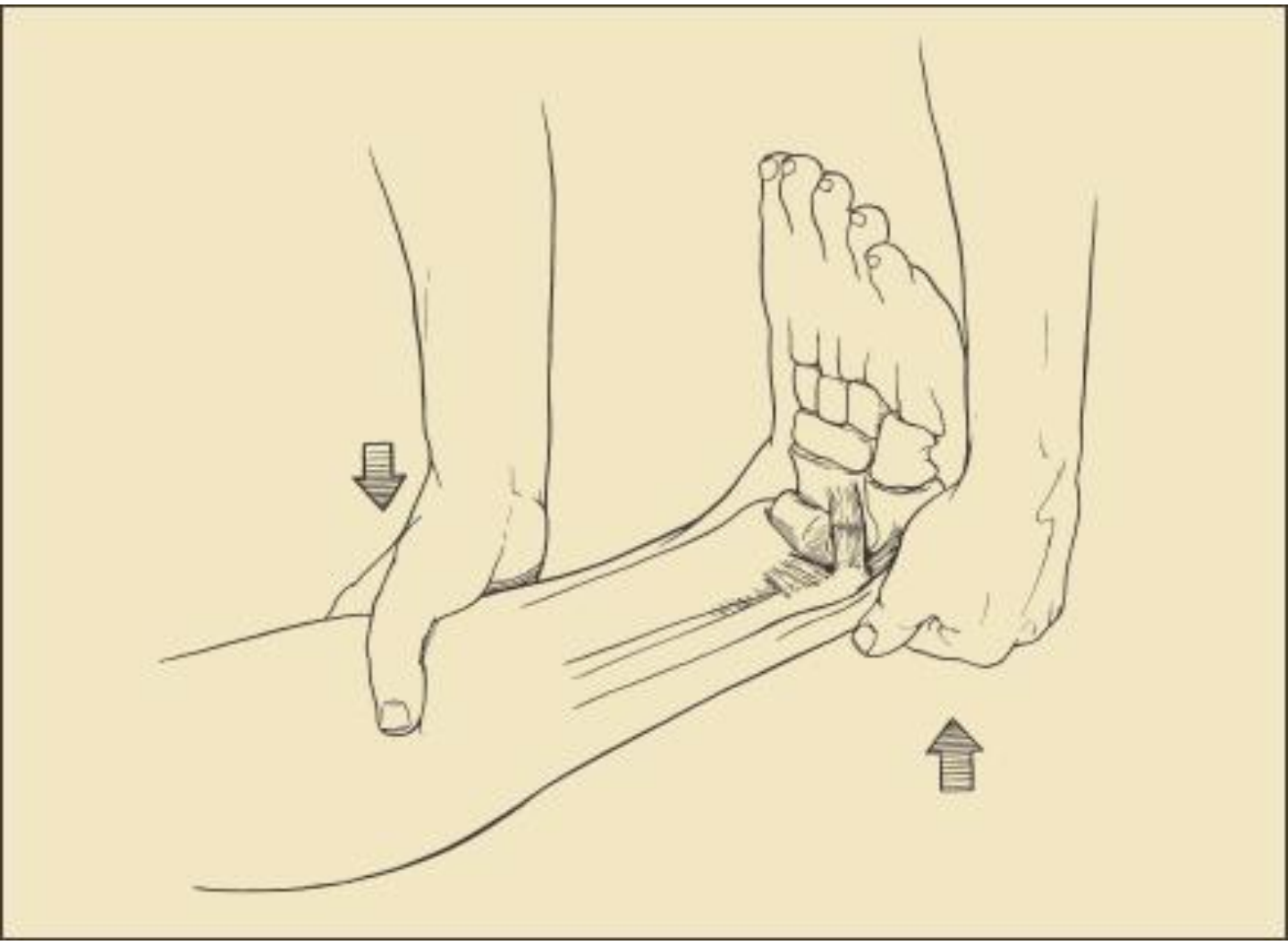
To complete the examination of ankle :

1)Perform neurovascular examination.

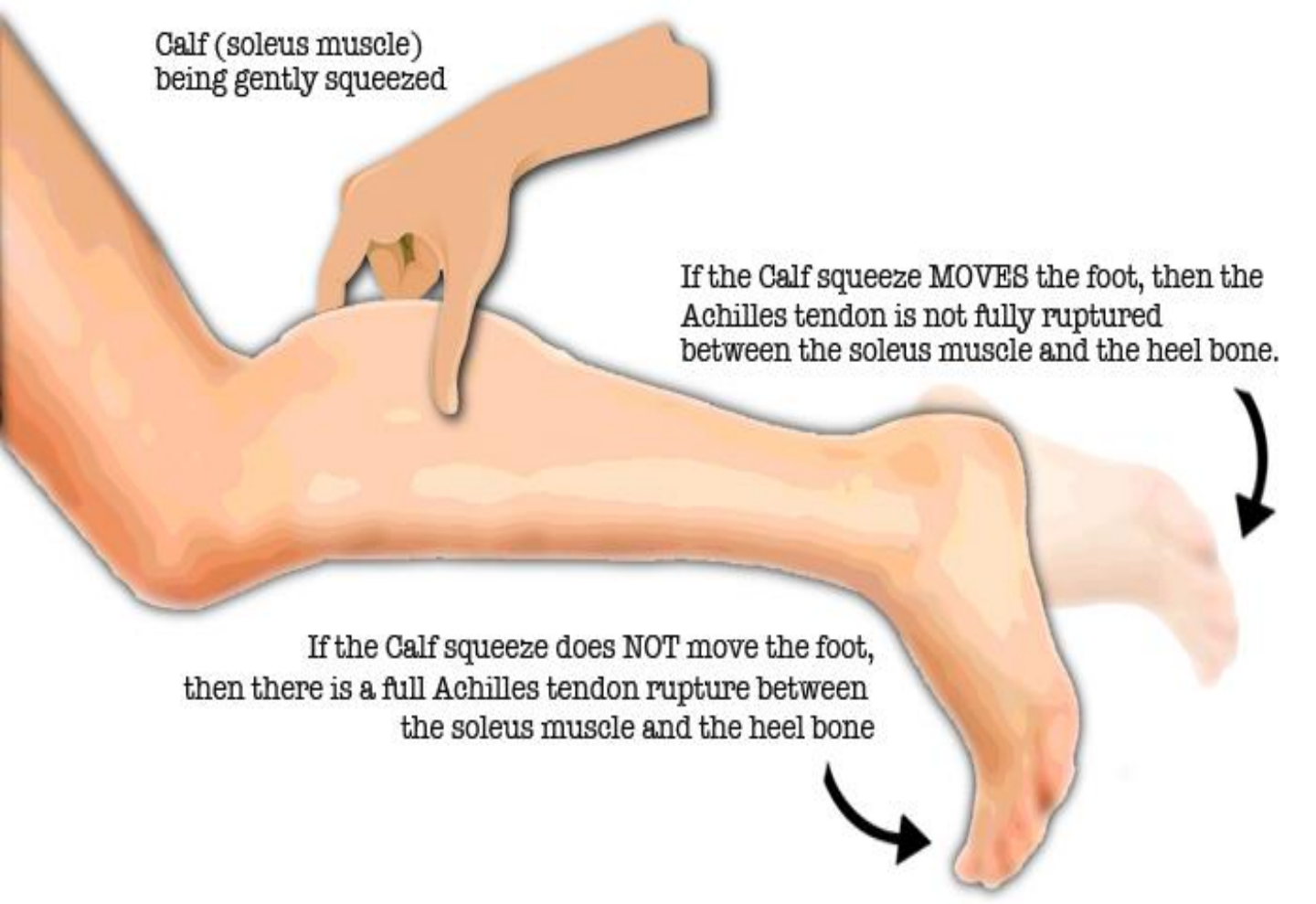
2)Examine hip and knee joints.

3)Thank the patient.

1)Anterior drawer test



2)Thompson test



Calf squeeze test for Achilles tendon rupture

Foot and ankle examination
WIPE
Wash your hands
Introduce yourself
Position patient and insure privacy
Explain examination and take consent.
Exposure : Bilateral exposure of both legs from mid leg or below the knee downwards
Look (Standing) Inspect front , side and back / Compare both Right and Left
Gait
Alignment (hind foot, mid foot, forefoot)
Deformity
Muscle wasting (leg)
Skin changes
Scar
Swelling
Feel (Supine) Warm your hands and ask if patient is in any pain
Temperature
Bony prominences: First metatarsal head (Osteoarthritis , Bunion) Fifth metatarsal base (Tenderness-avulsion fracture) Medial and Lateral malleoli Calcaneal tuberosity
Soft tissues : Achilles tendon Plantar fascia (Fasciitis) Medial collateral ligaments (Deltoid ligaments) Lateral collateral ligaments (Anterior talofibular,Posterior talofibular and calcaneofibular ligaments)
Joint line anteriorly.
Move (note if painful or painless)
Active & passive ankle range of motion (ROM): dorsiflexion & plantar flexion Passive
subtalar ROM: inversion & eversion.
Special tests
Anterior drawer test to evaluate anterior talofibular ligament
Achilles tendon test: Thompson test.
Assess flexibility of flat foot
To complete the examination
Neurovascular examination & Examine the hip and knee joints.

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