SAWA UNIVERSITY

RADIOGRAPHIC TECHNIQUE-1

ANKLE JOINT, CALCANEUS PROJECTIONS

Sawa University

College of health and medical techniques

Department of Radiology Tech.

2nd Academic year

LEC.7

THEORETICAL

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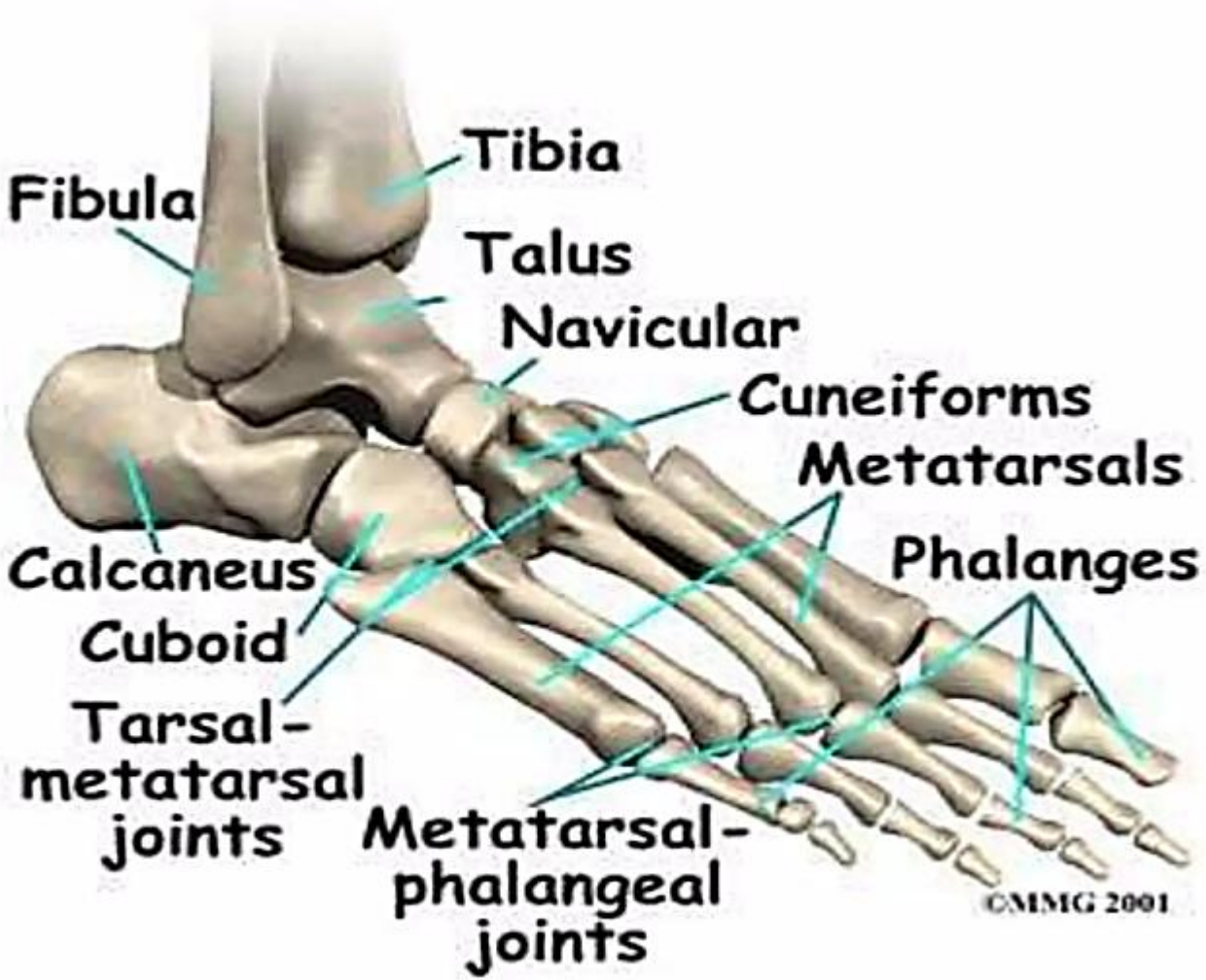
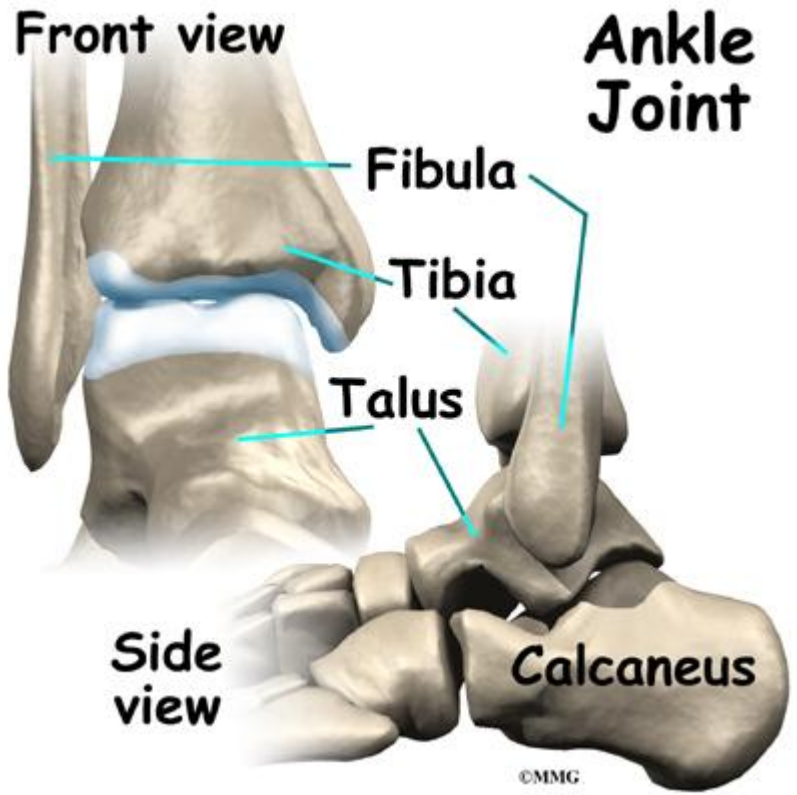
M.Sc Radiology Technology

Ankle Joint Projections





Ankle Joint Projections

Routine projections:

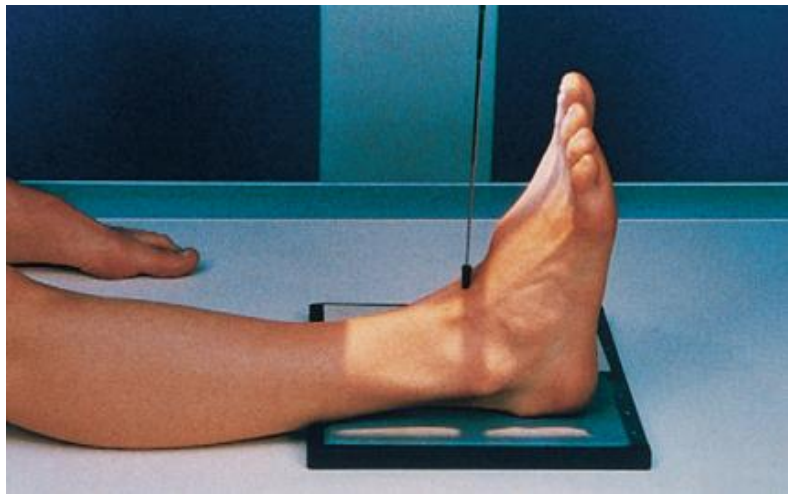
- AP
- Lateral

1. AP Projection:

Clinical Indications: Bony lesions or diseases involving the ankle joint, distal tibia and fibula, proximal talus, and proximal fifth metatarsal

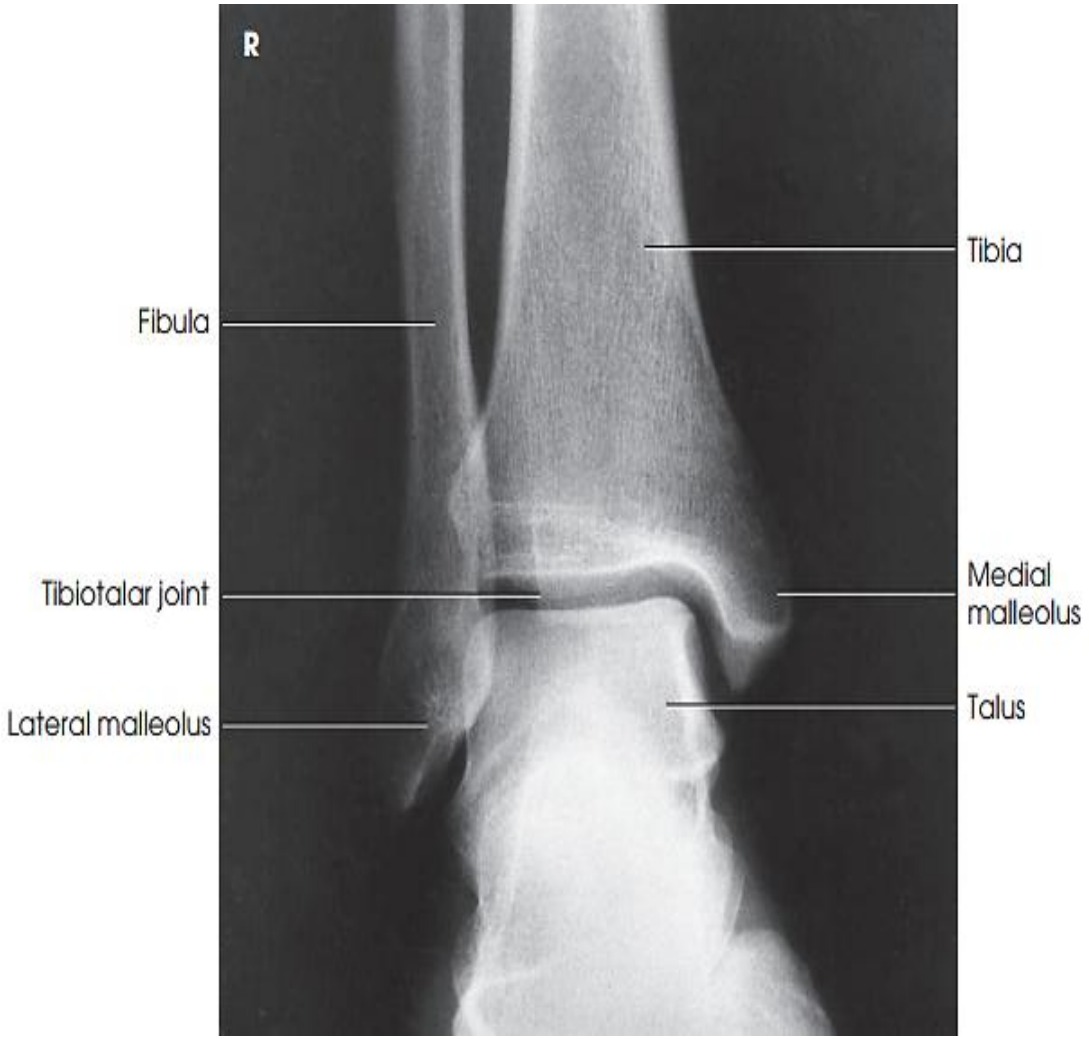
Position:

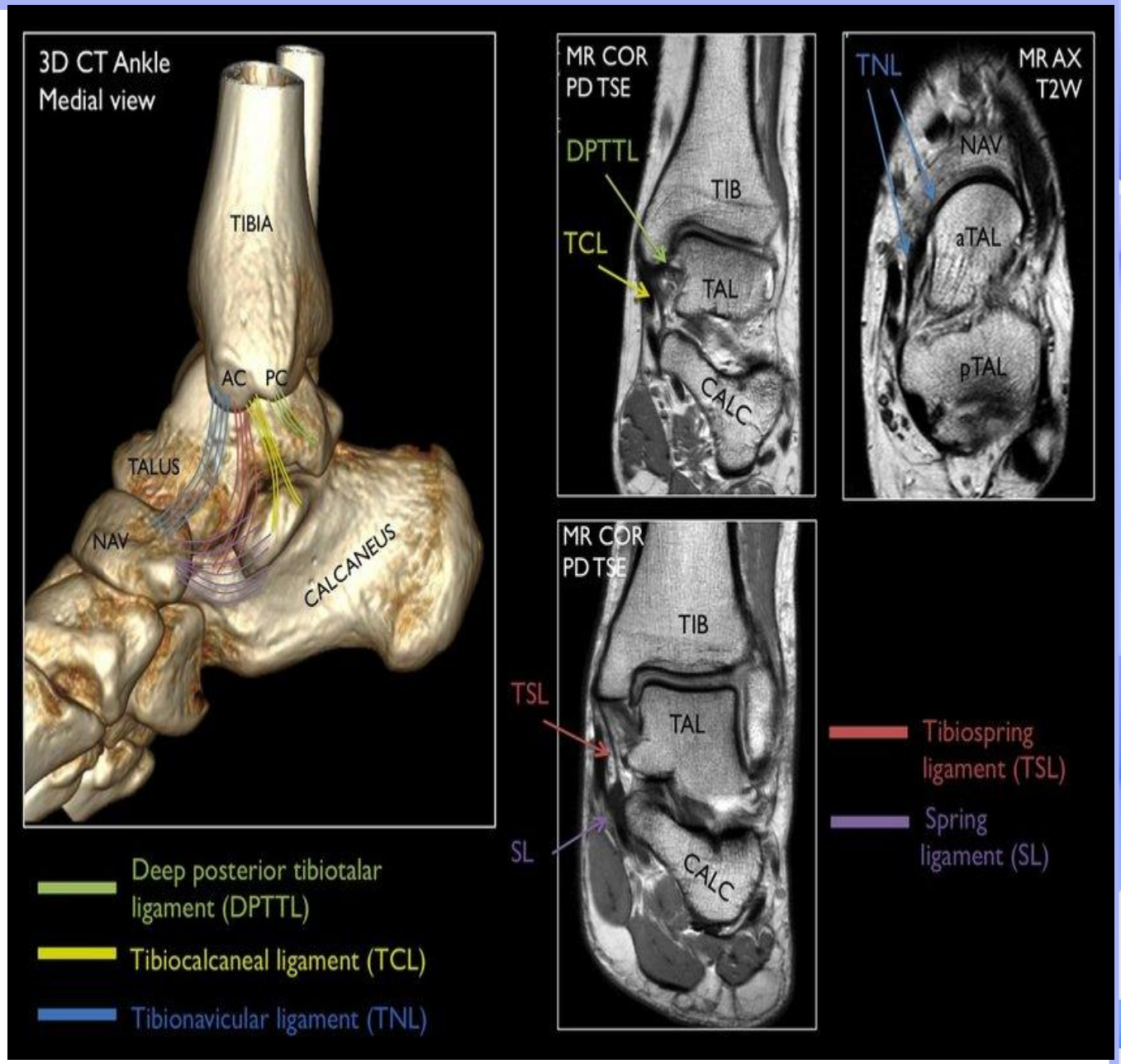
- Patient in supine or seated, leg extended, support under knee
- Align leg and ankle parallel to edge of IR.
- True AP, ensure no rotation, long axis of foot is vertical, parallel to CR (lateral malleolus will be about 15° more posterior than medial malleolus)



Central Ray: CR ⊥, to midway between malleoli

Collimation: Collimate to lateral skin margins; include proximal ½ of metatarsals and distal tibia-fibula.


R
Tibia
Fibula
Tibiotalar joint
Medial malleolus
Lateral malleolus
Talus


3D CT Ankle
Medial view
TIBIA
AC
PC
TALUS
NAV
CALCANEUS
MR COR
PD TSE
DPTTL
TCL
TIB
TAL
CALC
TNL
MR AX
T2W
NAV
aTAL
pTAL
MR COR
PD TSE
TSL
SL
TIB
TAL
CALC
Deep posterior tibiotalar ligament (DPTTL)
Tibiocalcaneal ligament (TCL)
Tibionavicular ligament (TNL)
Tibiospring ligament (TSL)
Spring ligament (SL)

2. Lateral projection

Clinical Indications: Projection is useful in the evaluation of fractures, dislocations, and joint effusions associated with other joint pathologies

Position:

- Recumbent, affected side down, affected knee partially flexed
- Dorsiflex foot 90° to leg if patient can tolerate.
- Place support under knee for true lateral of foot and ankle.

Collimation: Four sides to ankle region. Include distal tibia-fibula and proximal metatarsals

Central Ray: CR ⊥, to medial malleolus

mediolateral

lateromedial


Fibula
Tibia
L
Anterior tubercle
Talus
Navicular
Calcaneus
Cuboid
Base of 5th metatarsal


soleus m.
FHL m.
tibia
fibula
medial malleolus, anterior colliculus
medial malleolus, posterior colliculus
talus, lateral process
Achilles tendon
talus, neck
talus, posterior process
talus, head
Kager's fat pad
navicular
calcaneus
cuboid
fifth metatarsal base, styloid process
calcaneus, sustentaculum tali


Tibia
Talus
Calcaneus


R


R


R
BC2
HORIZONTAL BEAM

Calcaneus Projections

Routine projections:

- Plantodorsal (Axial Projection)
- Lateral

1. Plantodorsal (Axial Projection)

Clinical Indications: Pathologies or fractures with medial or lateral displacement

Position:

- Supine or seated, dorsiflex foot to as near vertical position as possible. If possible, have patient pull on gauze as shown. (This may be painful for patient to maintain, don't delay!)
- Center CR to part, with IR centered to projected CR.

Central Ray: CR 40° to long axis of plantar surface. CR centered to base of 3rd metatarsal, to emerge just distal and inferior to ankle joint

Collimation: Collimate closely to region of calcaneus.


CR 40° to long axis of foot

1. Plantodorsal (Axial Projection)

Technique:

IR: 8 x10" LW **Grid:** Non
SID: 102 cm **kVp:** 65 **mAs:** 5

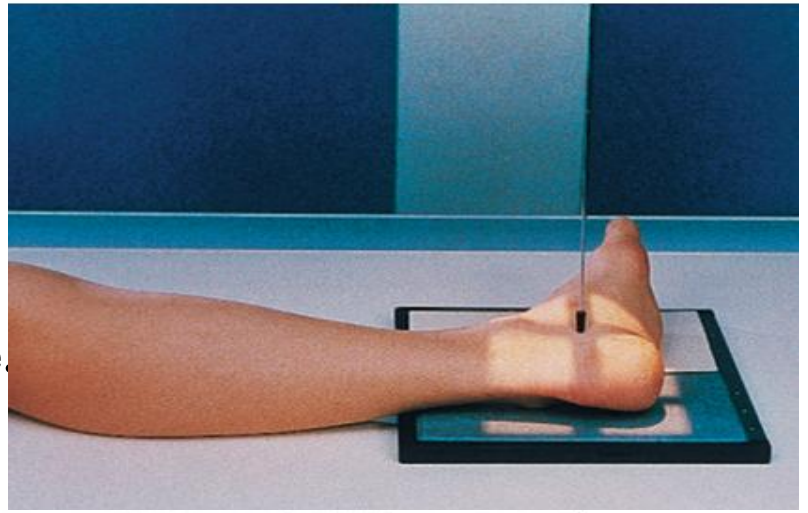
Normal axial calcaneum.

Axial projection of calcaneum, showing a fracture

Axial projection of calcaneum comminuted fracture.

2. Lateral

Clinical Indications: Bony lesions involving calcaneus, talus, and talocalcaneal joint. Demonstrate extent and alignment of fractures



Position:

- Recumbent, on affected side, knee flexed with unaffected limb behind, to prevent over-rotation
- Place support under knee and leg as needed for a true lateral
- Dorsiflex foot so the plantar surface is near 90° to leg if possible.

Central Ray: CR ⊥, to midcalcaneus, (2.5 cm) inferior to medial malleolus

Collimation: Four sides to area of calcaneus, include ankle joint at upper margin.

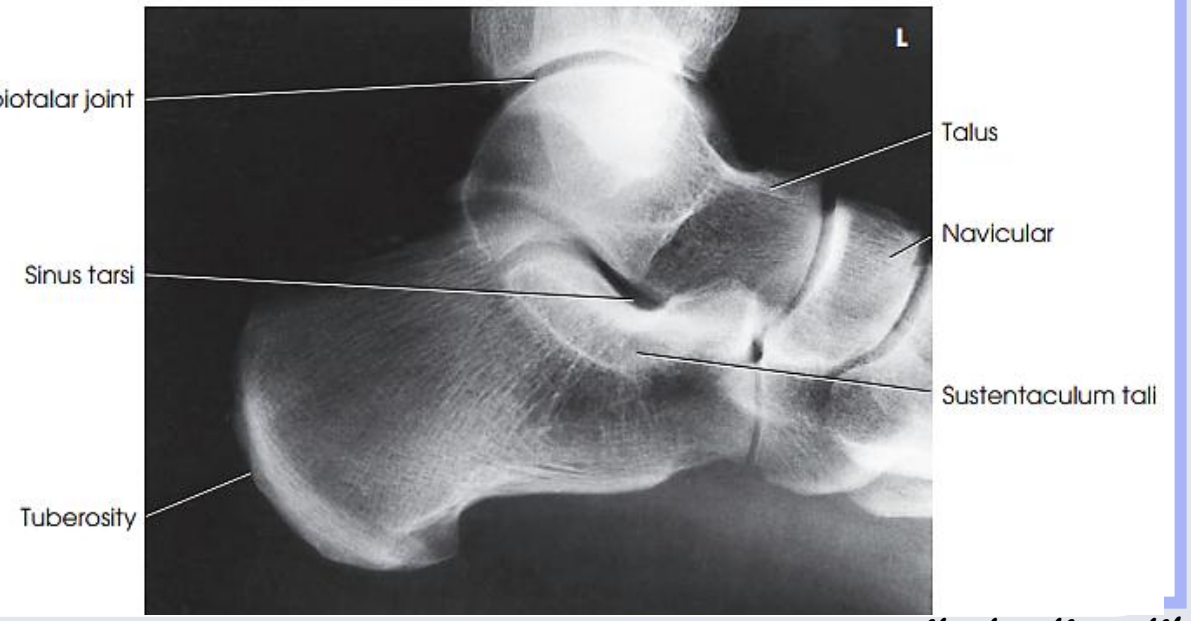
Technique:

IR: 8 x10" LW **Grid:** Non

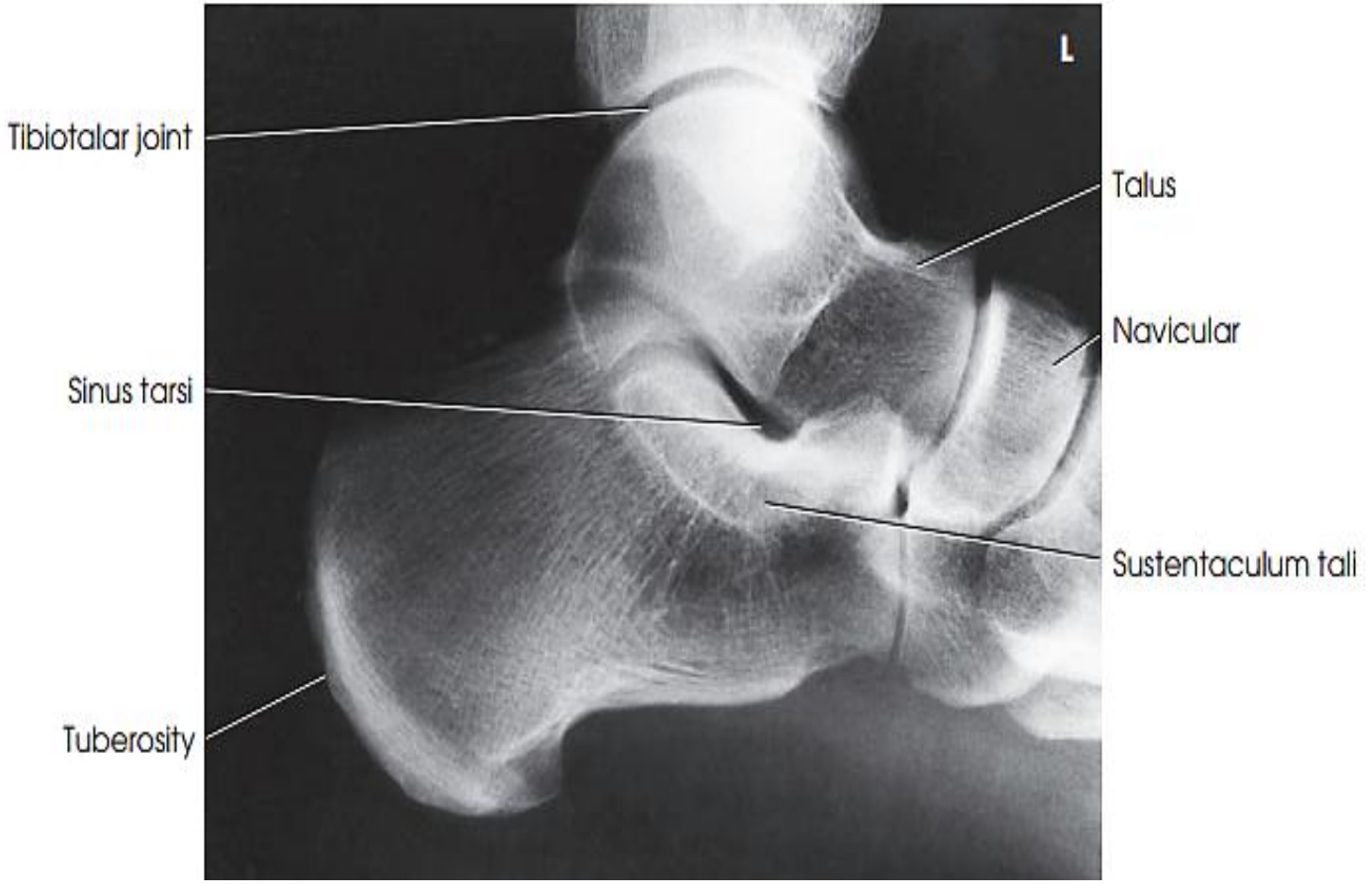
SID: 102 cm **kVp:** 65

mAs: 5

calcaneum spur




L


L
Tibiotalar joint
Talus
Navicular
Sinus tarsi
Sustentaculum tali
Tuberosity

Thank you