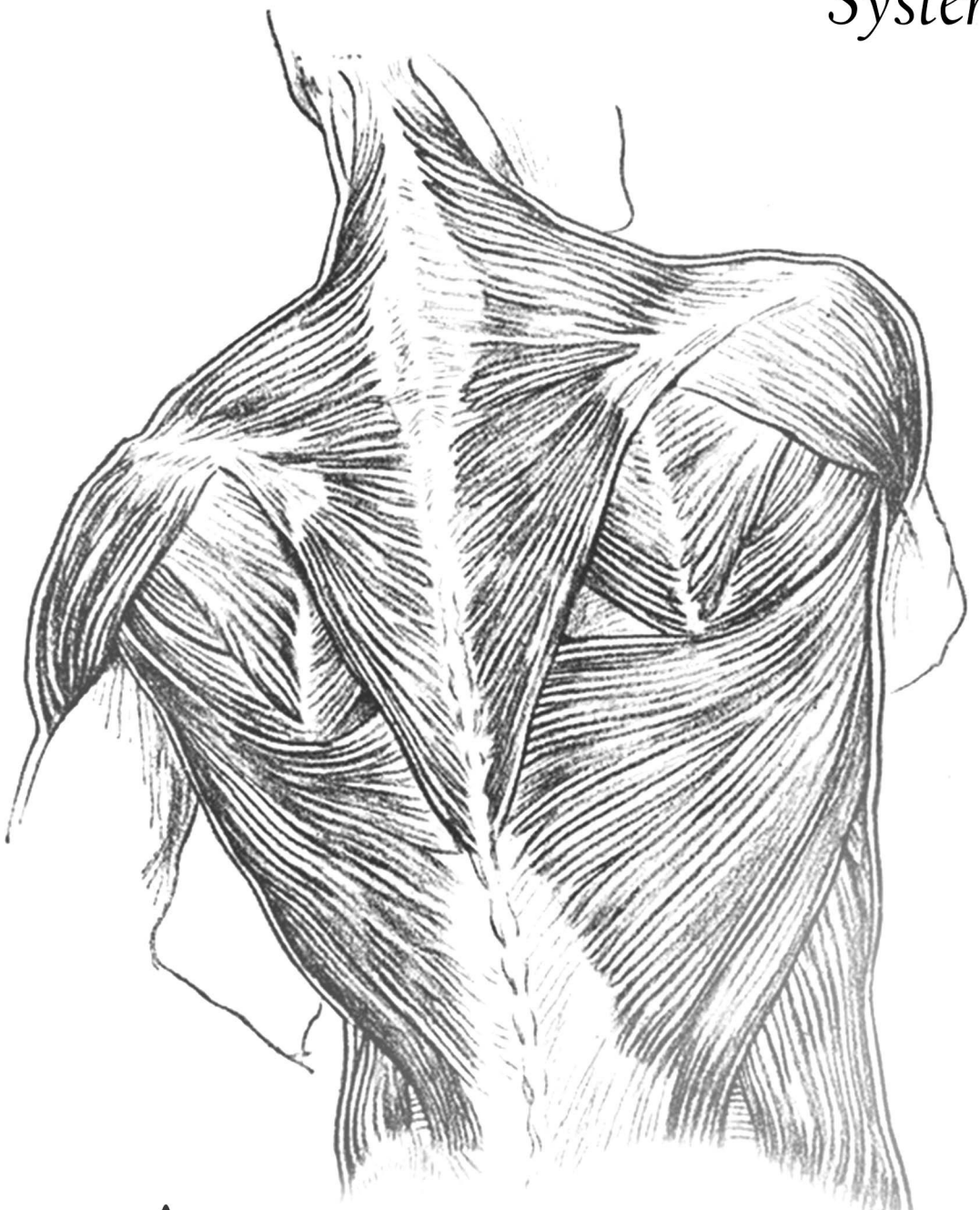
Medical Committee
The University of Jordan

The Skin and
MUSCULOSKELETAL
System



ANATOMY

SLIDES ■
SHEET □
SLIDE: 8

DOCTOR: **Amjad Al-Shatarat**

BY MOHAMED F. ABU ALIA IN DEDICATION TO RAKAN RADI

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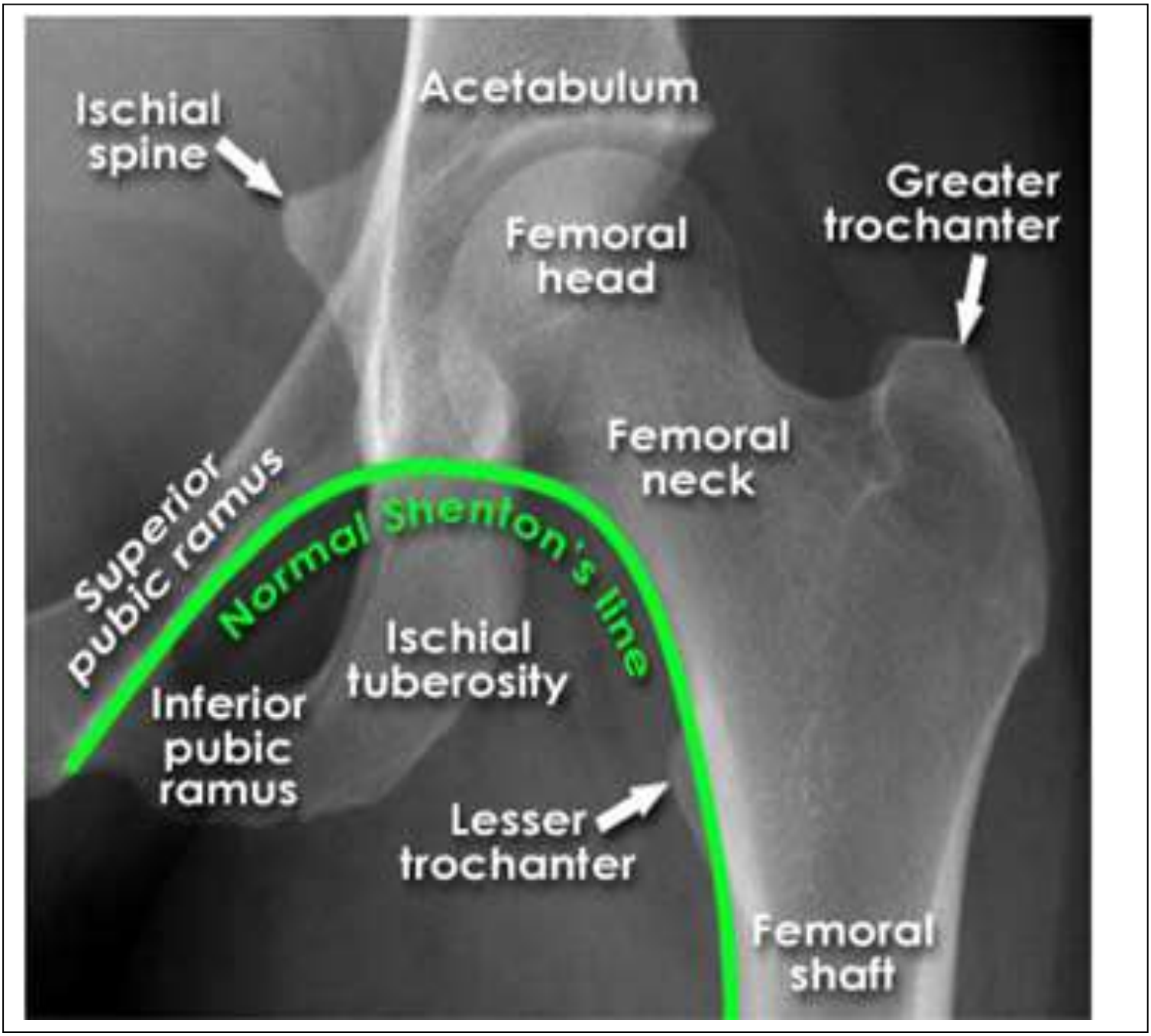
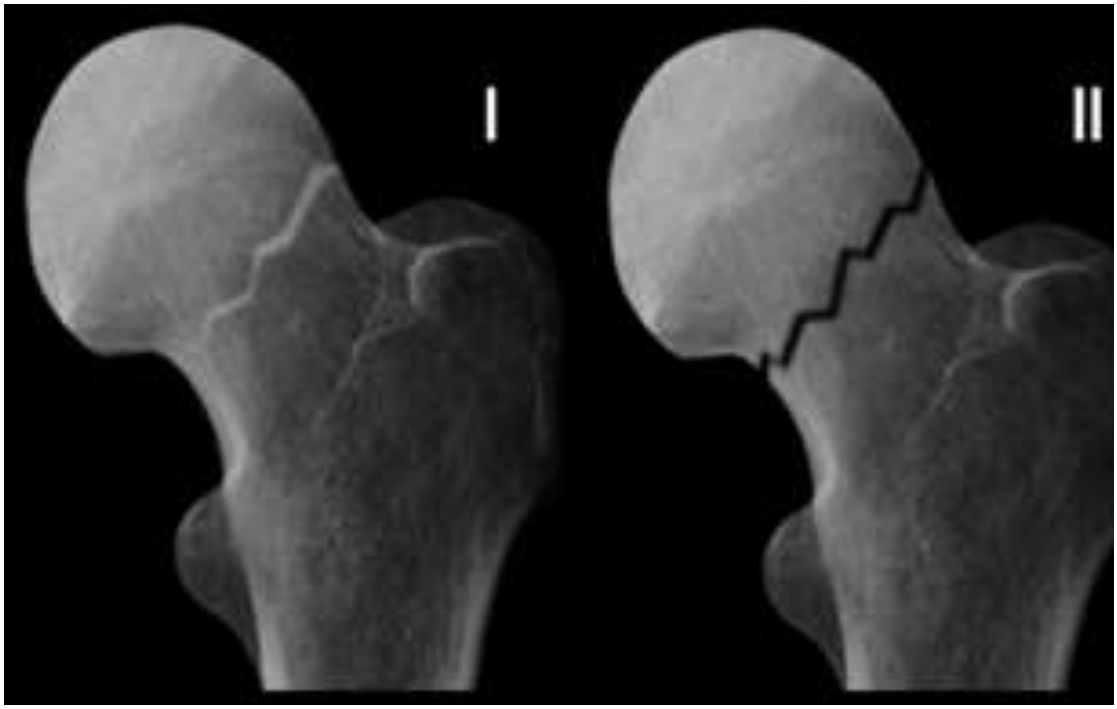


Hip X-ray anatomy - Normal AP (anterior-posterior)

- **Shenton's line** is formed by the medial edge of the femoral neck and the inferior edge of the superior pubic ramus
- Loss of contour of Shenton's line is a sign of a fractured neck of femur

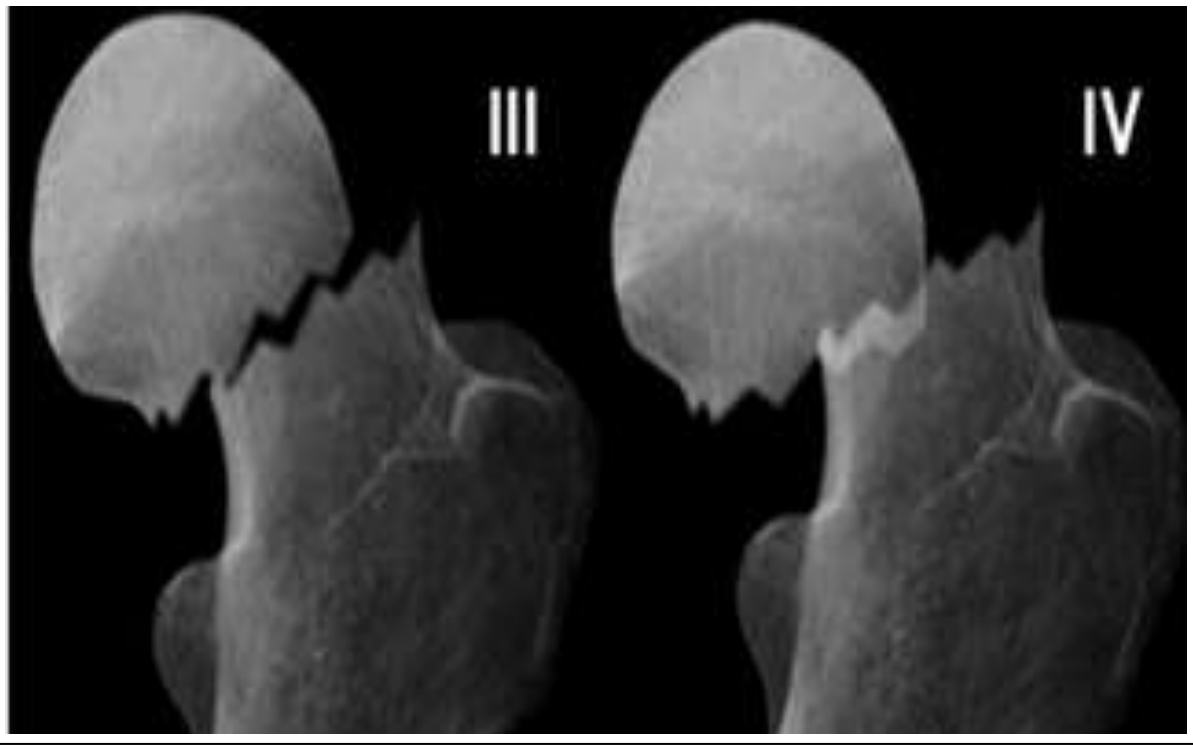
Fractures of the femoral neck do not always cause loss of Shenton's line

- **I** - Incomplete or impacted bone injury with valgus angulation of the distal component (read only)
- **II** - Complete (across whole neck) – undisplaced (read only)



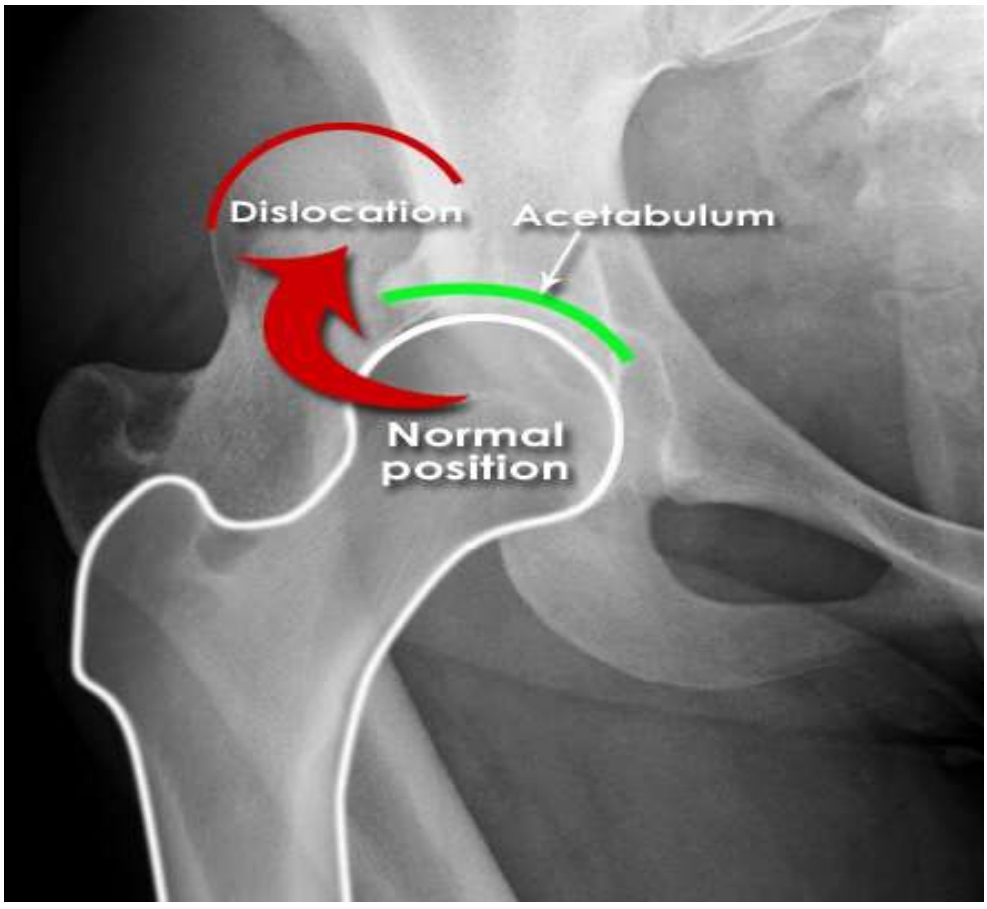
Fractures of the femoral neck that cause loss of Shenton's line

- **III** - Complete - partially displaced (read only)
- **IV** - Complete - totally displaced (read only)



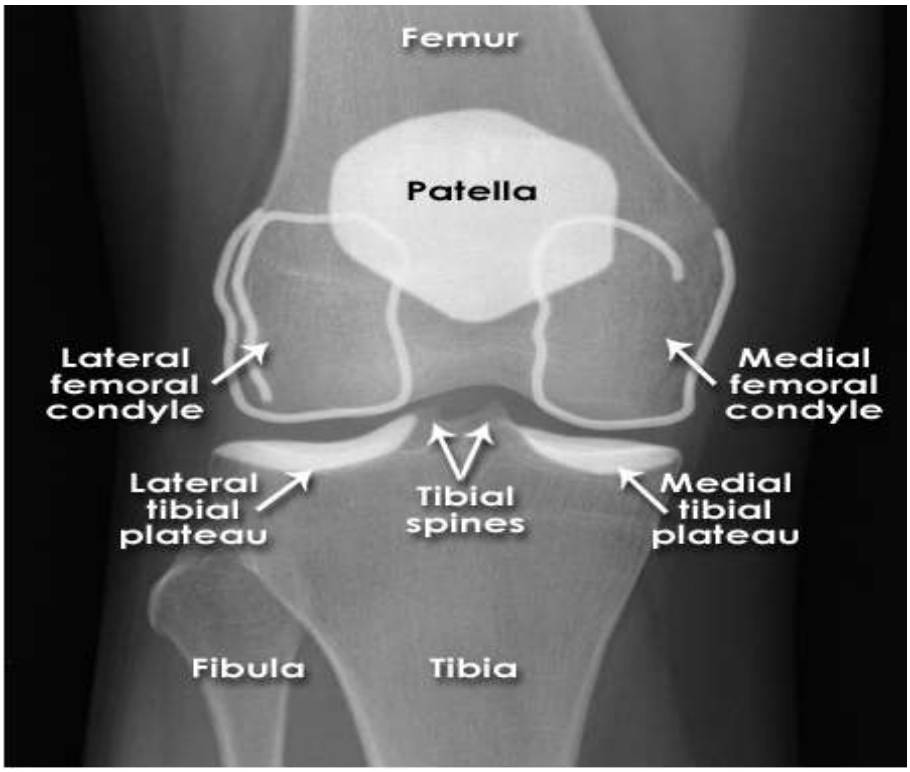
Hip dislocation - AP

- The femoral head lies superior and lateral to the acetabulum

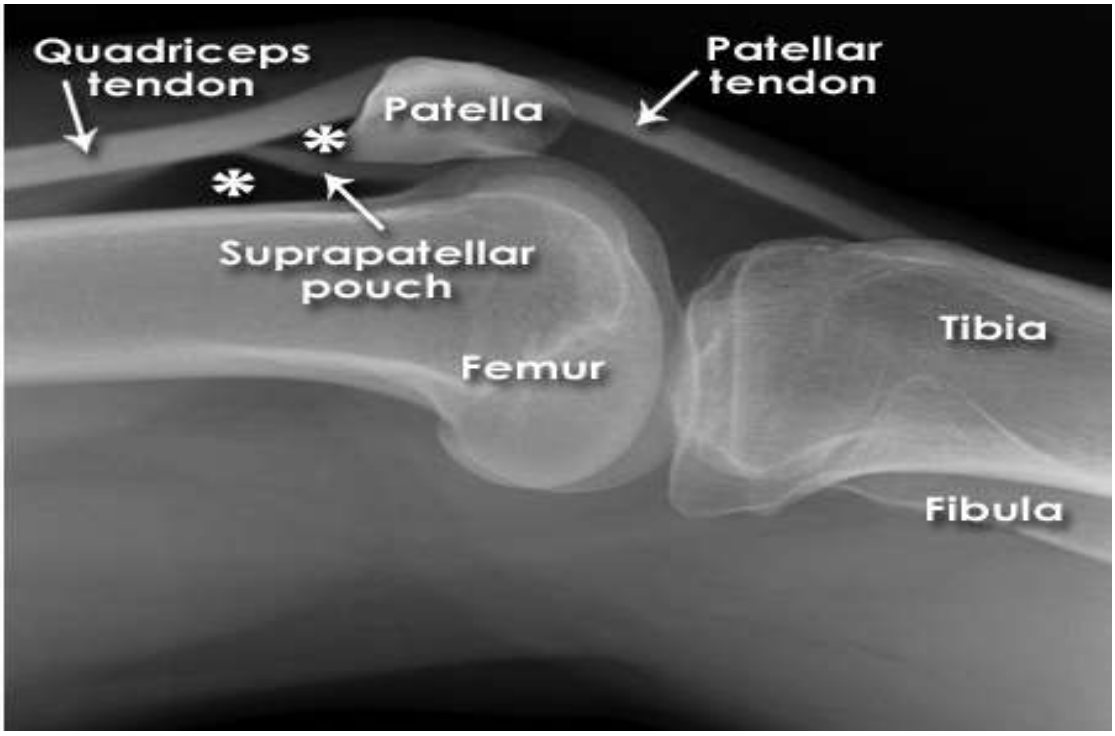


Knee - Normal AP

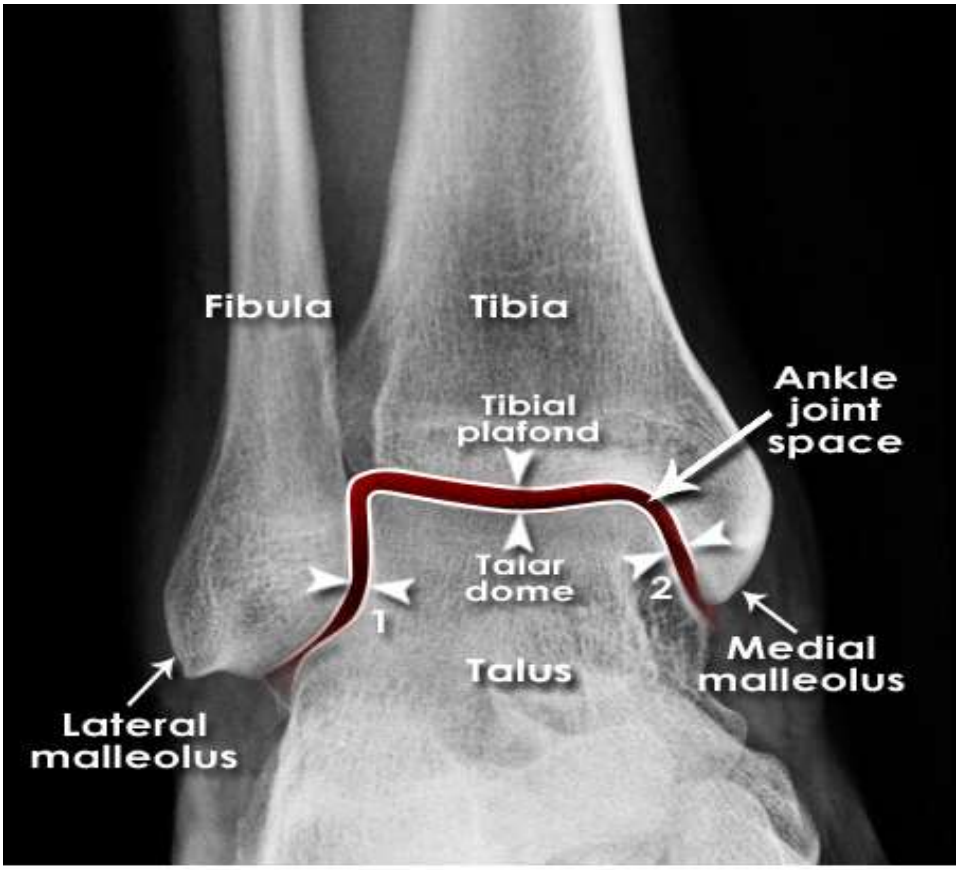
- The patella is often not clearly seen on this view



Knee - Normal Lateral (Horizontal Beam)

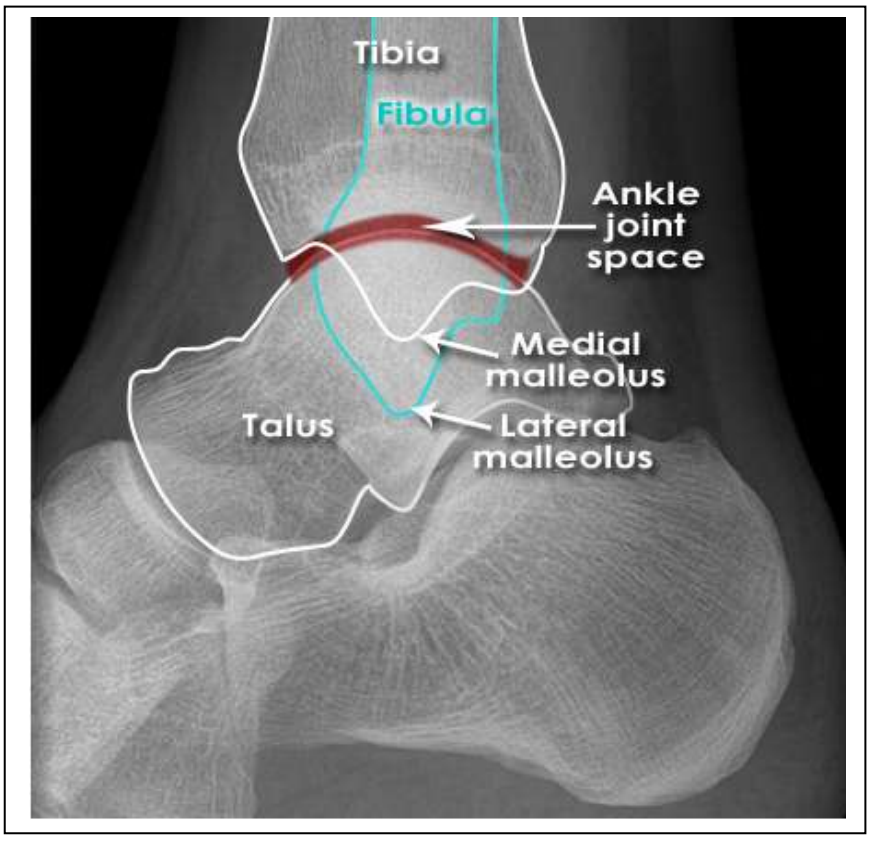


(read only)



Ankle anatomy - Normal AP 'mortise'

- The weight-bearing portion is formed by the tibial plafond and the talar dome
- The joint extends into the 'lateral gutter' (**1**) and the 'medial gutter' (**2**)
- The joint is evenly spaced throughout



Ankle anatomy - Normal Lateral

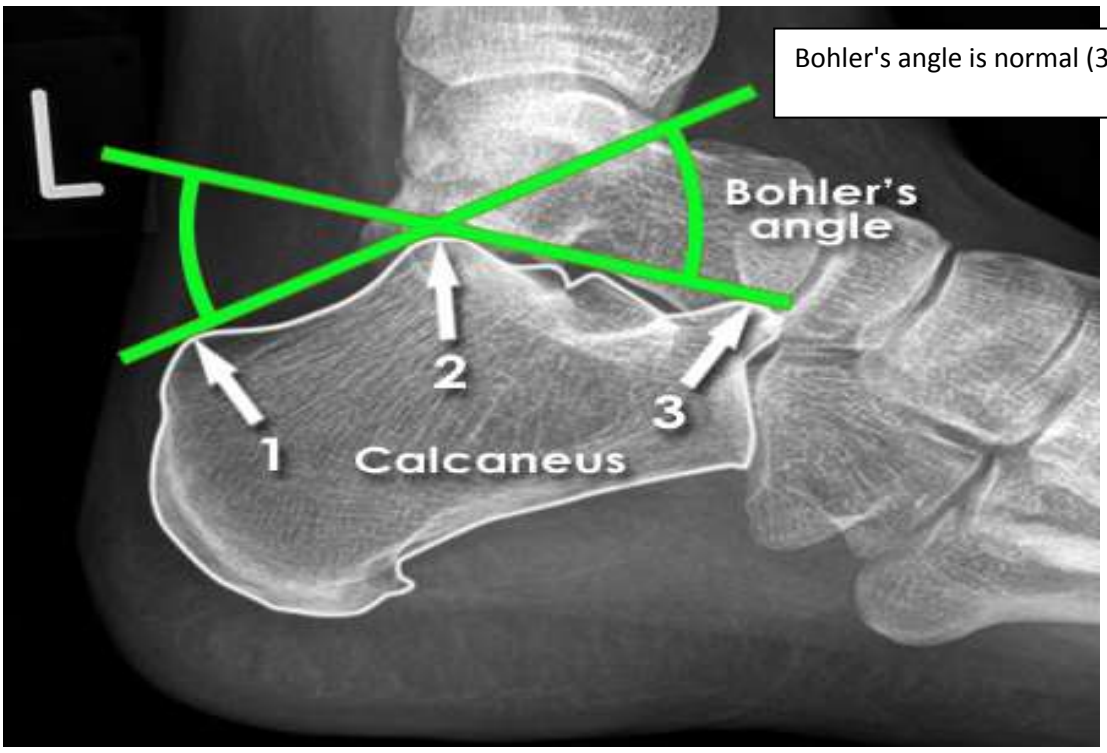
Carefully following the bone contour of the tibia and fibula shows the inferior edge of the medial and lateral malleolus

Bohler's angle

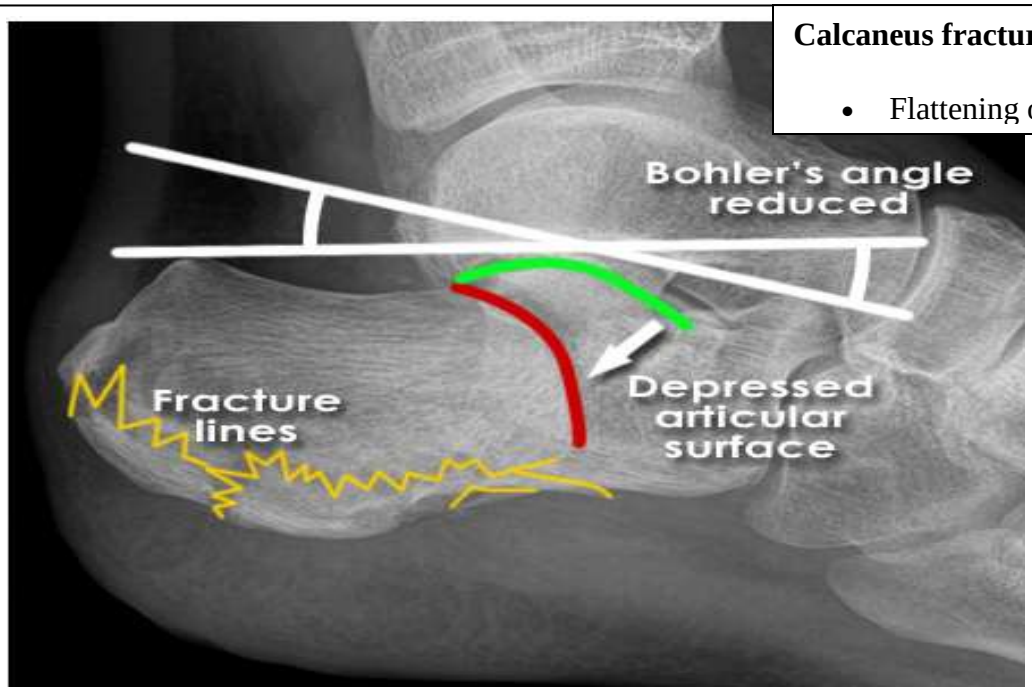
Severe injury may result in flattening of the calcaneus. This results in a reduction of 'Bohler's angle'.

On a lateral view this angle is formed by the intersection of two lines.

The first line is drawn from (**1**) - the upper edge of the calcaneal body posteriorly to (**2**) - the upper edge of the posterior articular facet of the calcaneus at the subtalar joint. From this point another line is drawn to (**3**) - the upper edge of the anterior process of the calcaneus.



Bohler's angle is normal (39° in this case)



Calcaneus fracture - Lateral

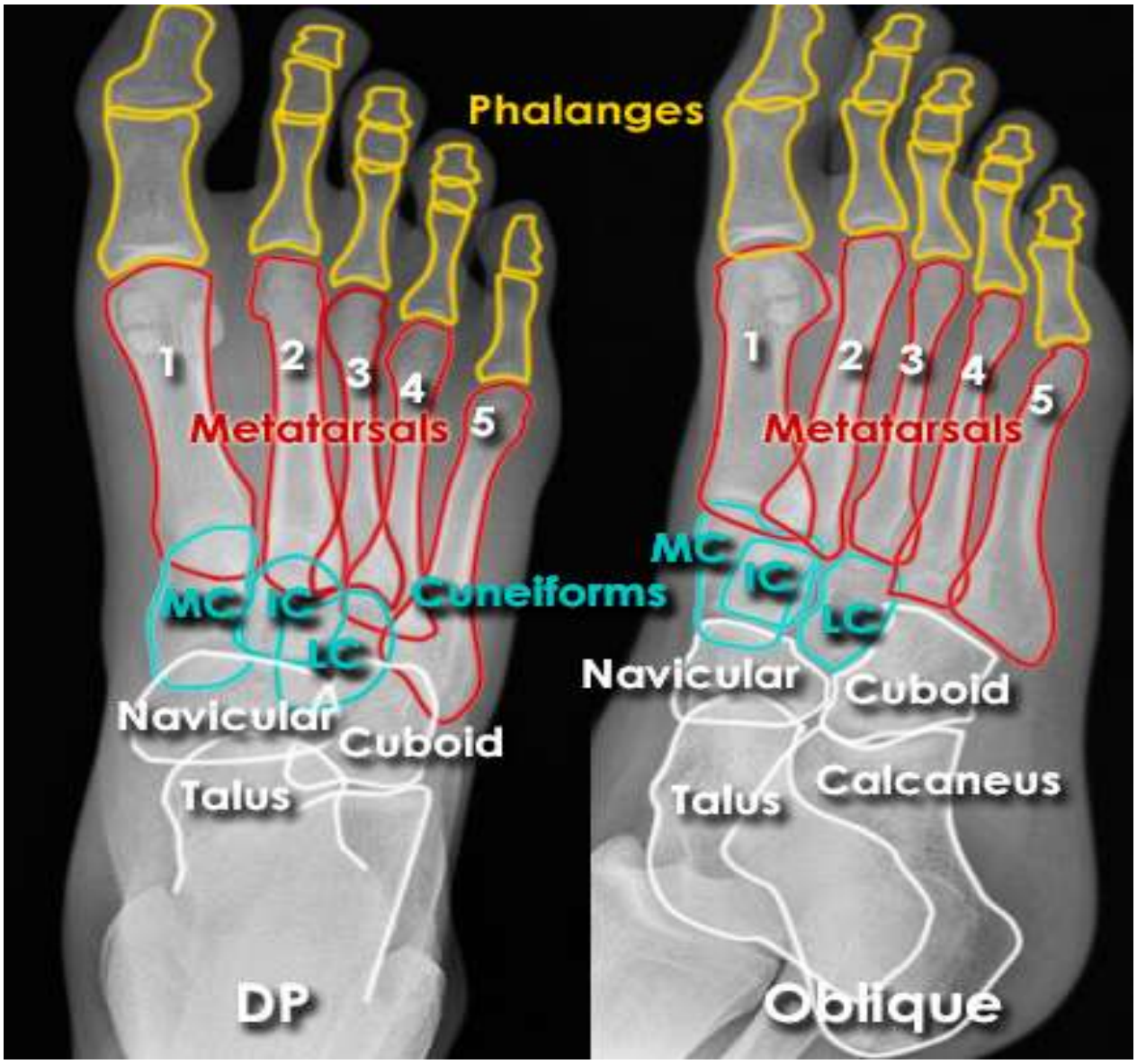
- Flattening of Bohler's angle

Standard views

Dorsal-Plantar (DP) and Oblique - are standard projections of the forefoot. If only a phalangeal fracture is suspected then DP and oblique views of the toe(s) can be acquired. Lateral views can also be helpful.

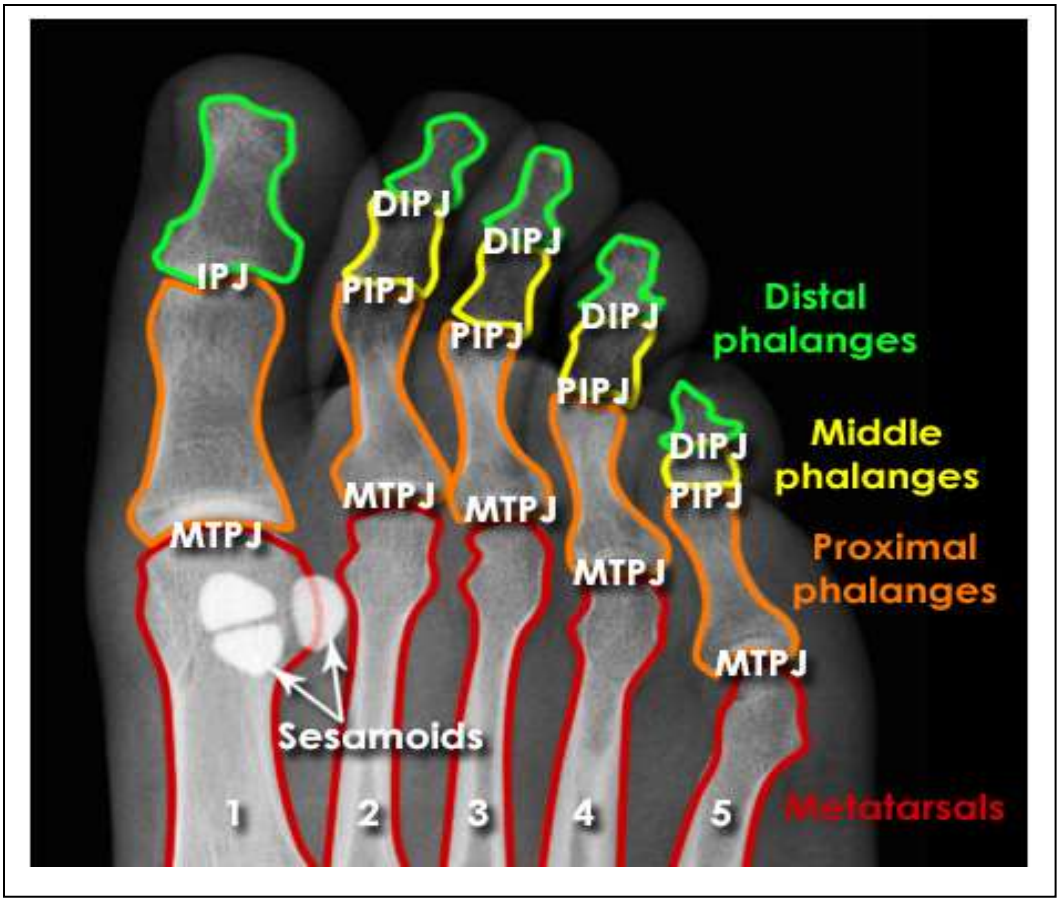
Foot X-ray anatomy - DP and Oblique views

- **Hindfoot** = Calcaneus + Talus
- **Midfoot** = Navicular + Cuboid + Cuneiforms
- **Forefoot** = Metatarsals + Phalanges
- **1** = Hind-midfoot junction
- **2** = Mid-forefoot junction = Tarsometatarsal joints (TMTJs)



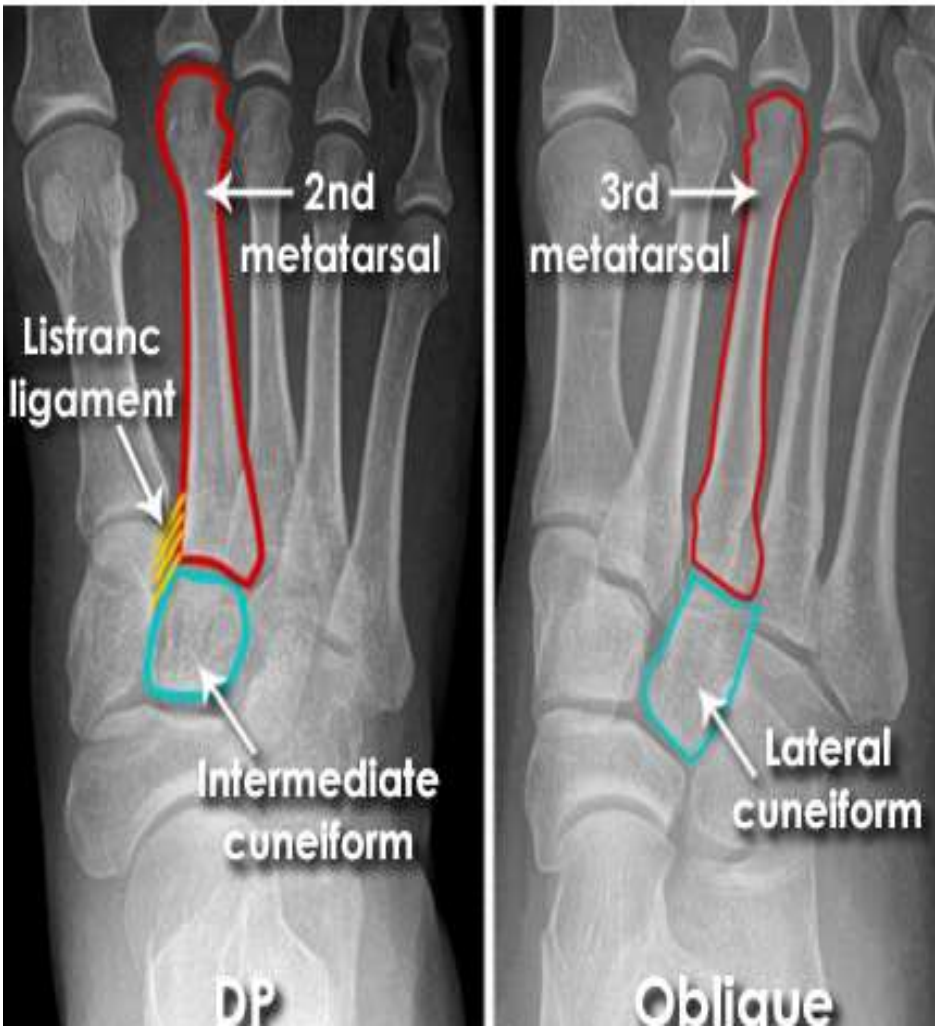
foot X-ray anatomy - DP and Oblique views

- Metatarsals and phalanges of the toes are numbered 1 to 5
- **1** = Big toe
- **5** = Little toe
- **MC** = Medial Cuneiform
- **IC** = Intermediate Cuneiform
- **LC** = Lateral Cuneiform



Forefoot X-ray anatomy - Joints

- **MTPJ** = Metatarsophalangeal Joints
- **IPJ** = Interphalangeal Joint (of big toe only)
- **PIPJ** = Proximal Interphalangeal Joints
- **DIPJ** = Distal Interphalangeal Joints
- Note the medial side sesamoid is 'bipartite' (in 2 parts) - this is a common normal variant - not a fracture



Lisfranc injury (read only)

The 'Lisfranc' ligament stabilises the mid-forefoot junction. Loss of alignment of the 2nd metatarsal base with the intermediate cuneiform indicates injury to this important ligament.

Every post-traumatic foot X-ray must be checked for loss of alignment at the midfoot-forefoot junction (tarsometatarsal joints).

Lisfranc injury - DP (read only)

- Second metatarsal displaced from the intermediate cuneiform
- No fracture is visible but this is a severe injury which is debilitating if untreated
- **NOTE:** Lisfranc ligament injury can be subtle and does not always result in displacement - If there is a clinically suspected ligament injury then clinical and radiological follow-up must be arranged