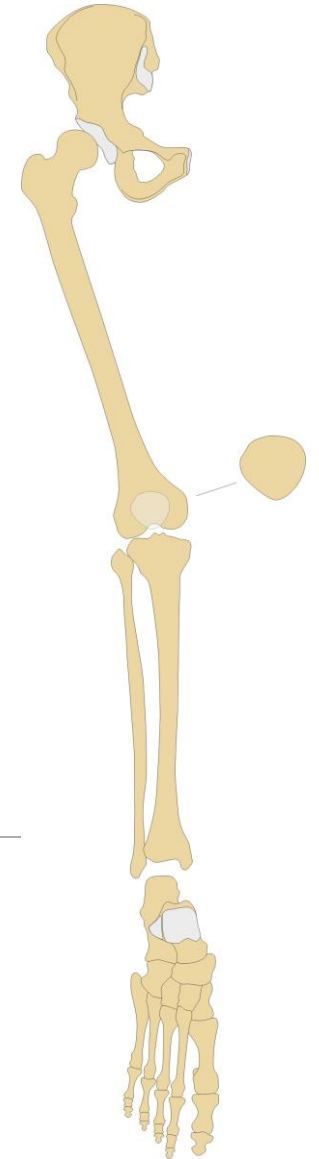


Skeleton of the lower limb (*ossa membri inferioris*)

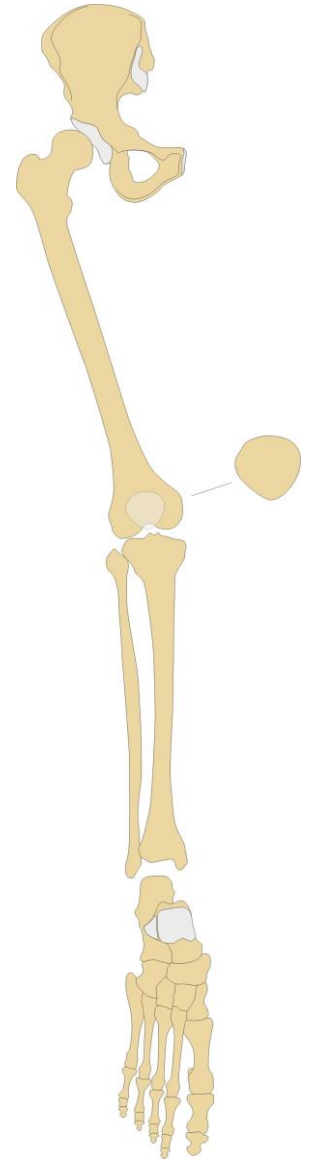
RNDr. Michaela Račanská, Ph.D.

Lecture 3 – DENTISTRY – Autumn 2013



Skeleton of the lower limb

- support the weight of the body and transfers that support to the axial skeleton across the hip and sacro-iliac joints
- Stability and balance thanks to the hip and knee joints lock, long standing in anatomical position
- less mobility but more stability than the pectoral girdle of the upper limb thanks to anchoring to the axial skeleton by the pelvic girdle



**Skeleton of the pelvic (hip) girdle:
the hip bone – *os coxae***

(the ilium – *os ilium*, the ischium – *os ischii*, the pubis – *os pubis*)

Skeleton of the free part of the lower limb:

The thigh bone – *femur*

The knee cap – *patella*

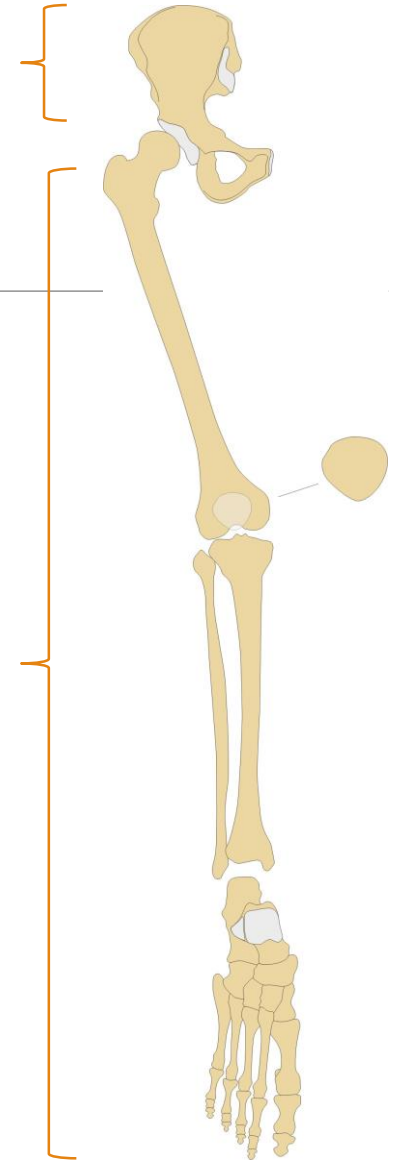
The shinbone – *tibia*

Fibula

The tarsus – *ossa tarsi*

The metatarsus – *ossa metatarsi*

Bones of digits (*ossa digitorum pedis* – *phalanges*)



Bones of the pelvic girdle

- Attaches the lower limbs to the axial skeleton
- Transmits the weight of the upper body to the lower limbs
- Supports the visceral organs of the pelvis
- Formed by a pair of “hip” bones called **coxal bones**, and the sacrum

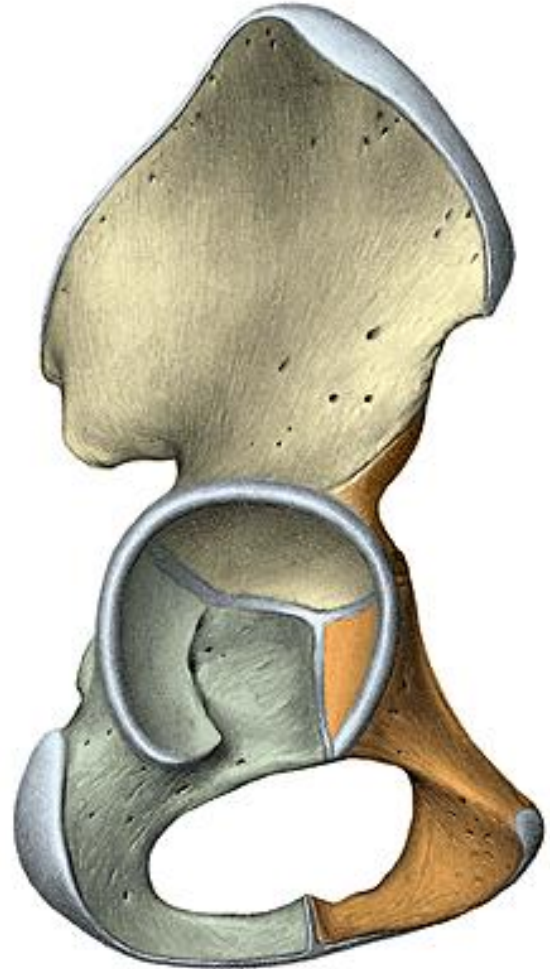


Os coxae

(os ilium, os pubis, os ischii)

Each os coxae has an:

- **Ilium**: The large upper portion, often called your “hip bone”.
os ilium – corpus, ala
- **Ishium**: The posterior/inferior bone, often called your “seat bone”.
os ischii – corpus, ramus
- **Pubis**: The anterior/inferior bone, which connects in front at the pubic symphysis. os pubis – corpus, ramus sup. et inf.
- **Acetabulum**: point of fusion of all three, also called your “hip socket”.
facies lunata
fossa acetabuli
incisura acetabuli
foramen obturatum



Os ilium

corpus ossis ilii

ala ossis ilii

fossa iliaca

facies auricularis

tuberositas iliaca

linea arcuata

sulcus praeauricularis

tuberculum m. piriformis

crista iliaca

labium externum

linea intermedia

labium internum

spinae iliacae

spina iliaca anterior superior et inferior

spina iliaca posterior superior et inferior

linea glutea posterior, anterior et inferior



LATERAL VIEW



MEDIAL VIEW



LATERAL VIEW



MEDIAL VIEW

Os ischii

corpus ossis ischii

ramus ossis ischii

tuber ischiadicum

spina ischiadica

incisura ischiadica major

Incisura ischiadica minor



LATERAL VIEW



MEDIAL VIEW

Os pubis

corpus ossis pubis

ramus superior ossis pubis

eminentia iliopubica

pecten ossis pubis

tuberculum pubicum

sulcus obturatorius

ramus inferior ossis pubis

facies symphysealis

crista phallica

Femur – the thigh bone

Proximal end
head



corpus (body)



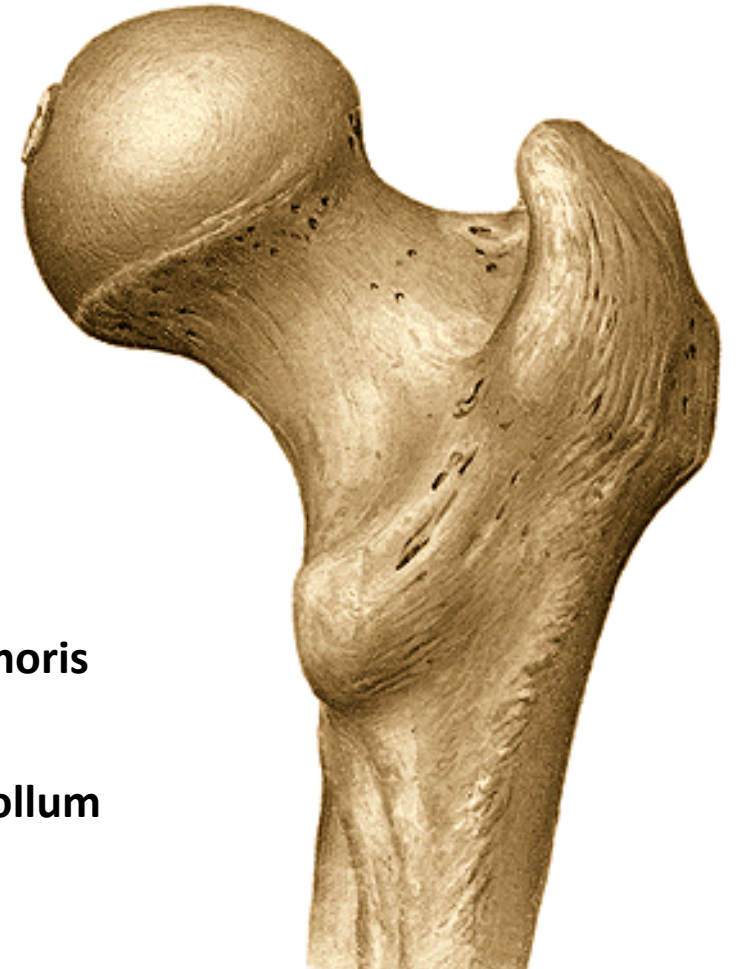
Distal end

Proximal end

caput femoris

fovea capitis femoris

Neck of the femur (collum femoris)



Femur

corpus femoris

trochanter major et minor

linea intertrochanterica

crista intertrochanterica

fossa trochanterica

linea aspera

labium mediale (linea pectinea)

**labium laterale (tuberositas glutea)
Trochanter tertius**



Distal end

condylus medialis

condylus lateralis

epicondylus medialis

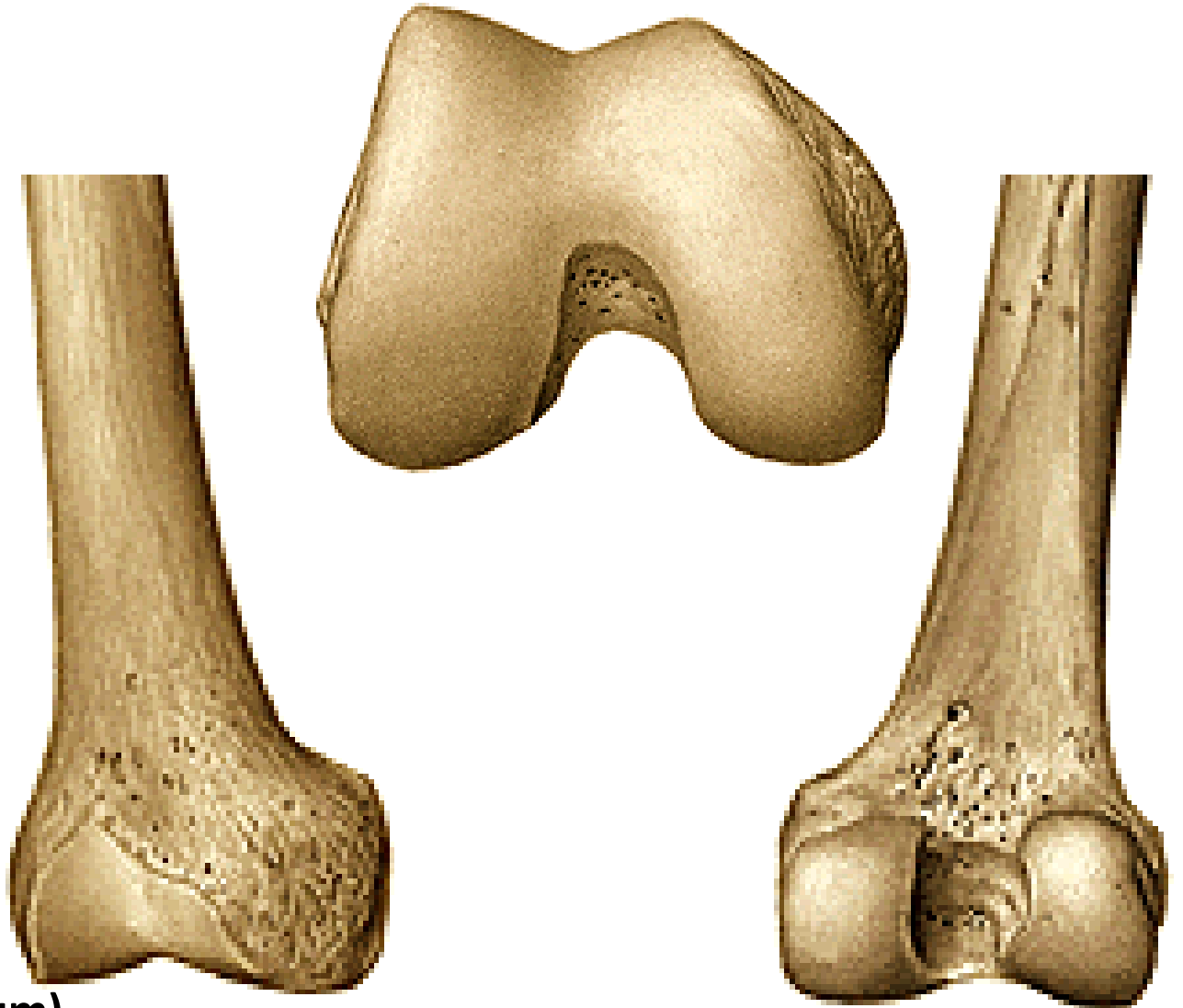
epicondylus lateralis

facies patellaris

fossa intercondylaris

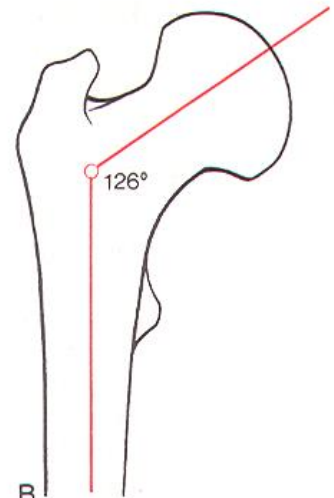
linea intercondylaris

facies poplitea (planum popliteum)

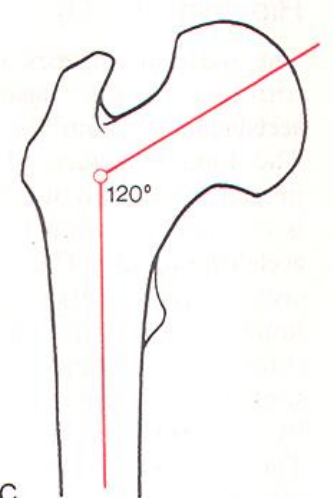




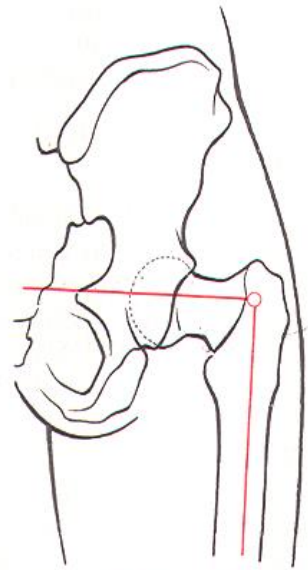
A
Angle of inclination
in 3-year-old child



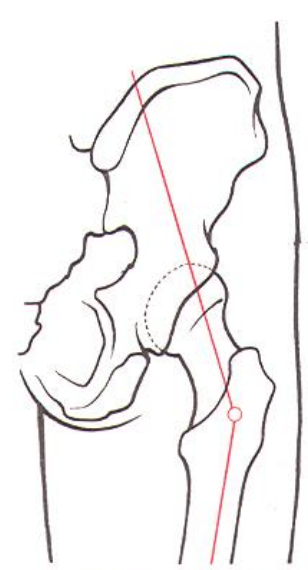
B
Angle of inclination
in adult



C
Angle of inclination
in old age



D Coxa vara



E Coxa valga

PATELLA (knee cap)

sesamoid bone encased in the patellar tendon

Basis

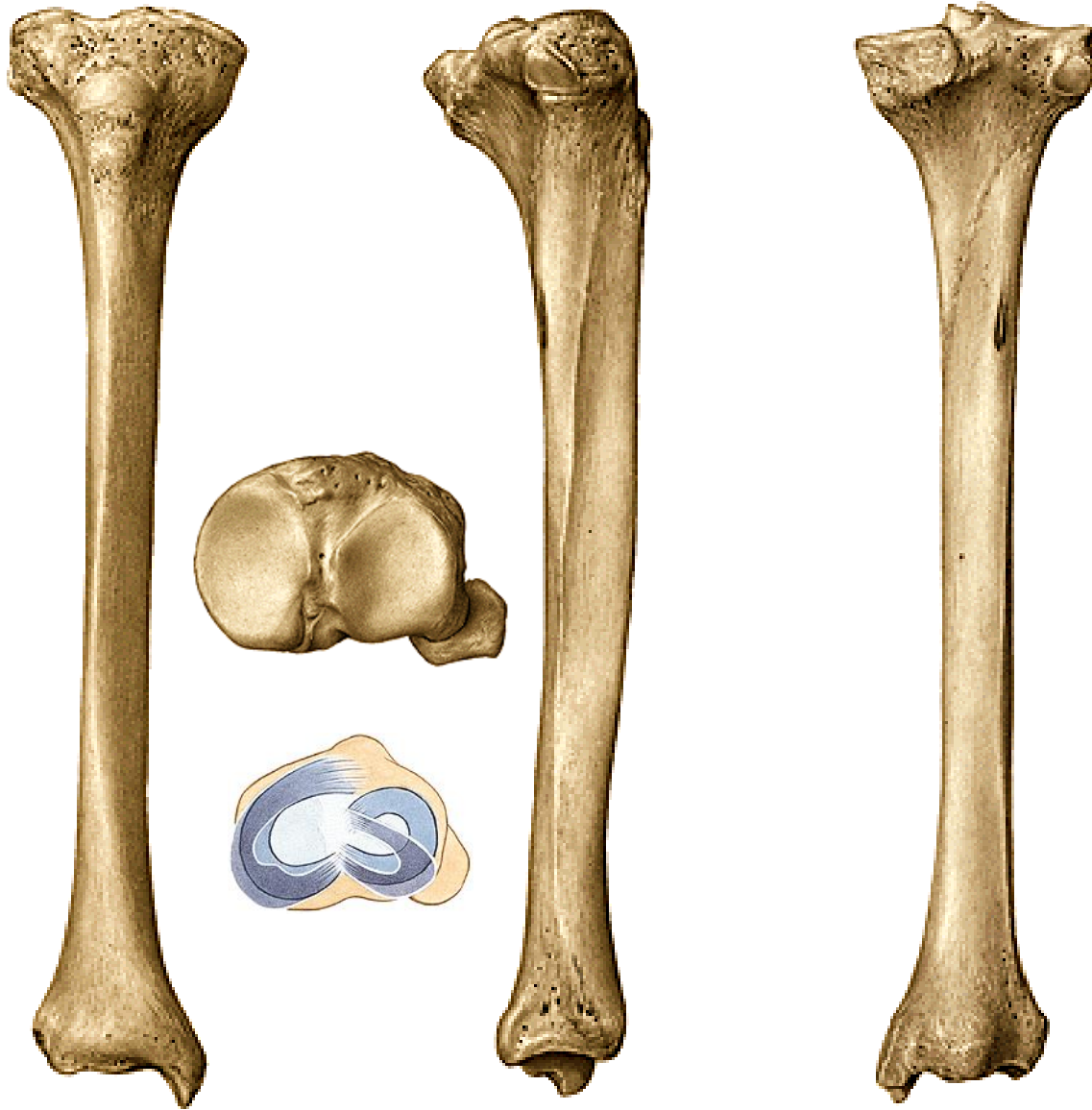
Apex

Facies posterior (smooth articular surface)

facies art. medialis (smaller) et lateralis (larger)

Facies anterior (the rounded, convex anterior surface)





Tibia (shin bone)

Proximal end, body, distal end

Proximal end

condylus medialis et lateralis

facies articularis superior medialis, lateralis

eminentia intercondylaris

tuberculum intercondylare mediale

tuberculum intercondylare laterale

area intercondylaris anterior et posterior

facies articularis fibularis

Tibia (shin bone)

Corpus (body)

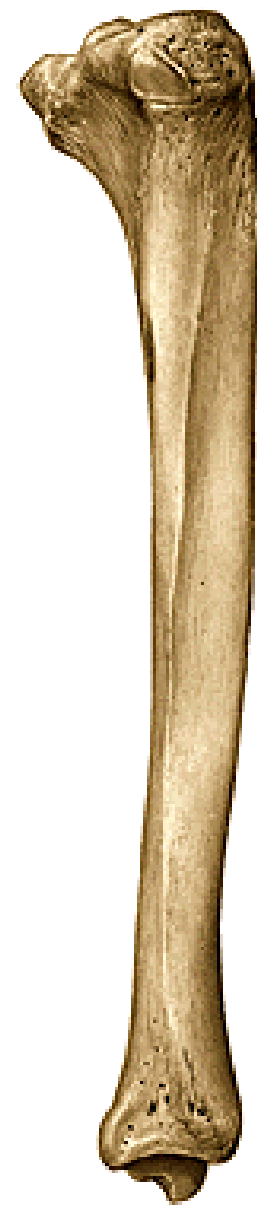
tuberositas tibiae

linea musculi solei

margo medialis

margo anterior

margo interosseus



Tibia (shin bone)

Distal end

malleolus medialis

facies articularis malleoli medialis

incisura fibularis tibiae

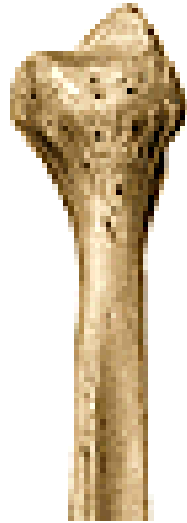
facies articularis inferior tibiae

sulcus malleolaris





Fibula



Proximal end

caput fibulae

facies articularis capitis fibulae

apex capitis fibulae



Fibula

Corpus (body, shaft)

margo anterior et posterior

margo medialis et interosseus

Distal end

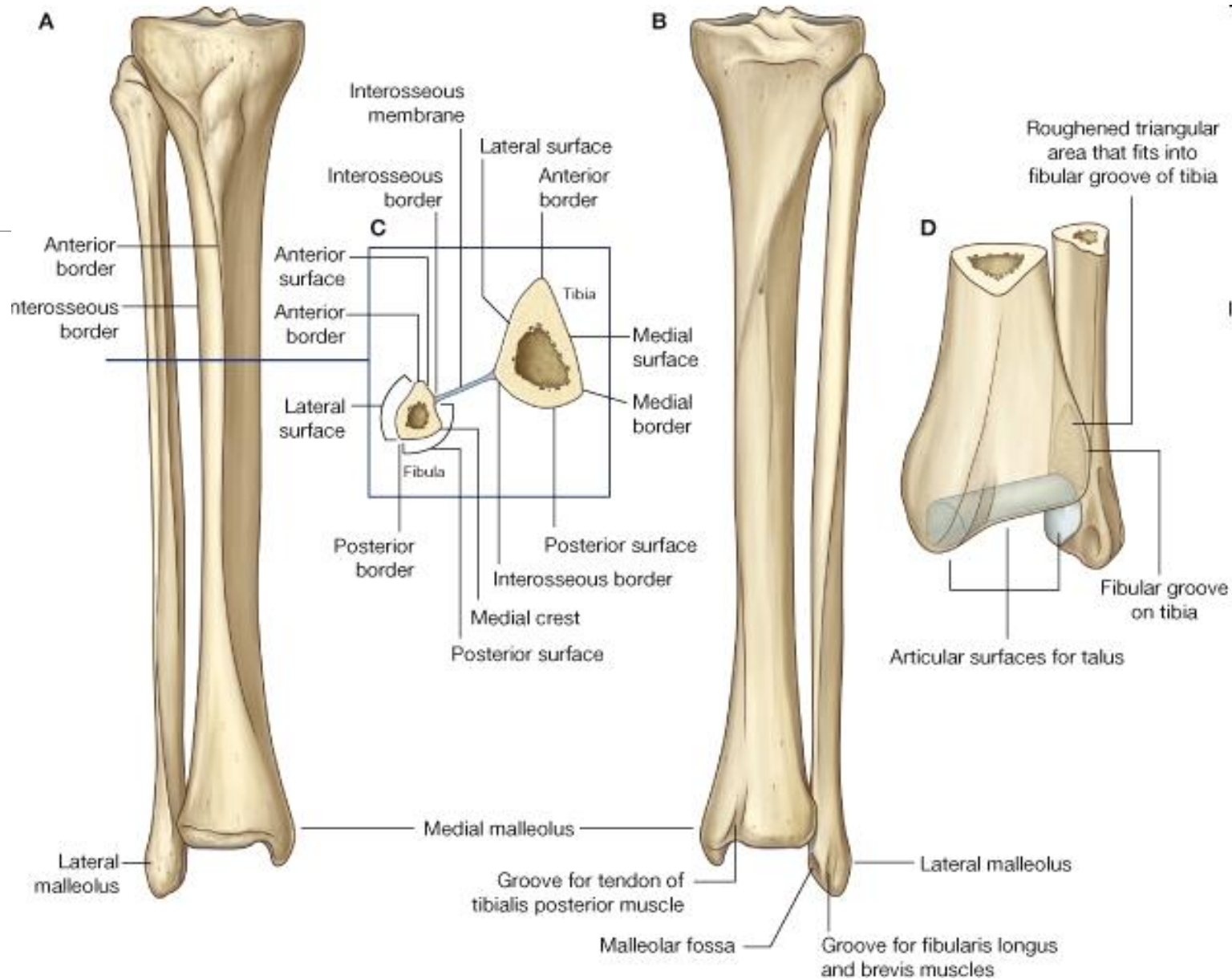
malleolus lateralis

facies articularis malleoli lateralis

sulcus malleolaris (mm.fibulares)

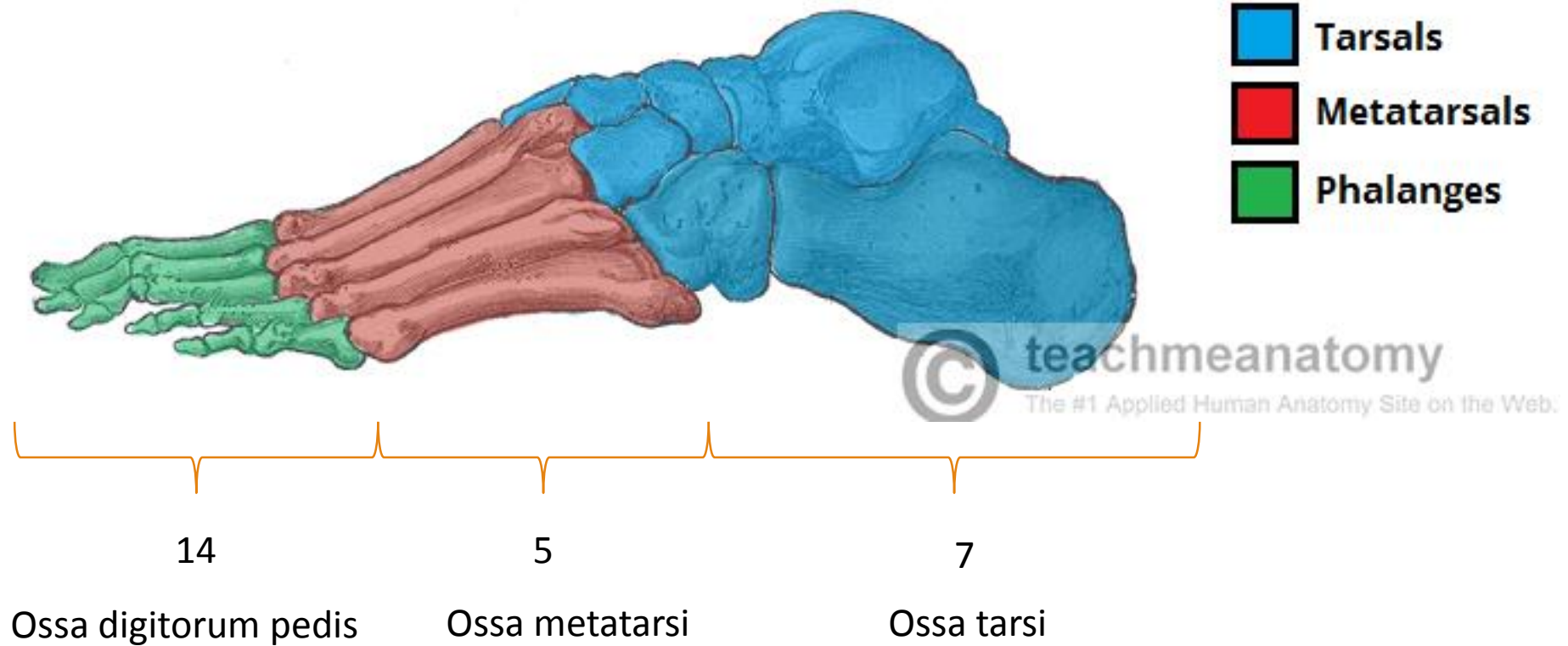
fossa malleoli lateralis (lig. talofibulare post.)










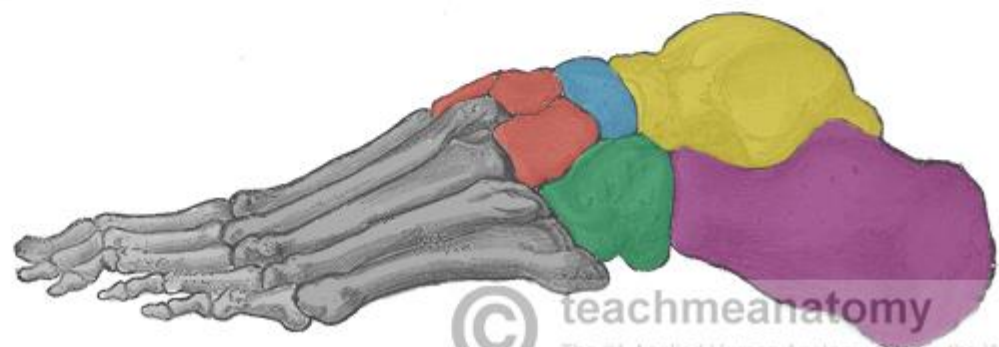
FOOT

Ossa pedis

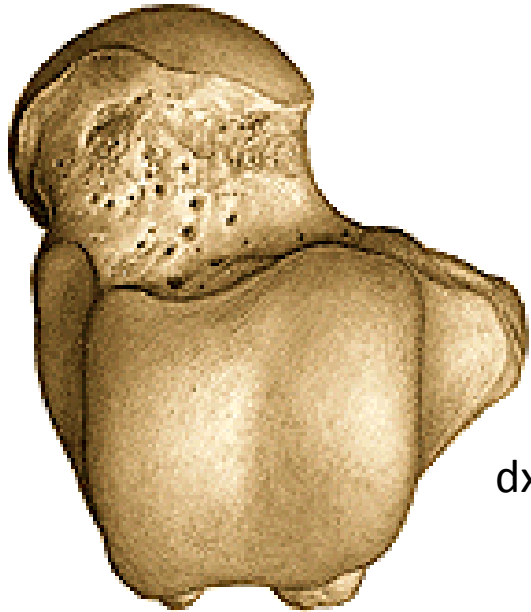




-  **Calcaneus**
-  **Talus**
-  **Navicular**
-  **Cuboid**
-  **Cuneiforms**



Talus (ankle bone)



dx



Caput tali (facies articularis navicularis)

Collum tali

Corpus tali

Trochlea tali - facies articularis superior

Facies articularis malleolaris lateralis et medialis

Facies articularis calcanea posterior, media, anterior

**Sulcus tali (sinus tarsi -
lig. talocalcaneare interosseum)**

Processus lateralis tali

**Processus posterior tali (tuberculum laterale,
mediale)**

Sulcus tendinis musculi flexoris hallucis longi

Calcaneus (heel bone)

tuber calcanei (processus medialis et lateralis)

facies articularis talaris posterior, media et anterior

sulcus calcanei (**sulcus calcanei + sulcus tali = sinus tarsi**)

sustentaculum tali (medial)

(sulcus tendinis musculi flexoris hallucis longi)

trochlea fibularis (lateral)

(sulcus tendinis musculi fibularis longi)

facies articularis cuboidea



Os naviculare (navicular)

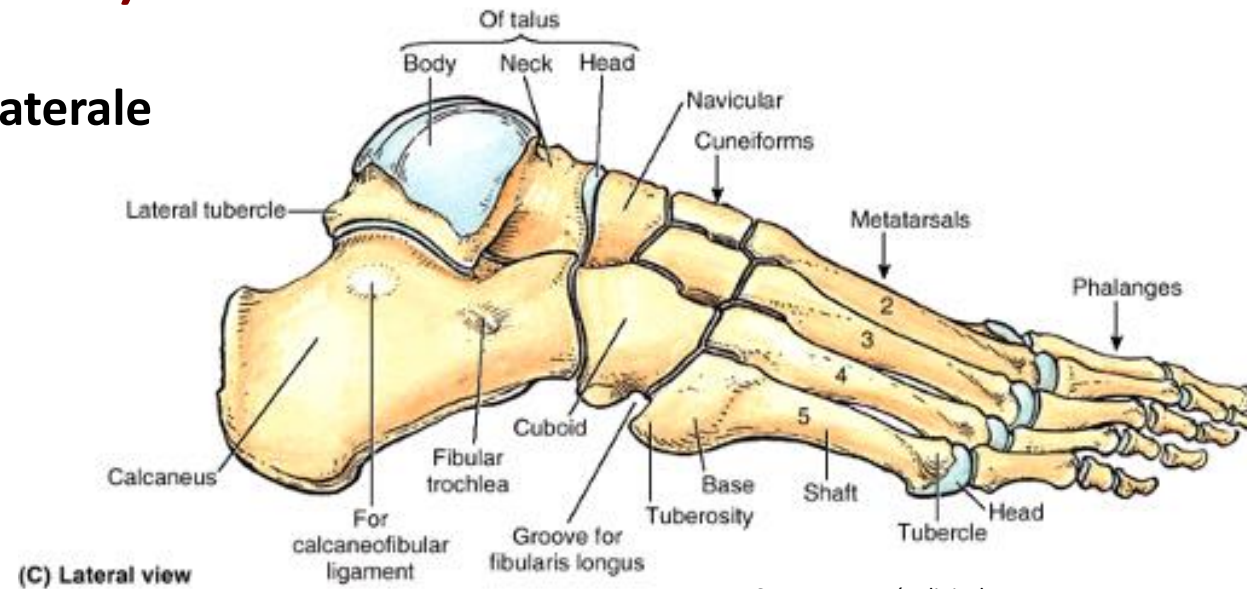
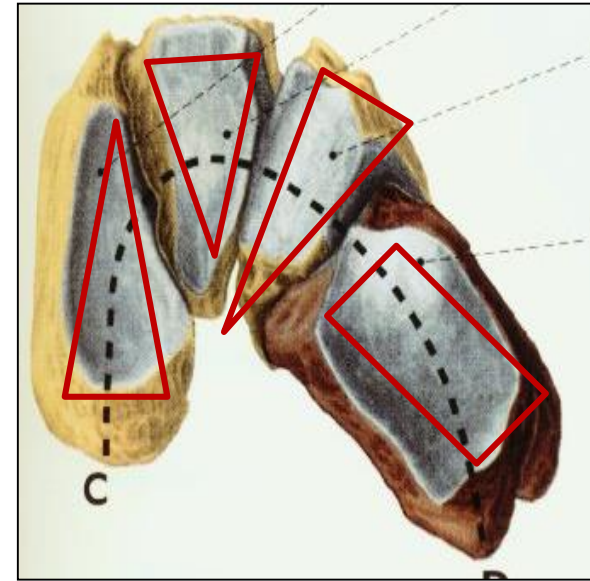
tuberositas ossis navicularis

Os cuboideum (cuboid)

sulcus tendinis musculi fibularis longi

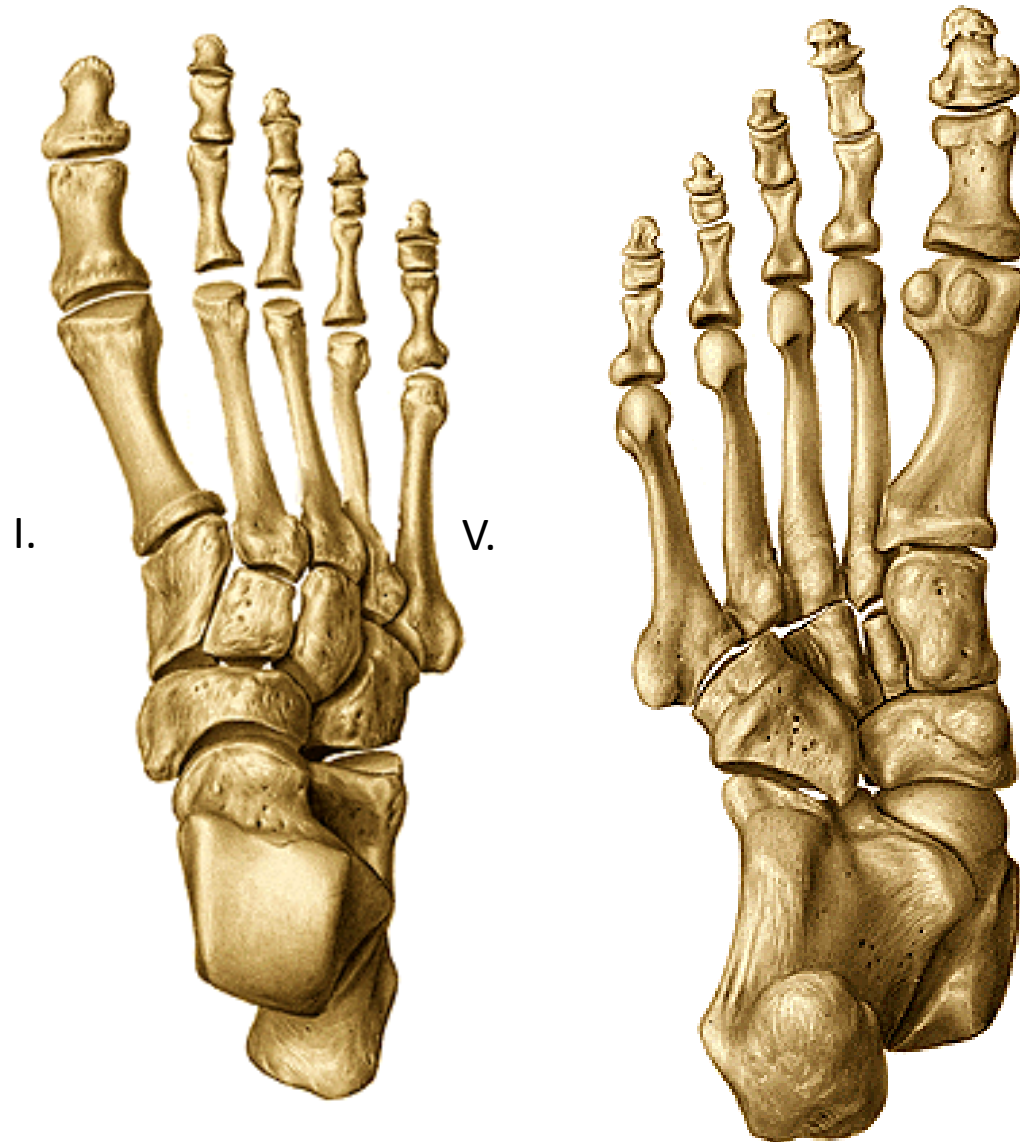
Ossa cuneiformia (cuneiforms)

mediale, intermedium et laterale



Source: Netter's clinical anatomy

Ossa metatarsi I. – V. (metatarsals)



basis (base)
(tuberositas ossis metatarsi I. et V.)

Corpus (body)

caput (head)



Ossa digitorum pedis, phalanges

Hallux (big toe) – phalanx proximalis et distalis

II. – V. digit – phalanx proximalis, media et distalis

basis phalangis (base)

corpus phalangis (body)

caput/trochlea (head, trochlea)

tuberositas phalangis distalis

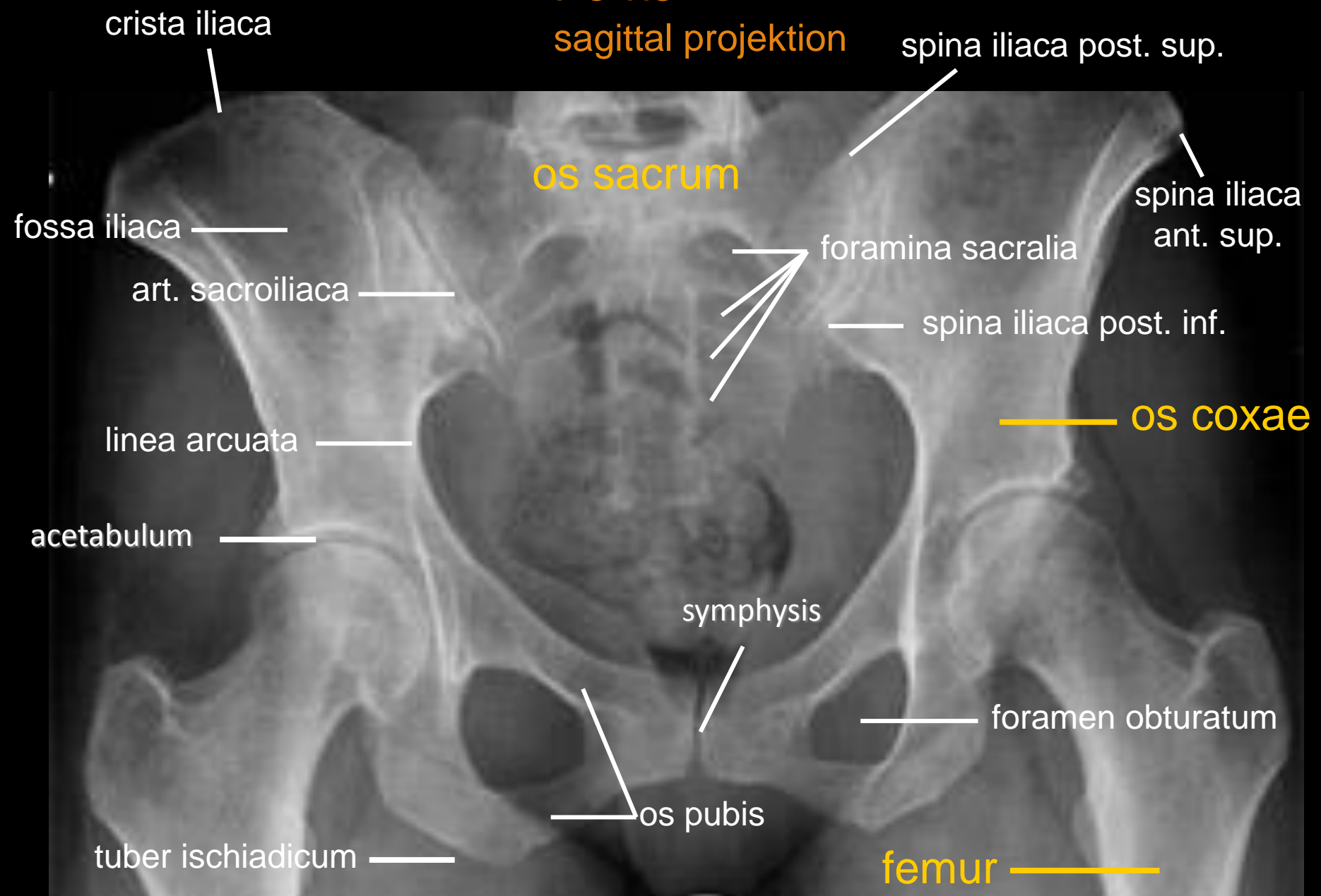
Ossa sesamoidea



X-rays



Pelvis
sagittal projektion



crista iliaca

os sacrum

spina iliaca post. sup.

fossa iliaca

spina iliaca ant. sup.

art. sacroiliaca

foramina sacralia

spina iliaca post. inf.

linea arcuata

os coxae

acetabulum

symphysis

foramen obturatum

tuber ischiadicum

os pubis

femur

X-ray of the pelvis of an child



Hip joint

sagittal projection

os coxae

fossa trochanterica

trochanter major

crista intertrochanterica

femur

collum femoris

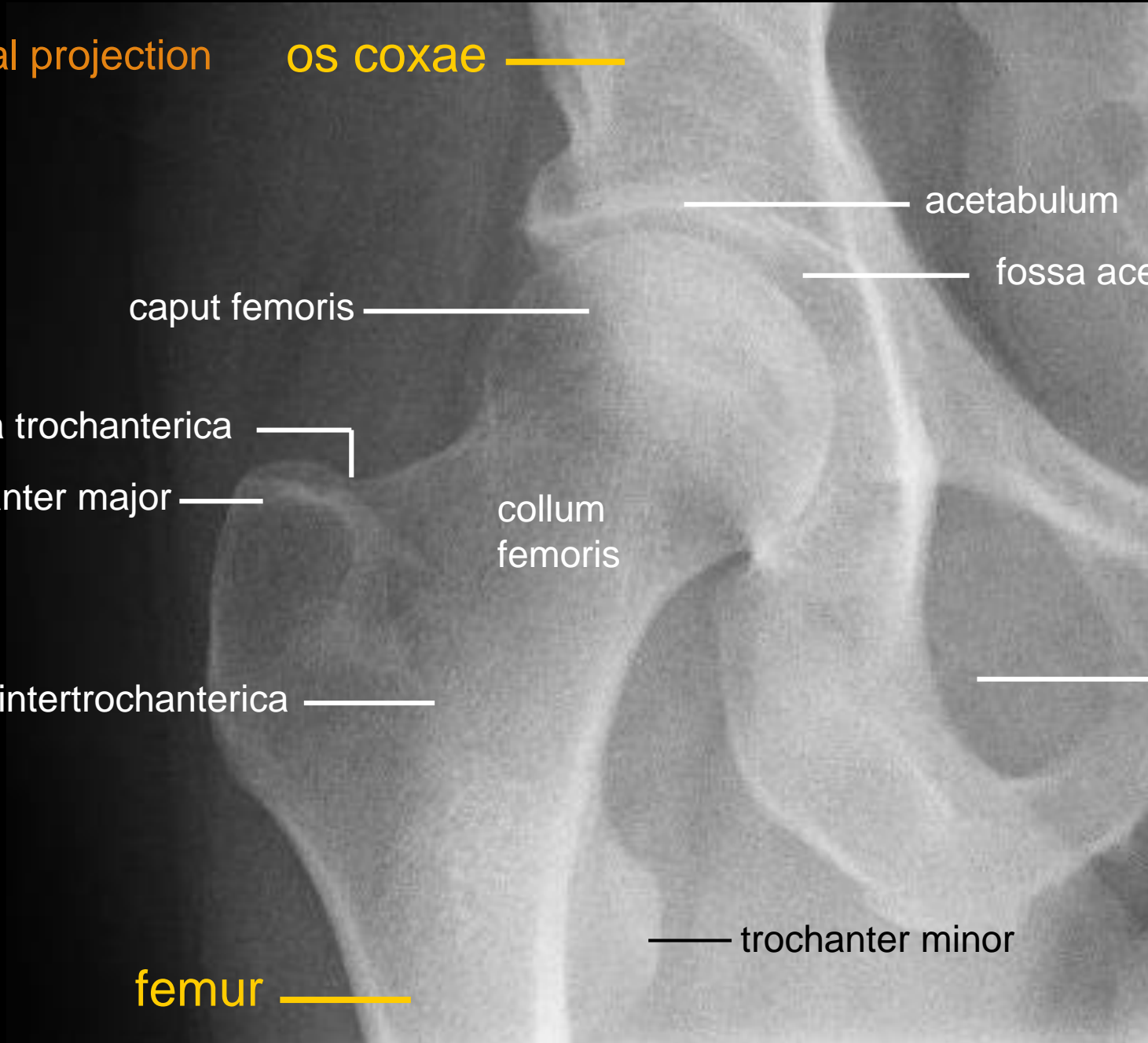
caput femoris

trochanter minor

acetabulum

fossa acetabuli

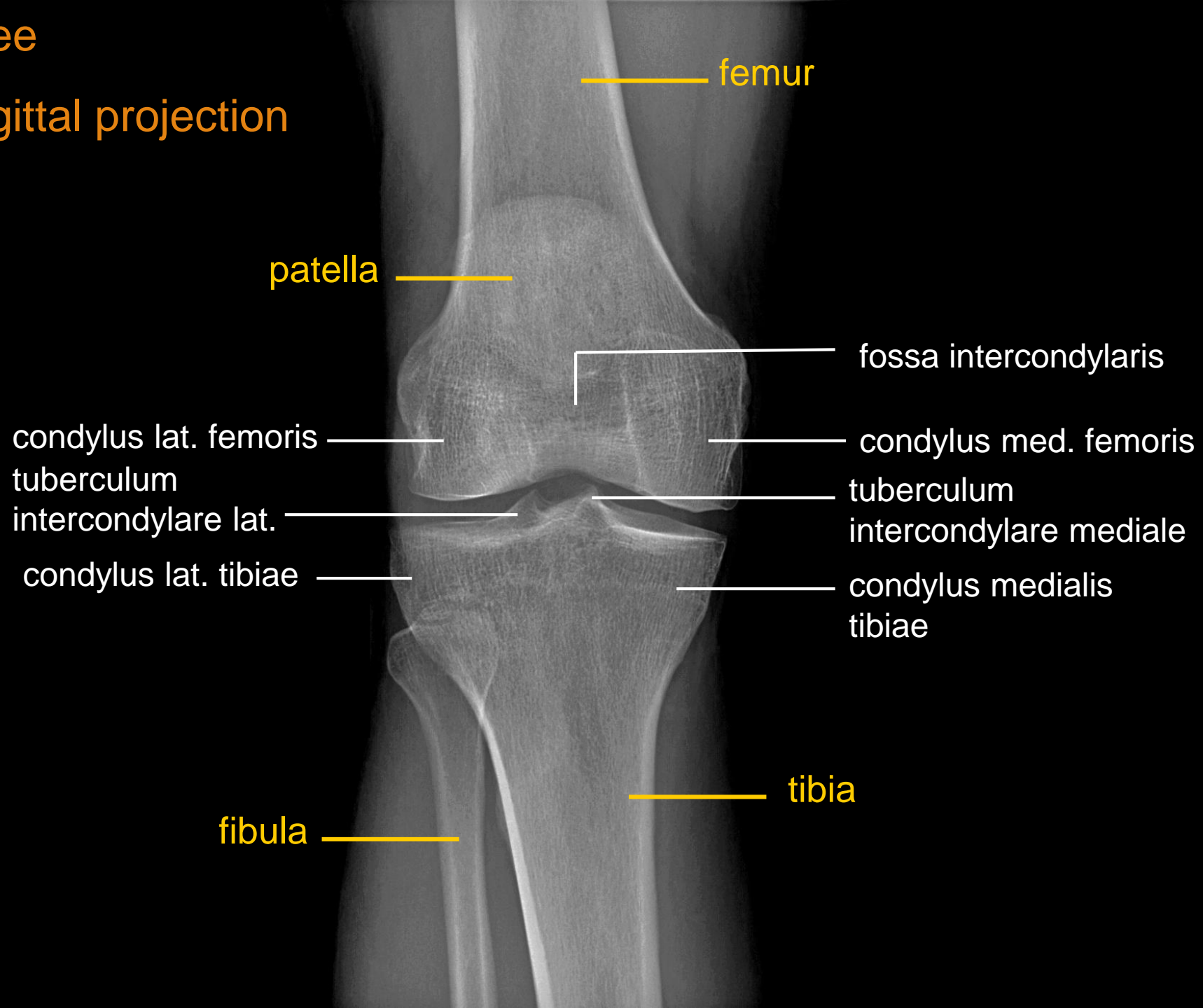
foramen obturatum





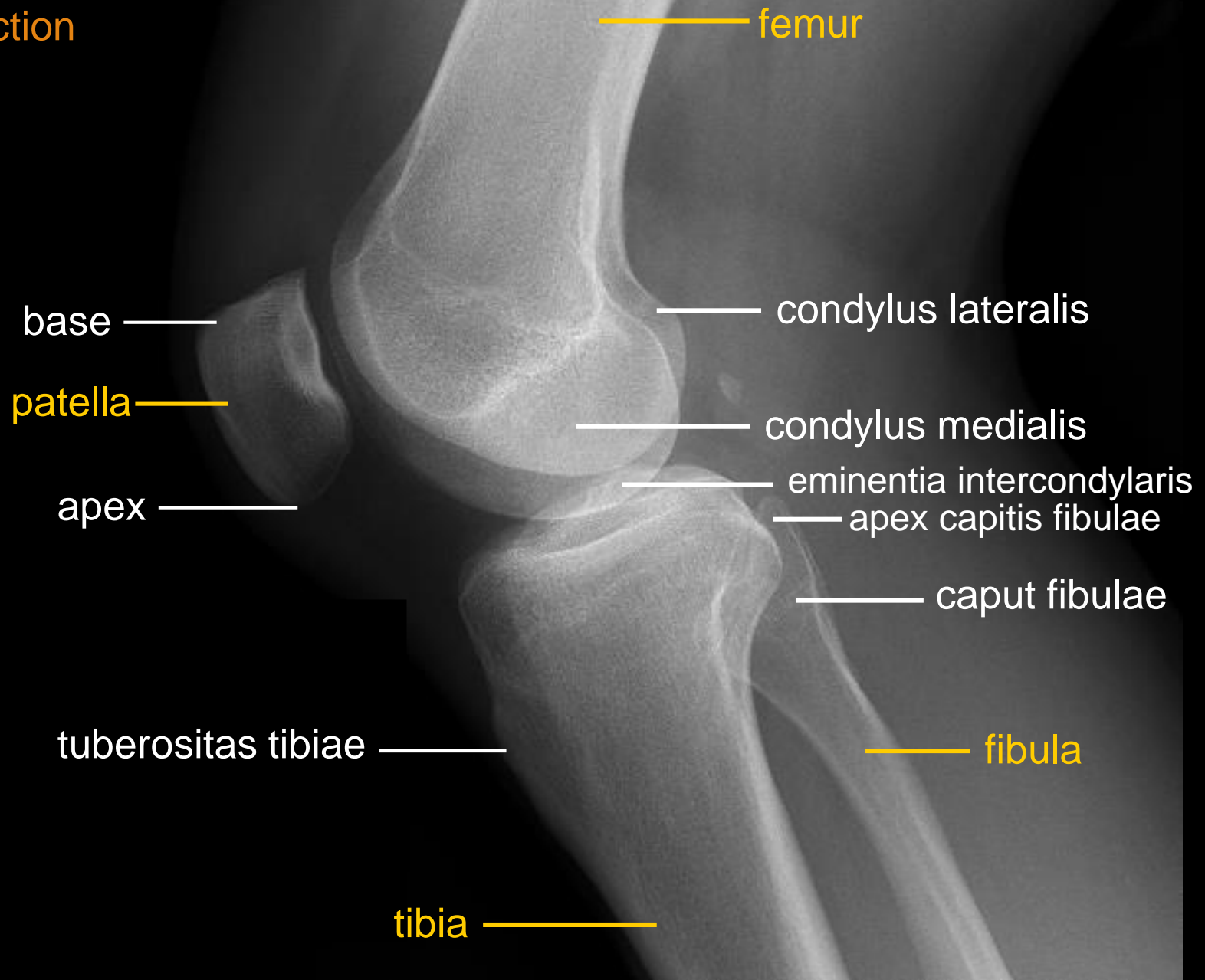
Knee

Sagittal projection



Knee

Lateral projection

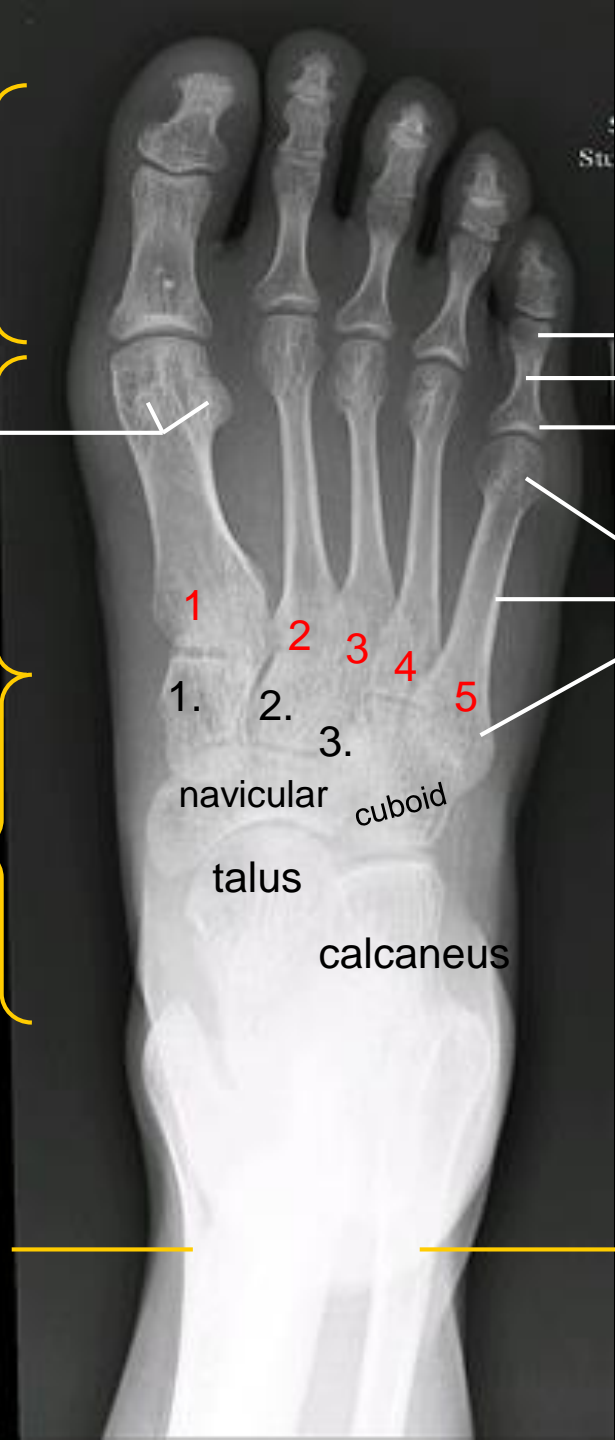






FOOT
dorsoplantar
projection

phalanges
sesamoids
metatarsals
tarsals



trochlea
corpus
base
caput
corpus
base

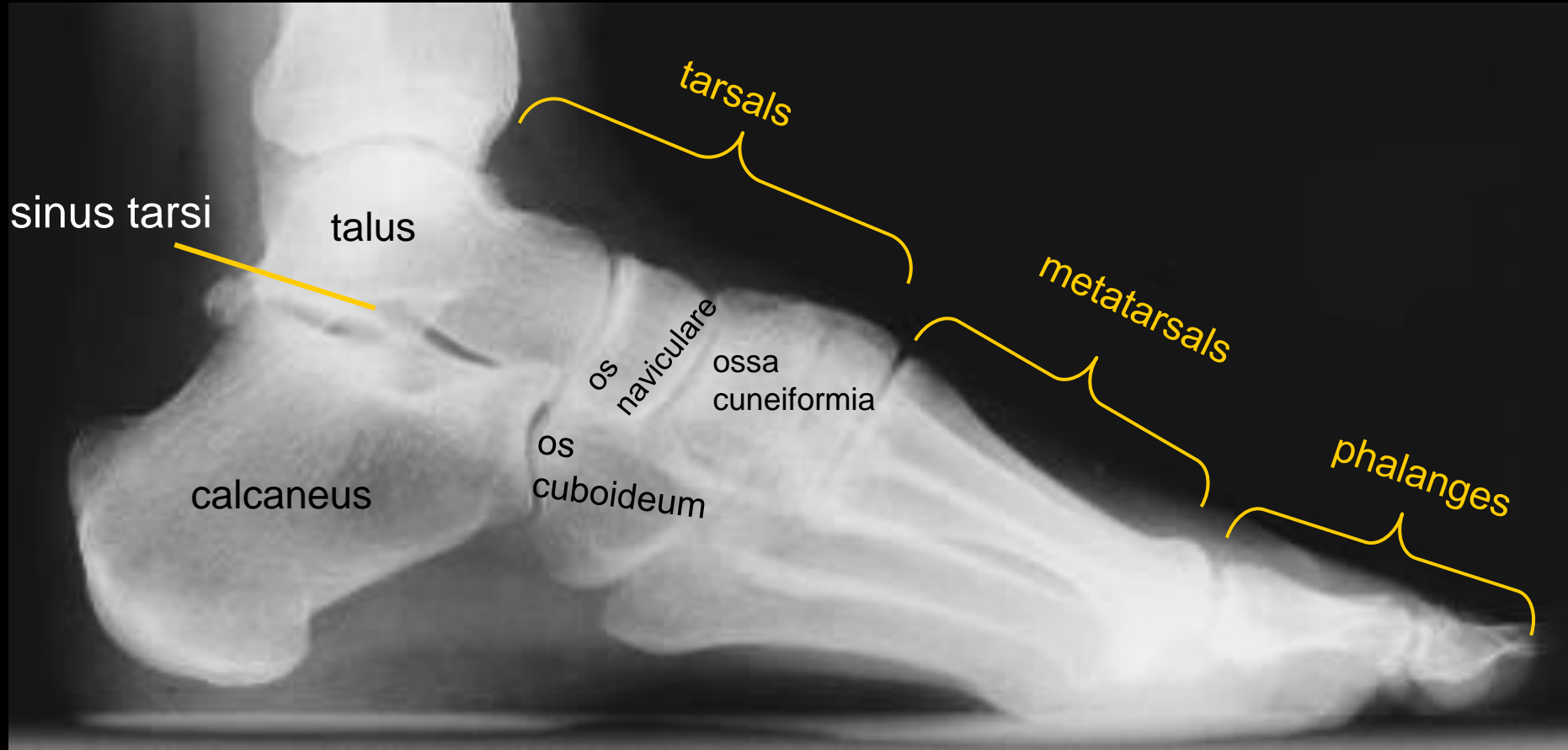
1
2
3
4
5
1.
2.
3.
navicular
cuboid
talus
calcaneus

1., 2., 3. =
ossa cuneiformia
mediale,
intermedia et
laterale

tibia fibula

Foot

Lateral projection



The pictures used in this lectures were taken from following sources (if it was not written under the picture else):

- **Atlas der Anatomie des Menschen/Sobotta. Putz,R., und Pabst,R. 20. Auflage. München:Urban & Schwarzenberg, 1993**
- **Netter: Interactive Atlas of Human Anatomy.**
- **John T. Hansen Netter´s clinical anatomy, Elsevier, 2014**
- **Drake et al: Gray´s Anatomy for Students. 2010**
- **Naňka, Elišková: Přehled anatomie. Galén, Praha 2009.**
- **Čihák: Anatomie I, II, III.**
- **Own archiv of the lecturer, archiv of Department of Anatomy, LF MU BRNO**

Thank you for your attention

