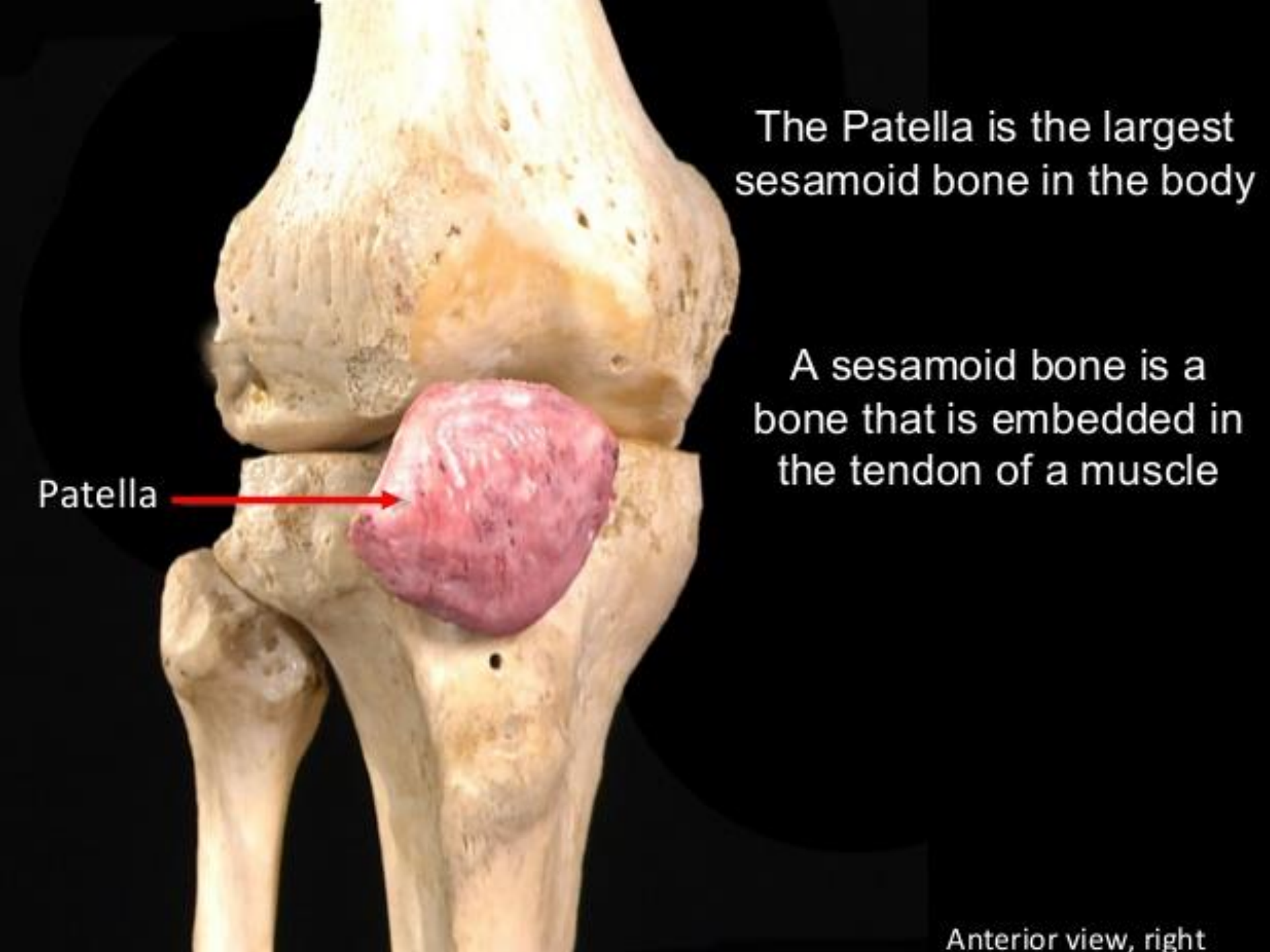
PATELLA BONE ANATOMY

DR NAJMA ATTAULLAH
LECTURER ANATOMY KGMC


The Patella is the largest sesamoid bone in the body
A sesamoid bone is a bone that is embedded in the tendon of a muscle
Patella
Anterior view, right

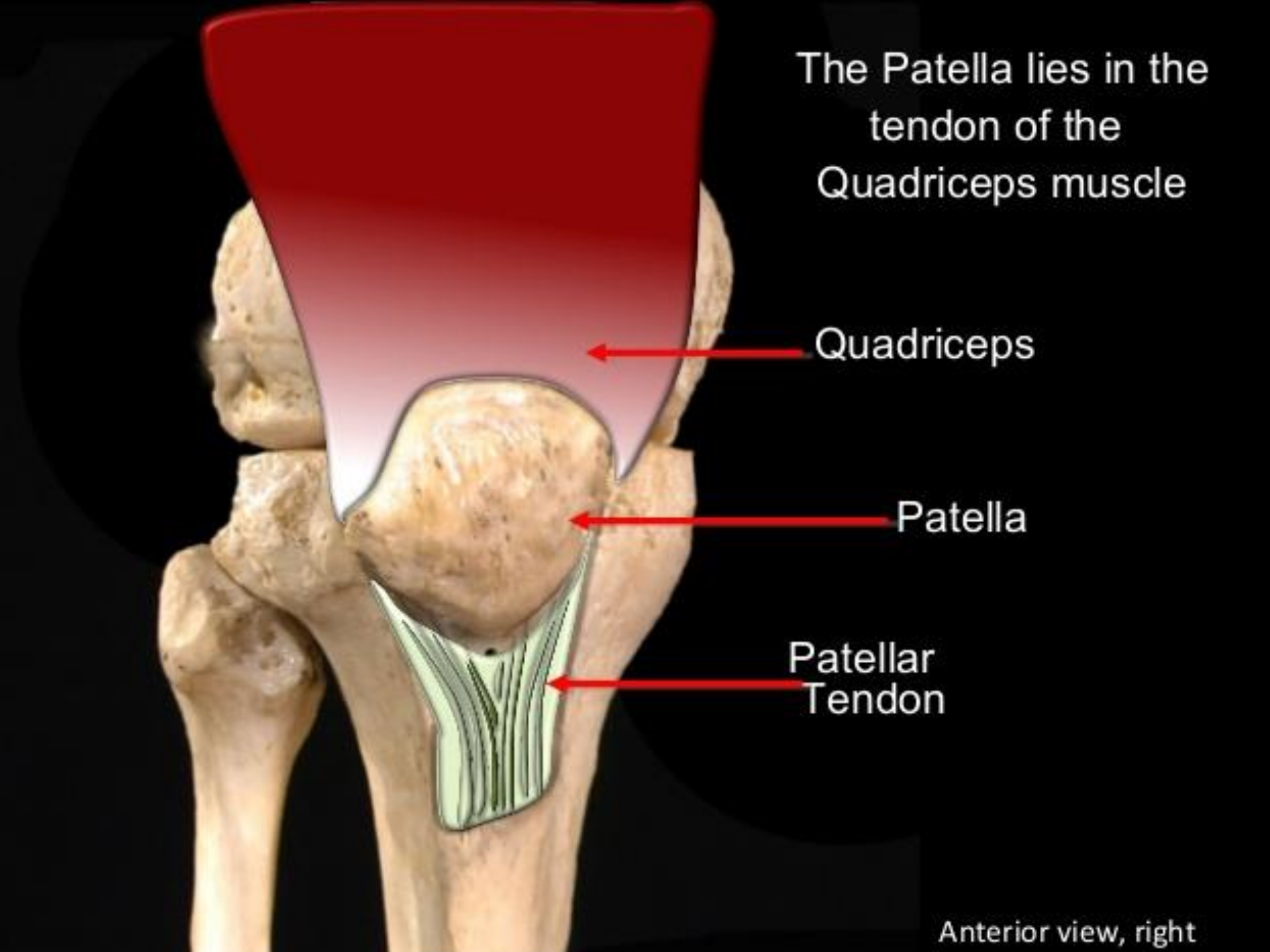
THE PATELLA

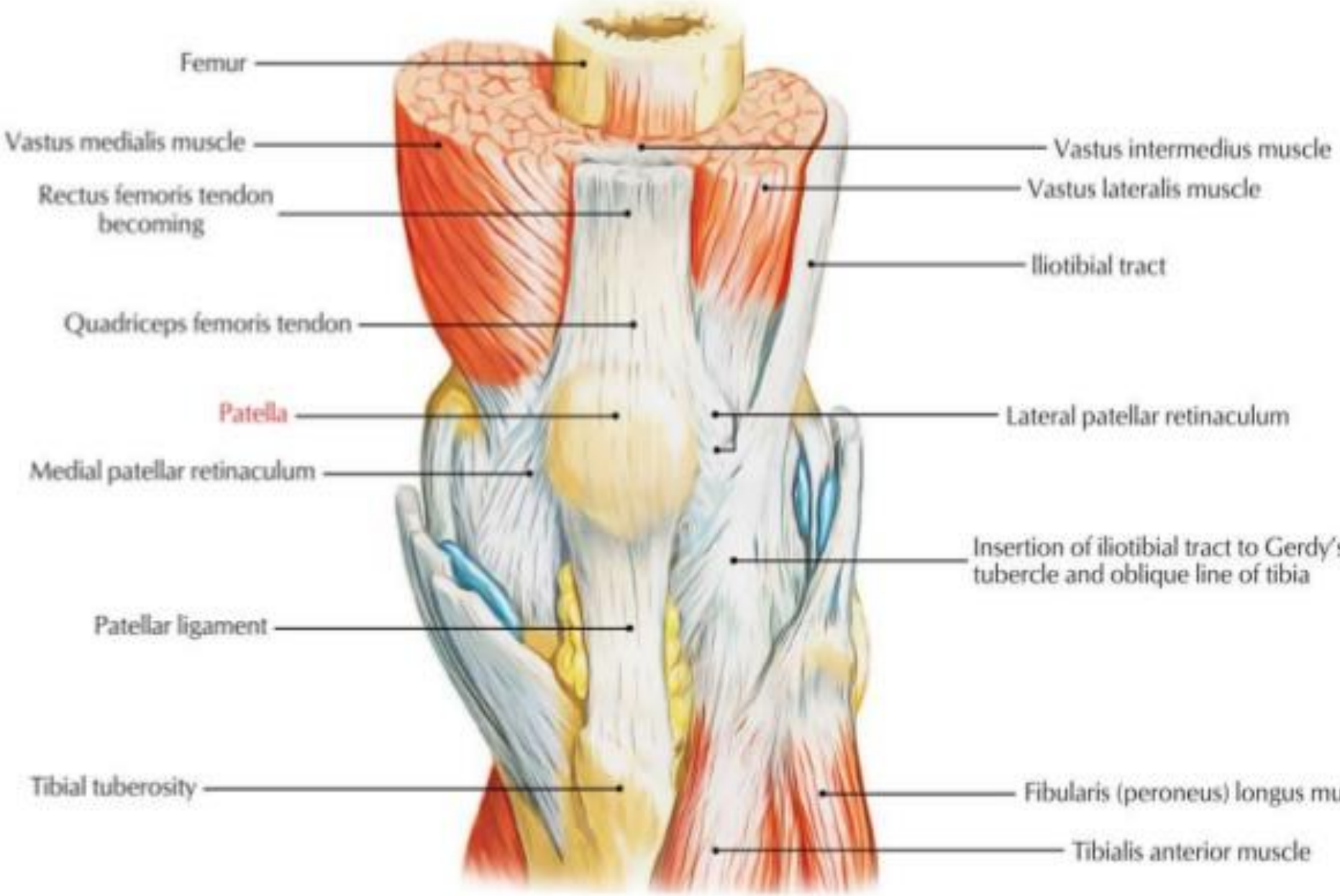
THE PATELLA

- The **patella** (knee-cap) is located at the front of the knee joint, within the **patellofemoral groove** of the femur.
- Its superior aspect is attached to the quadriceps tendon, and inferior aspect to the patellar ligament.
- It is classified as a **sesamoid** type bone.and is the largest sesamoid bone in the body.

THE PATELLA
(KNEE CAP)

- **The Patella** is seen in the tendon of **quadriceps femoris**.
- It is situated in front of the **knee joint**, thus it's also termed knee cap.
- It is a flattened and triangular bone with all the base facing upward, and the apex downward.
- Its anterior aspect is convex and rough.
- Its posterior surface presents a large articular surface split into small medial part and large latera part.


The Patella lies in the tendon of the Quadriceps muscle
Quadriceps
Patella
Patellar Tendon
Anterior view, right


Femur
Vastus medialis muscle
Rectus femoris tendon becoming
Quadriceps femoris tendon
Patella
Medial patellar retinaculum
Patellar ligament
Tibial tuberosity
Vastus intermedius muscle
Vastus lateralis muscle
Iliotibial tract
Lateral patellar retinaculum
Insertion of iliotibial tract to Gerdy's tubercle and oblique line of tibia
Fibularis (peroneus) longus mu
Tibialis anterior muscle

Bony Landmarks

The patella has a triangular shape, with anterior and posterior surfaces.

The **apex** of the patella is situated inferiorly, and is connected to the tibial tuberosity by the **patella ligament**.

The **base** forms the superior aspect of the bone, and provides the attachment area for the quadriceps tendon.

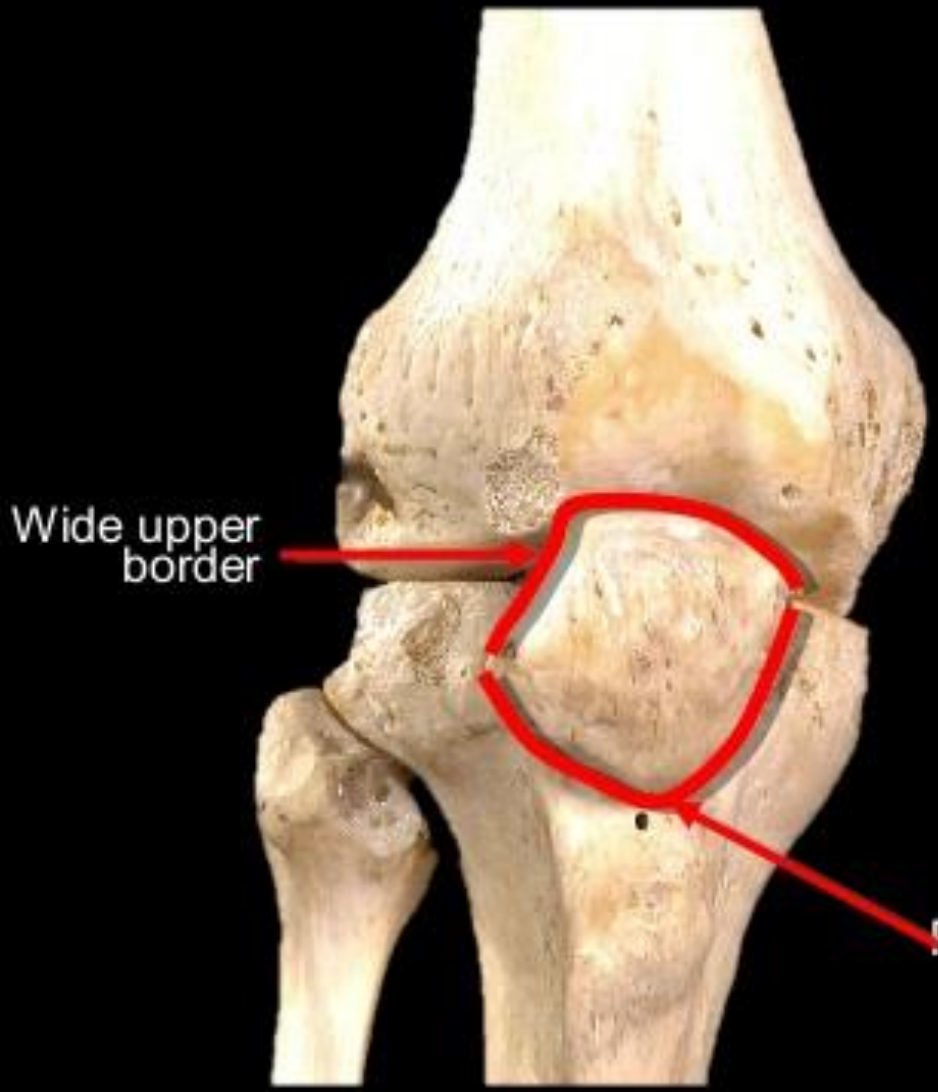
The **posterior surface** of the patella articulates with the femur, and is marked by two facets:

- **Medial facet** – articulates with the medial condyle of the femur.
- **Lateral facet** – articulates with the lateral condyle of the femur.

PATELLA BONE

- **4 BORDERS**
- SUPERIOR
- INFERIOR
- MEDIAL
- LATERAL
- **2 SURFACES**
- ANTERIOR
- POSTERIOR

The Patella has a wide upper border



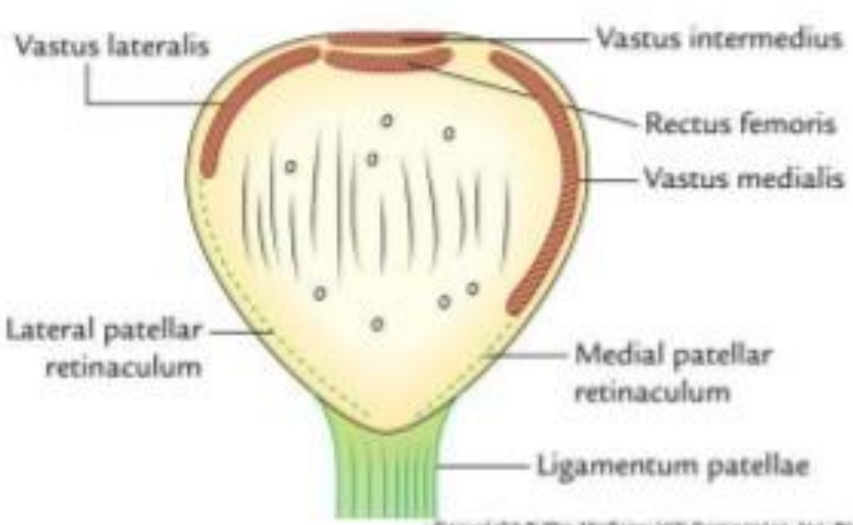
The Patella has a wide upper border

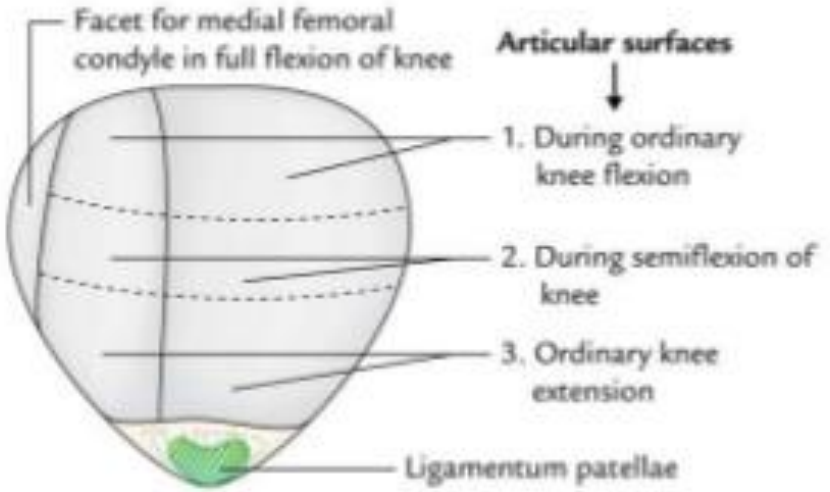
The lower border is pointed and is called the Patellar Apex

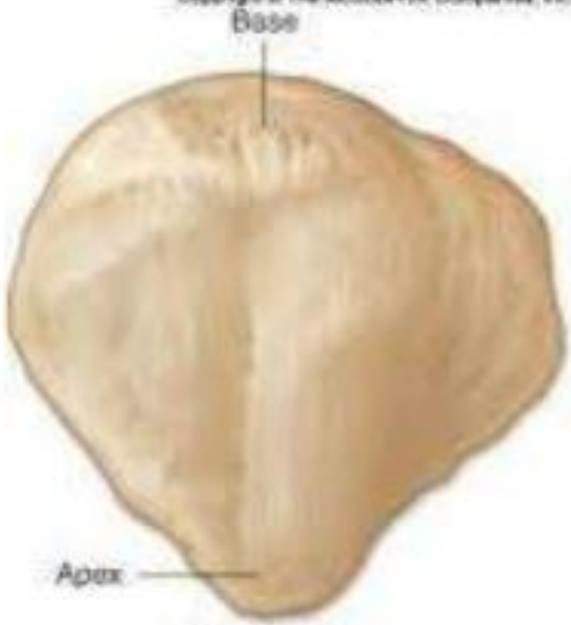
ANATOMICAL POSITION AND SIDE DECISION

- Hold the patella in the position that:
- Its apex faces downward and its base faces upward.
- Its articular surface faces posteriorly. The large lateral part of articular surface determines the side.
    - Keep the articular surface of patella on the table-top in this manner that its base is directed toward you and its apex far from you. Now find the tilt of patella. The patella, usually, constantly tilts toward the side it belongs to.

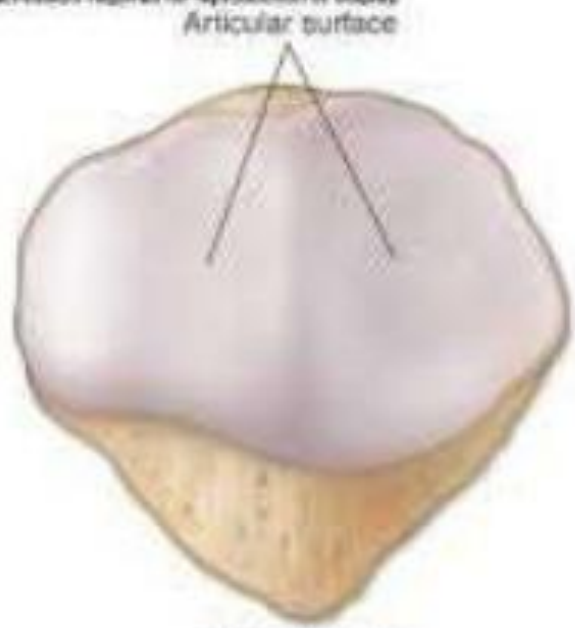
FEATURES AND ATTACHMENTS



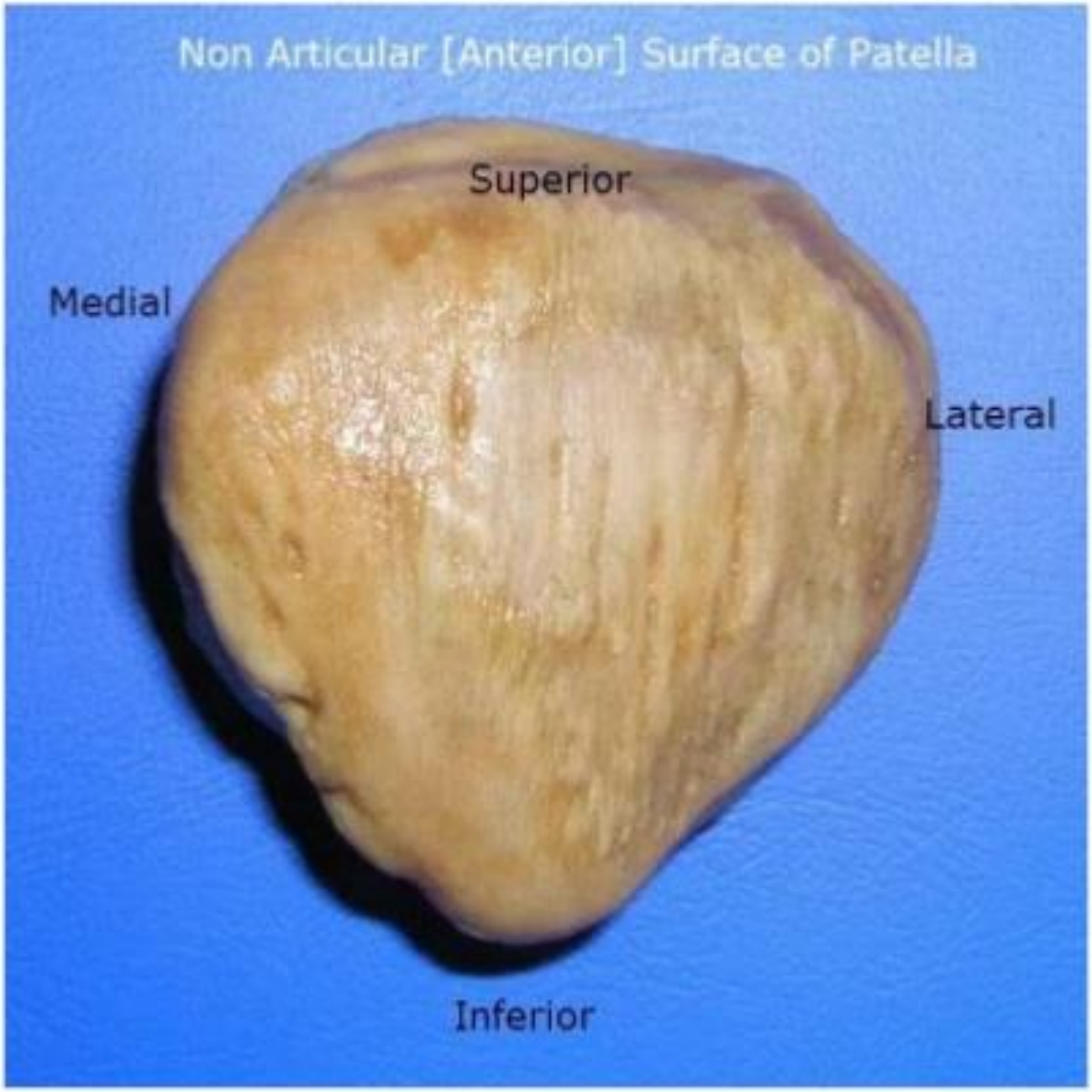




Anterior view



Posterior view

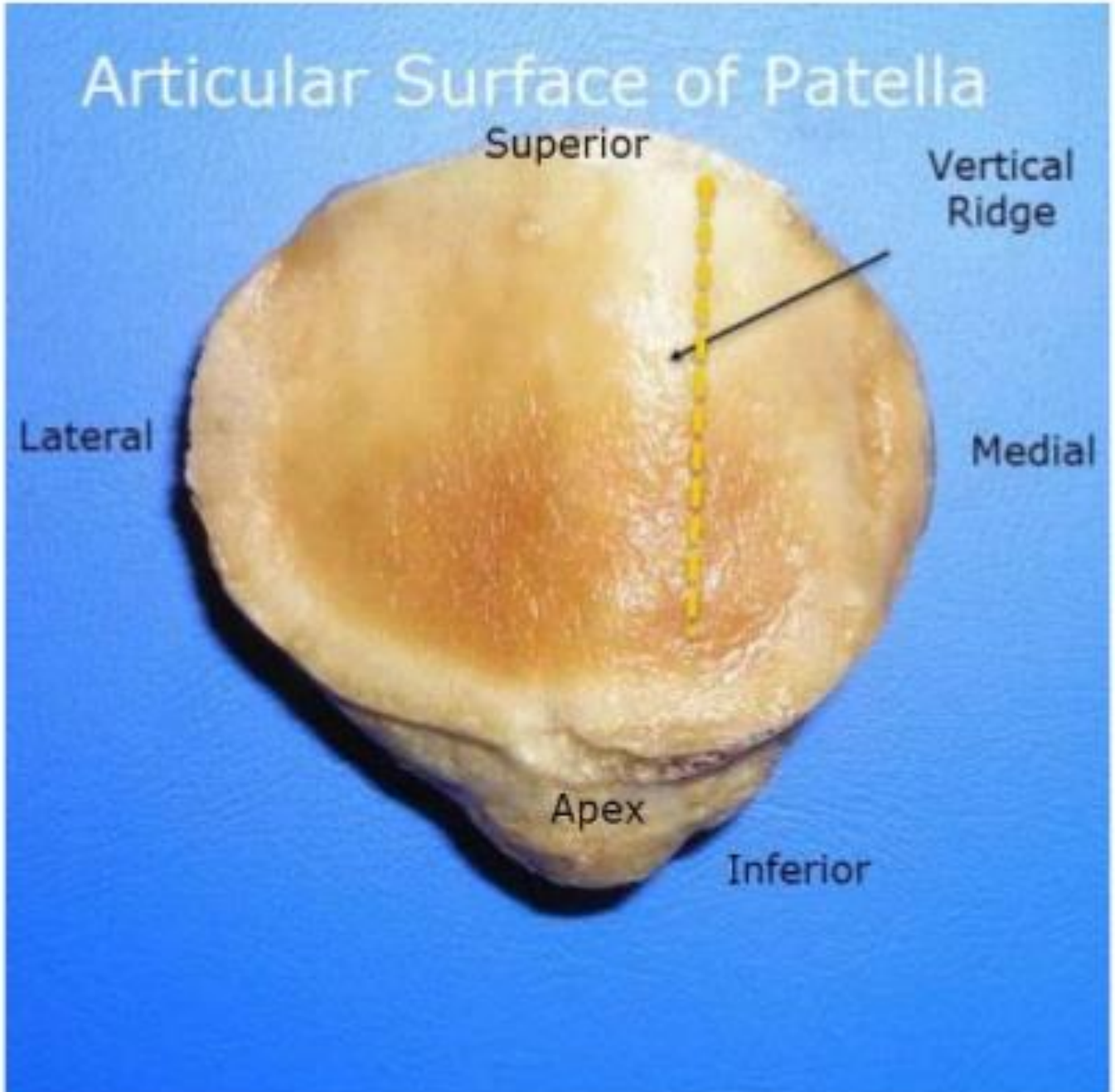

Non Articular [Anterior] Surface of Patella
Superior
Medial
Lateral
Inferior

BORDERS

- ***Lateral Border***
- It gives connection to **vastus lateralis** in its upper one-third and lateral patellar retinaculum in the lower two-third.
- ***Medial Border***
- It gives connection to **vastus medialis** in the upper two-third and medial patellar retinaculum in its lower one-third.
- The medial and lateral patellar retinaculum are the growths of the tendons of vastus lateralis and vastus medialis, respectively.

SURFACES

- ***Anterior Surface***
- It’s rough, convex, longitudinally striated, and presents numerous vascular foramina.
- It’s subcutaneous and subcutaneous prepatellar bursa intervenes between it and skin.


Articular Surface of Patella
Superior
Vertical Ridge
Lateral
Medial
Apex
Inferior

Posterior Surface

Its lower quarter is rough and non-articular while its upper three-fourth is smooth and articular.

Small non-articular part near the apex is sp into 2 regions: lower and upper.

- Lower area gives connection to ligamentum patellae.
- Upper area is related to infrapatellar pad of fa
- C

Posterior Surface

The upper 2/3rds is smooth and covered in hyaline cartilage

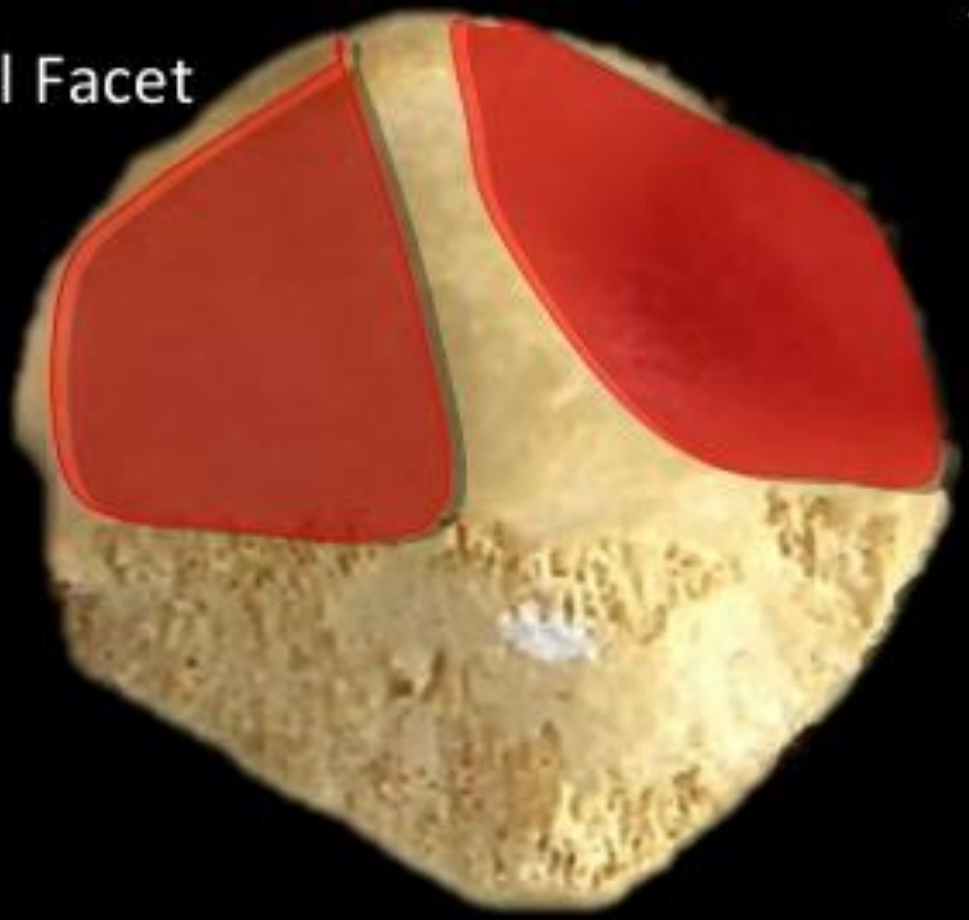
It engages with the Medial and Lateral Femoral Condyles

he Posterior Surface

There is a prominent vertical ridge that divides the posterior articular surface into medial and lateral facets

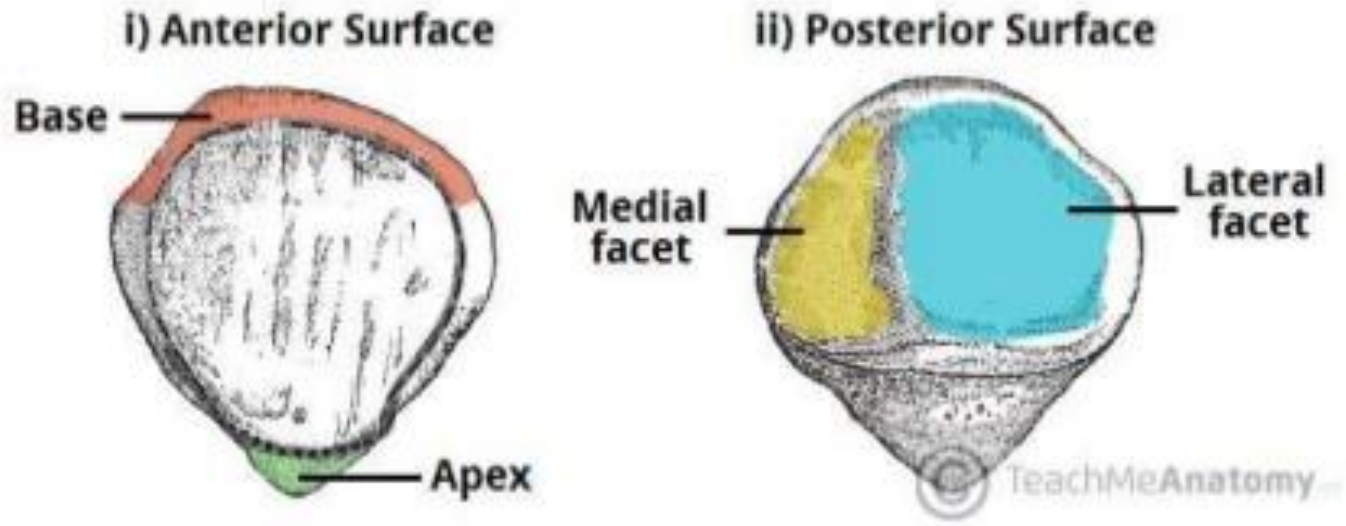
The Posterior Surface

Medial Facet



The Lateral Facet is lar
and gently concave

The patella


i) Anterior Surface
Base
Apex
ii) Posterior Surface
Medial facet
Lateral facet
TeachMeAnatomy

OSSIFICATION

- The patella ossifies from several centers whic
  appear during 3-6 years and fuse immediate
  to create an individual center.
  The **ossification** of patella is finished at
  puberty.

Functions

- The patella has two main functions:
- **Leg extension** – Enhances the leverage that the quadriceps tendon can exert on the femur, increasing the efficiency of the muscle.
- **Protection** – Protects the anterior aspect of the knee joint from physical trauma.

DISLOCATION OF THE PATELLA

- The patella has natural inclination to dislocate laterally because of upward and lateral pull by the quadriceps. Nevertheless, it's countered by 3 variables:
- More forward projection of lateral femoral condyle.
- More protracted insertion of vastus medialis to the medial border of the patella than that of vastus lateralis on the lateral border.
- Medial pull used by medial patellar retinaculum

FRACTURE OF THE PATELLA

- (a) A direct blow on the patella **fractures** it into 2 o more bits
- (b) a sudden and strong contraction of **quadriceps femoris** causes a transverse fracture of the patella The patella being a sesamoid bone is devoid of the periosteum, thus when fractured bony union doesn't take place.