



Introduction to Anatomy

Practical Lab

1st year Medical Students

2025-2026

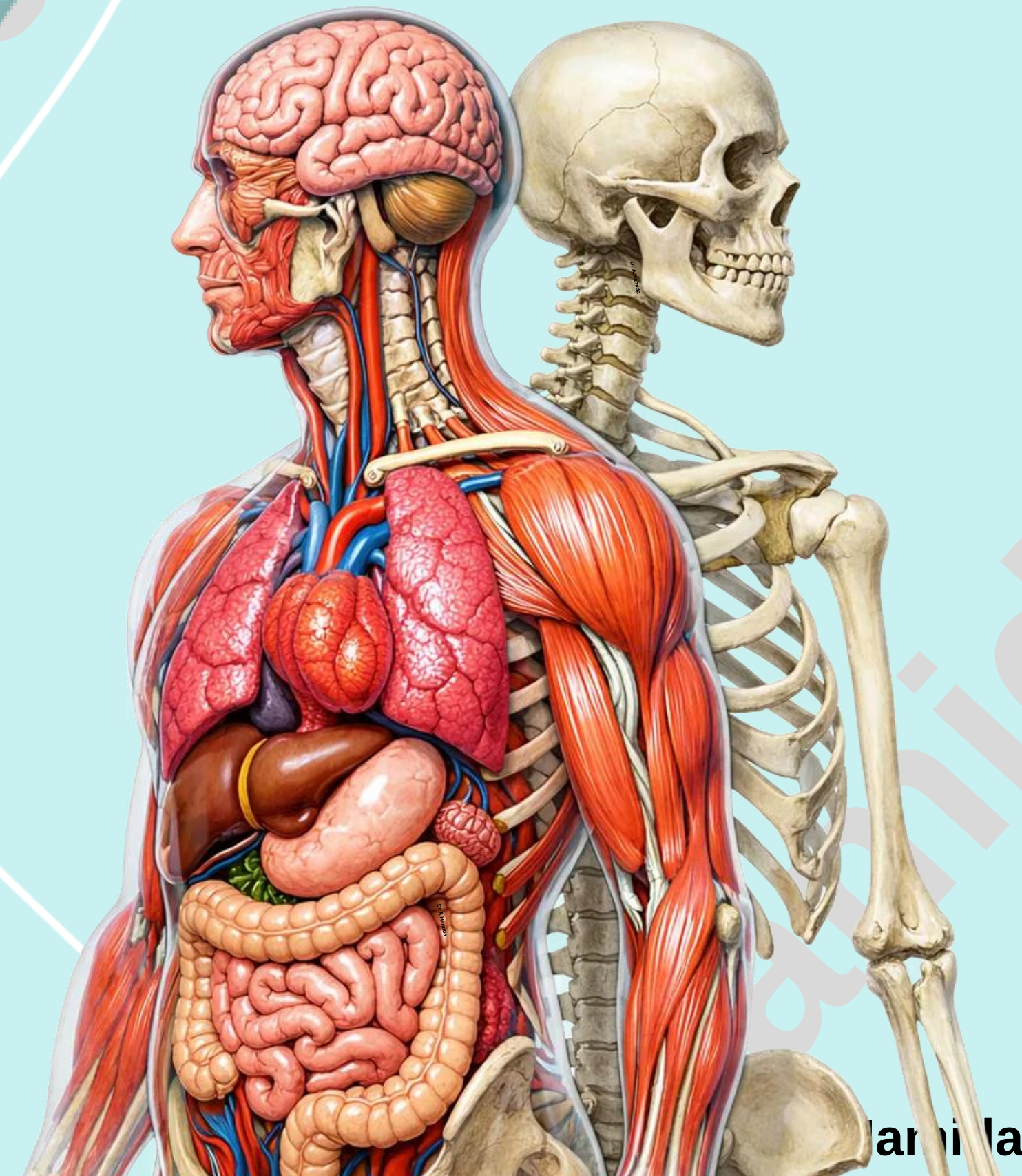
Second Semester

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Hamida

Practical Lab-6

Lower Limb Bones

- 1. Femur**
- 2. Patella**

Check List: Lower Limb Bones

Practical Lab-6

1. Femur

✓ Identify the type and anatomical location of the femur.

✓ Outline the major parts of the femur:

- Proximal (upper) end:

- Head.
- Fovea of head.
- Neck.
- Greater trochanter.
- Lesser Trochanter.
- Intertrochanteric line.
- Intertrochanteric crest.

- Shaft.

- Linea aspera.
- Gluteal tuberosity.
- Pectineal line.

- Distal (lower) end.

- Medial and Lateral condyles.
- Medial and Lateral epicondyles.
- Medial and lateral supracondylar lines.
- Popliteal Surface.
- Adductor tubercle.
- Intercondylar fossa.
- Patellar surface.

Check List: Lower Limb Bones

Practical Lab-6

2. Patella

- ✓ Identify the type and anatomical location of the patella.
- ✓ Outline the major parts of the patella:
 - Base
 - Apex
 - **Borders** (superior, medial , and lateral)
 - **Surfaces** (anterior and posterior)

Check List:

Practical Lab-6

1. Femur

- ✓ Identify the type and anatomical location of the femur.
- ✓ Outline the major parts of the femur:
 1. **Proximal end:** consists of: Head, Neck, and Trochanters
 2. **Shaft:** consists of: Linea aspera, Gluteal tuberosity, and Pectineal line.
 3. **Distal end:** consists of: Medial and Lateral condyles, Medial and Lateral epicondyles, Medial and lateral supracondylar lines, Popliteal Surface Adductor tubercle, Intercondylar fossa, Patellar surface.



Check List:

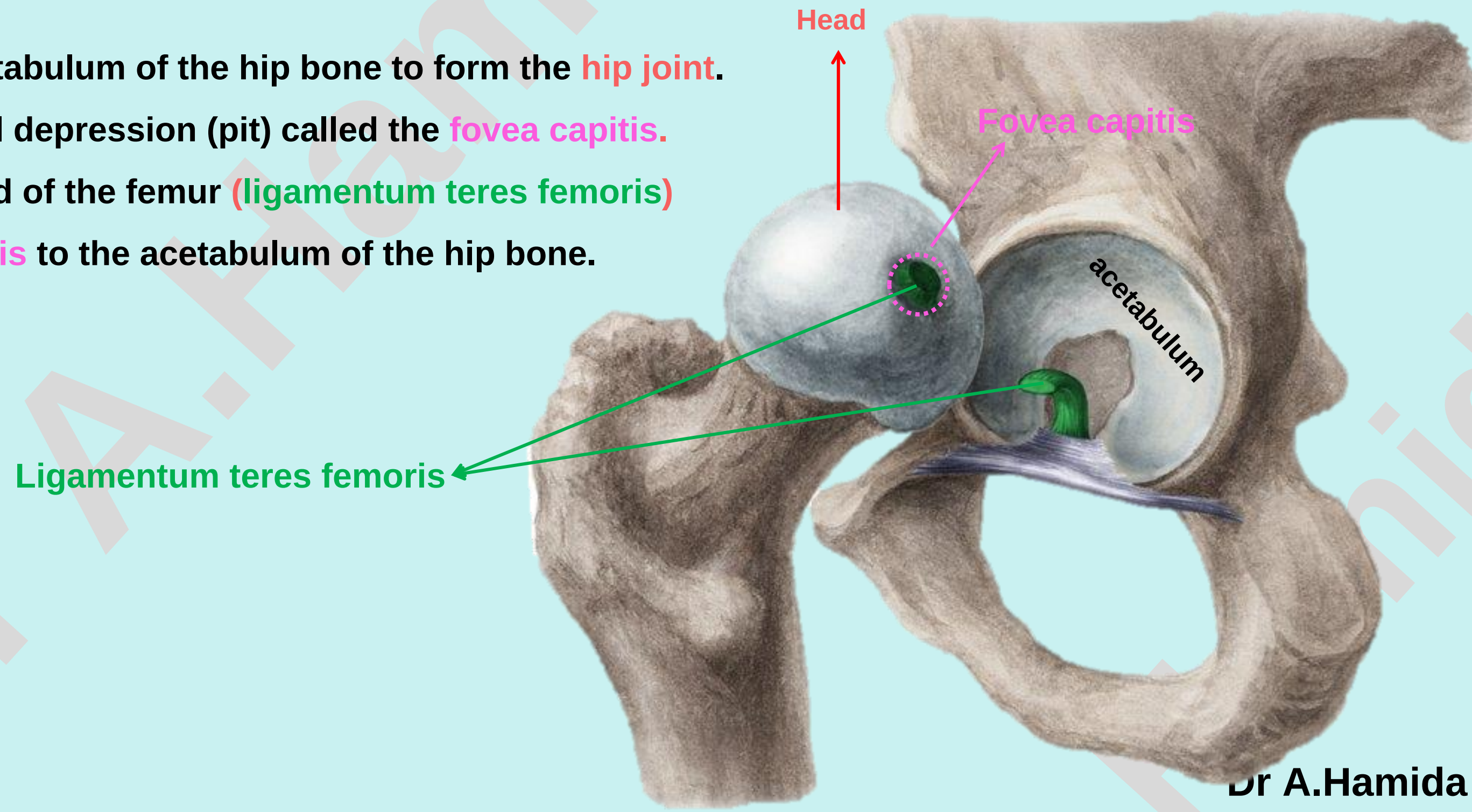
Practical Lab-6

1. Femur

1. **Proximal end:** consists of:

i. **Head:**

- Spherical in shape.
- Articulates with the acetabulum of the hip bone to form the **hip joint**.
- Contains a small central depression (pit) called the **fovea capitis**.
- The ligament of the head of the femur (**ligamentum teres femoris**) attaches the **fovea capitis** to the acetabulum of the hip bone.



Check List:

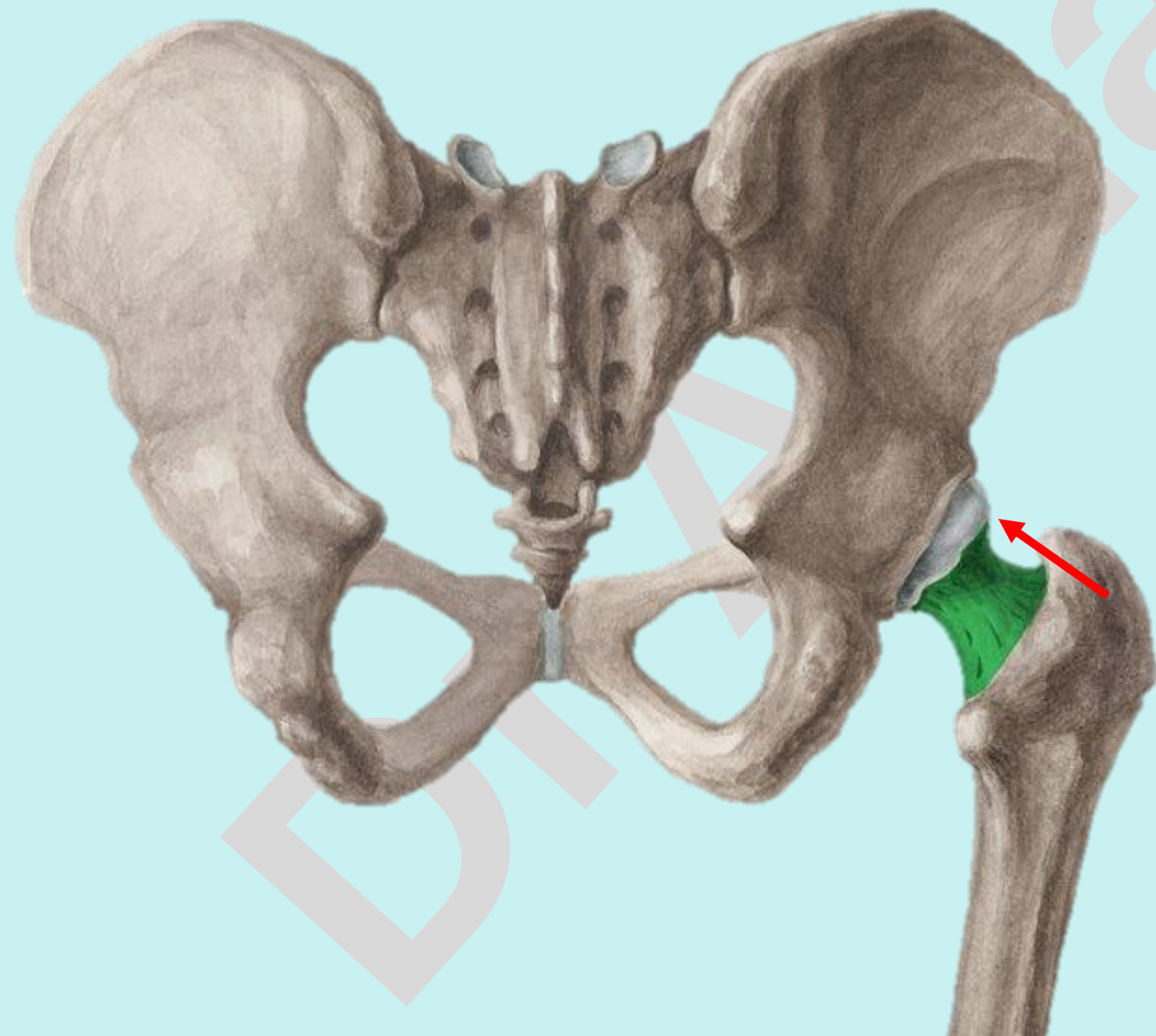
Practical Lab-6

1. Femur

1. **Proximal end:** consists of:

ii. **Neck:**

- A constricted region connecting the head to the shaft.
- Directed medially, upward, and slightly anteriorly



Check List:

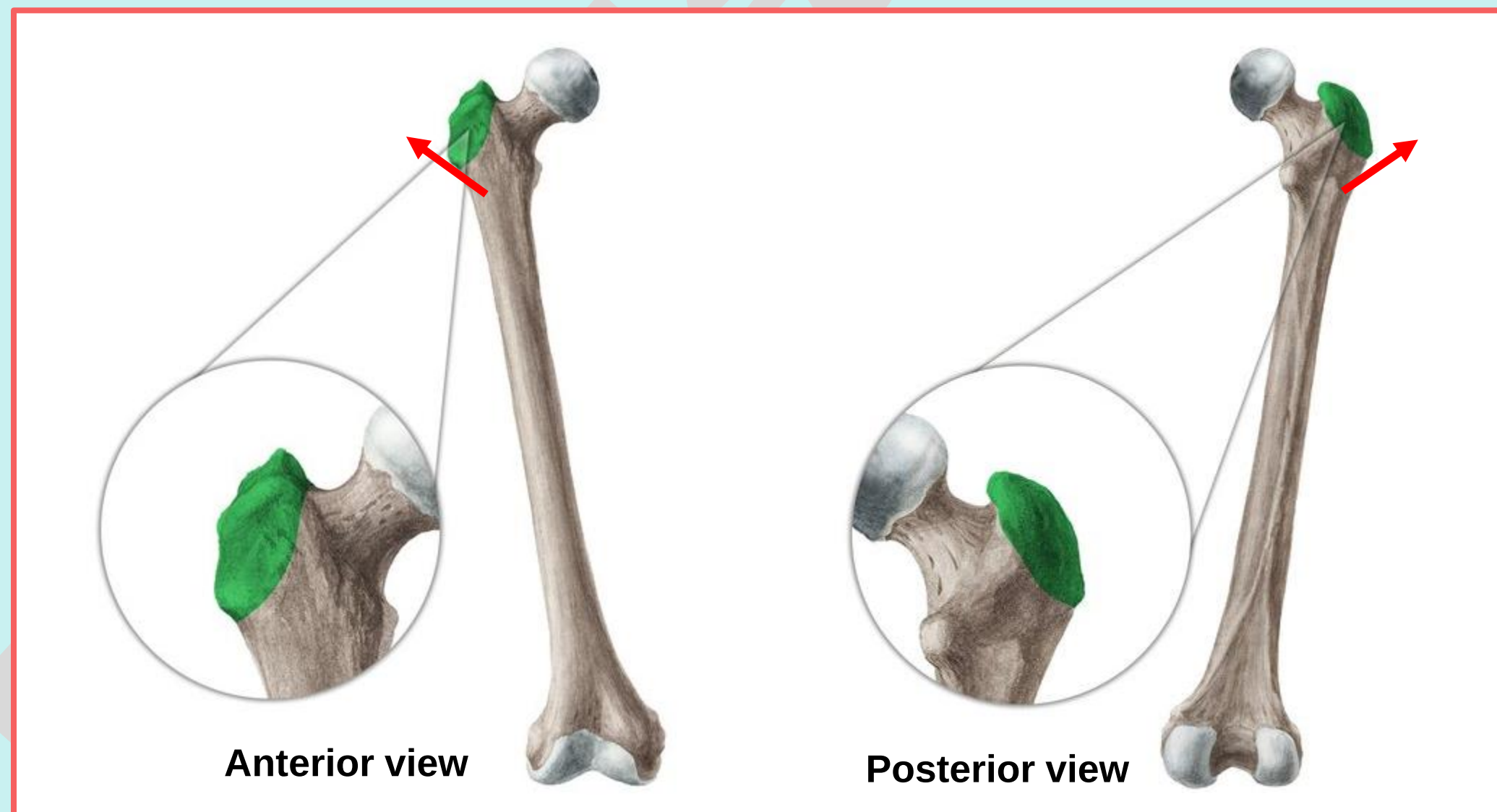
1. Femur

1. Proximal end: consists of:

iii. Trochanters :

1. Grater Trochanter:

- Large projection from the lateral side of the junction of neck and shaft.
- Directed upward and laterally.



Check List:

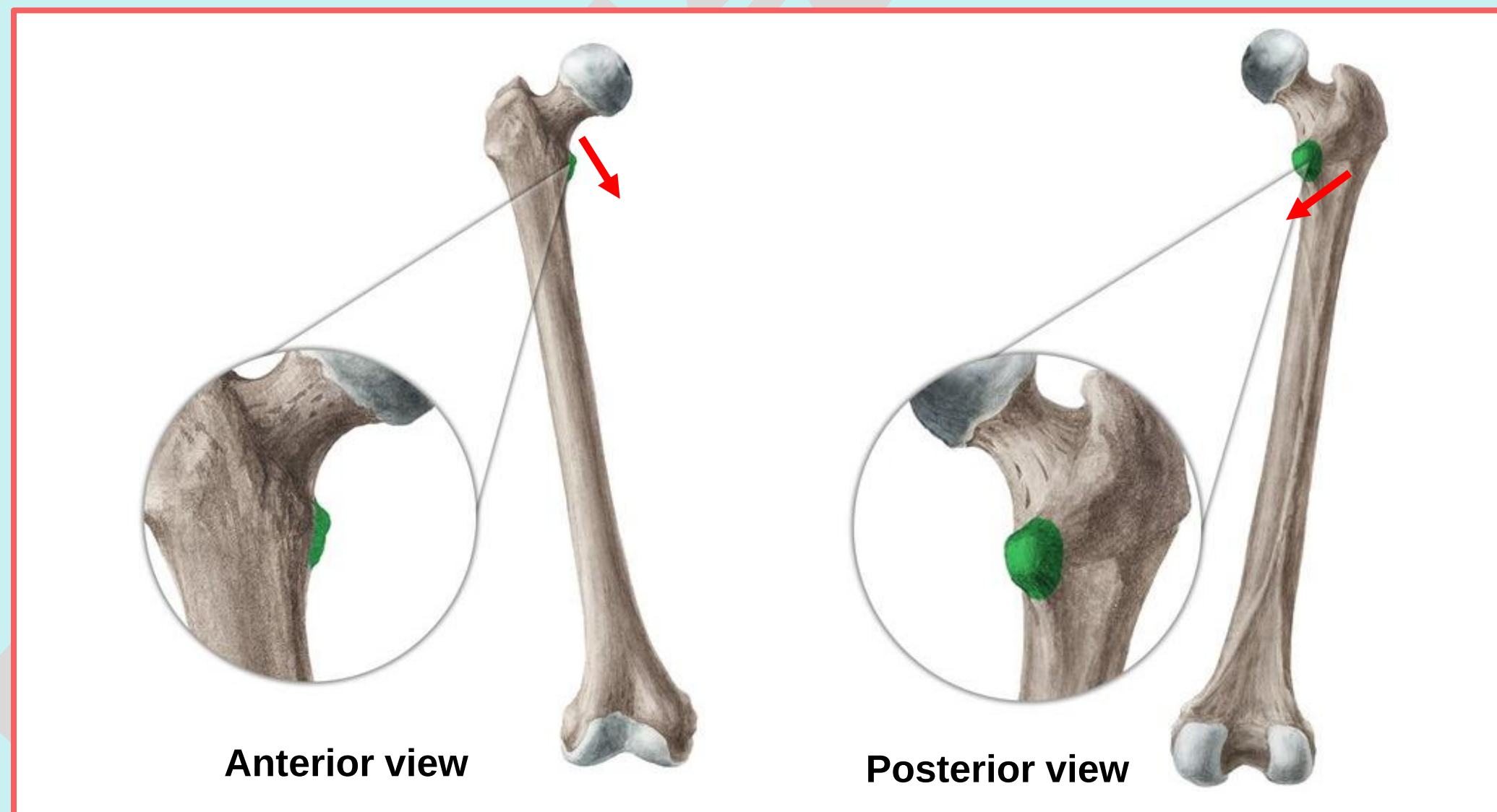
1. Femur

1. Proximal end: consists of:

iii. Trochanters :

2. Lesser Trochanter:

- Smaller projection from the posteromedial aspect of the neck–shaft angle.
- Directed medially.



Check List:

Practical Lab-6

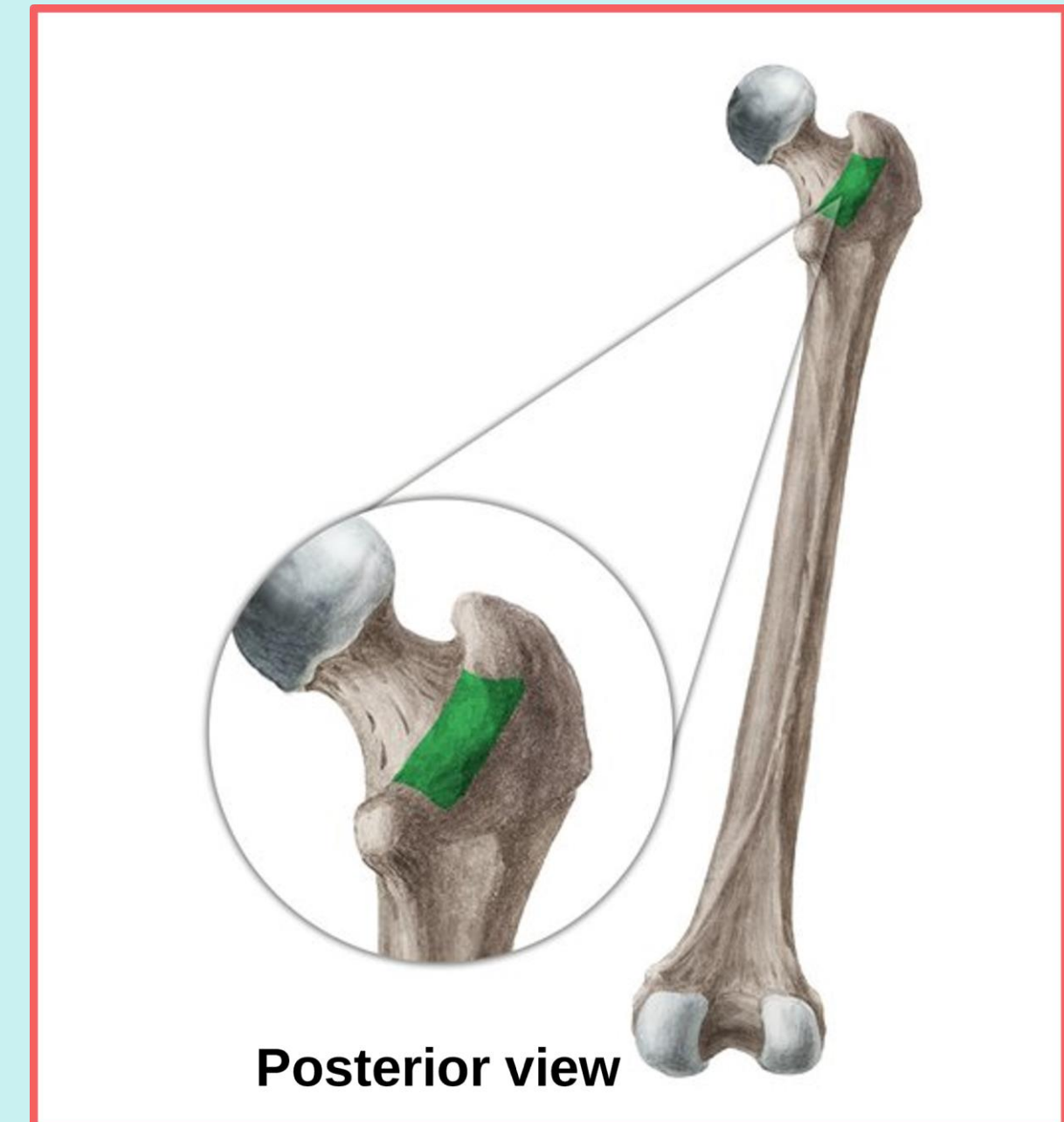
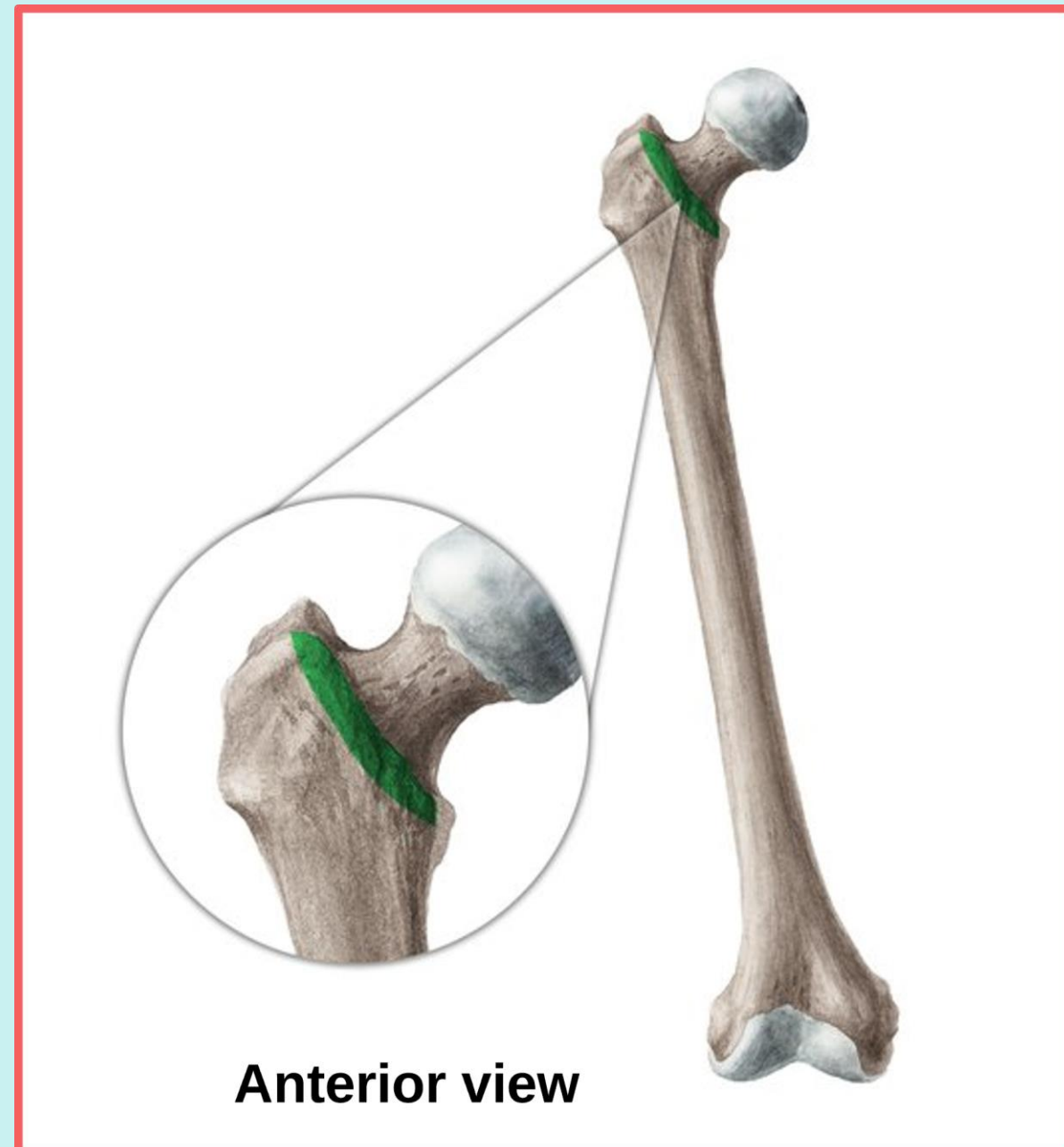
1. Femur

1. **Proximal end:** consists of:

iii. **Trochanters** :

- **Intertrochanteric line:** Extends between the greater and lesser trochanters anteriorly.

- **Intertrochanteric crest:** Extends between the greater and lesser trochanters posteriorly.



Check List:

Practical Lab-6

1. Femur

2. **Shaft:** identify key features of the posterior surface:

Linea aspera: a prominent ridge at the middle part of the posterior surface.



Posterior view

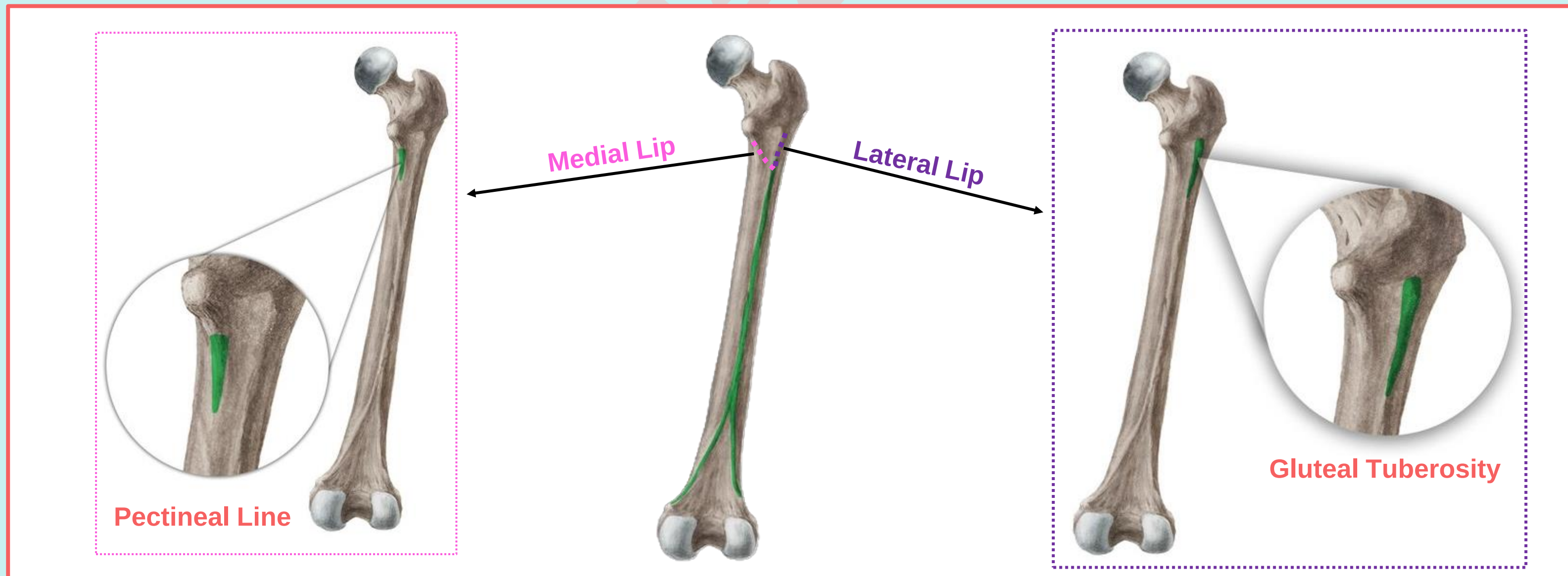
Check List:

1. Femur

2. **Shaft:** identify key features of the posterior surface:

Linea aspera:

- The **upper end** of the linea aspera diverges into inner (medial) lip and outer (lateral) lip.
- Medial lip continues as the Pectineal Line (which extends toward the lesser trochanter).
- Lateral lip continues as Gluteal Tuberosity (which extends toward the greater trochanter).



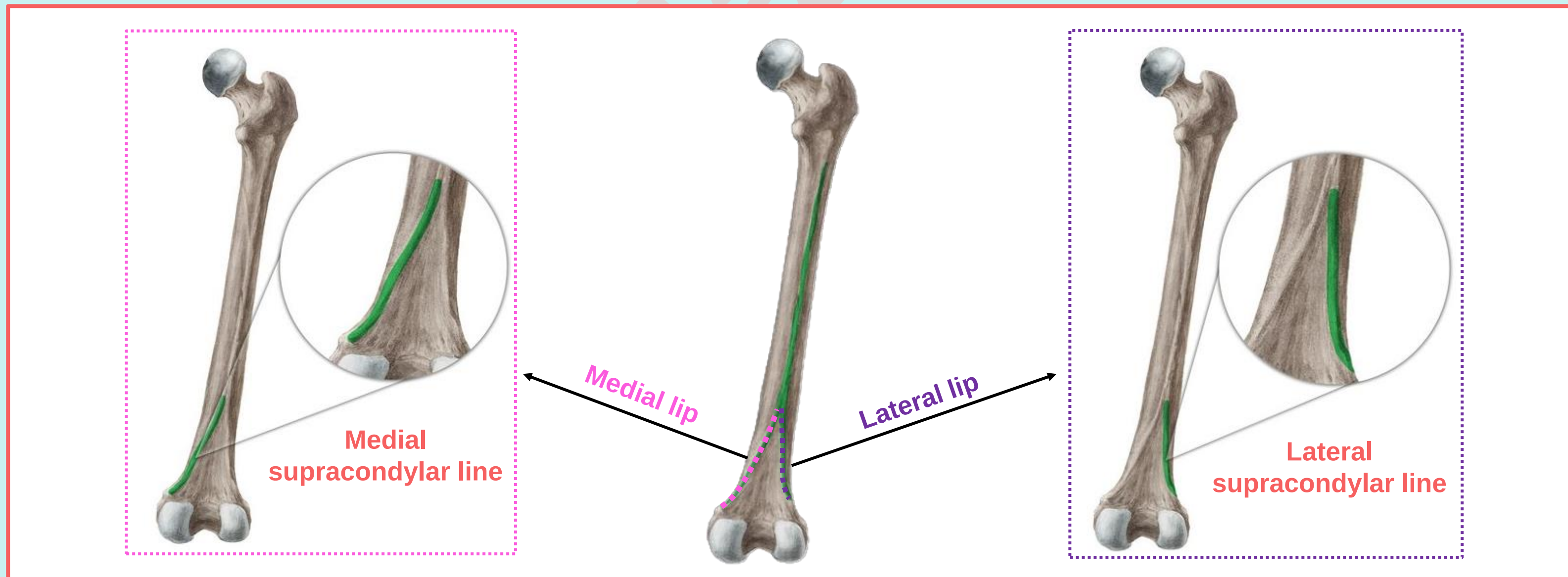
Check List:

1. Femur

2. **Shaft:** identify key features of the posterior surface:

Linea aspera:

- The **lower end** of the linea aspera diverges into inner (medial) lip and outer (lateral) lip.
- Medial lip continues becomes continuous with the Medial supracondylar Line.
- Lateral lip continues becomes continuous with Lateral supracondylar Line.

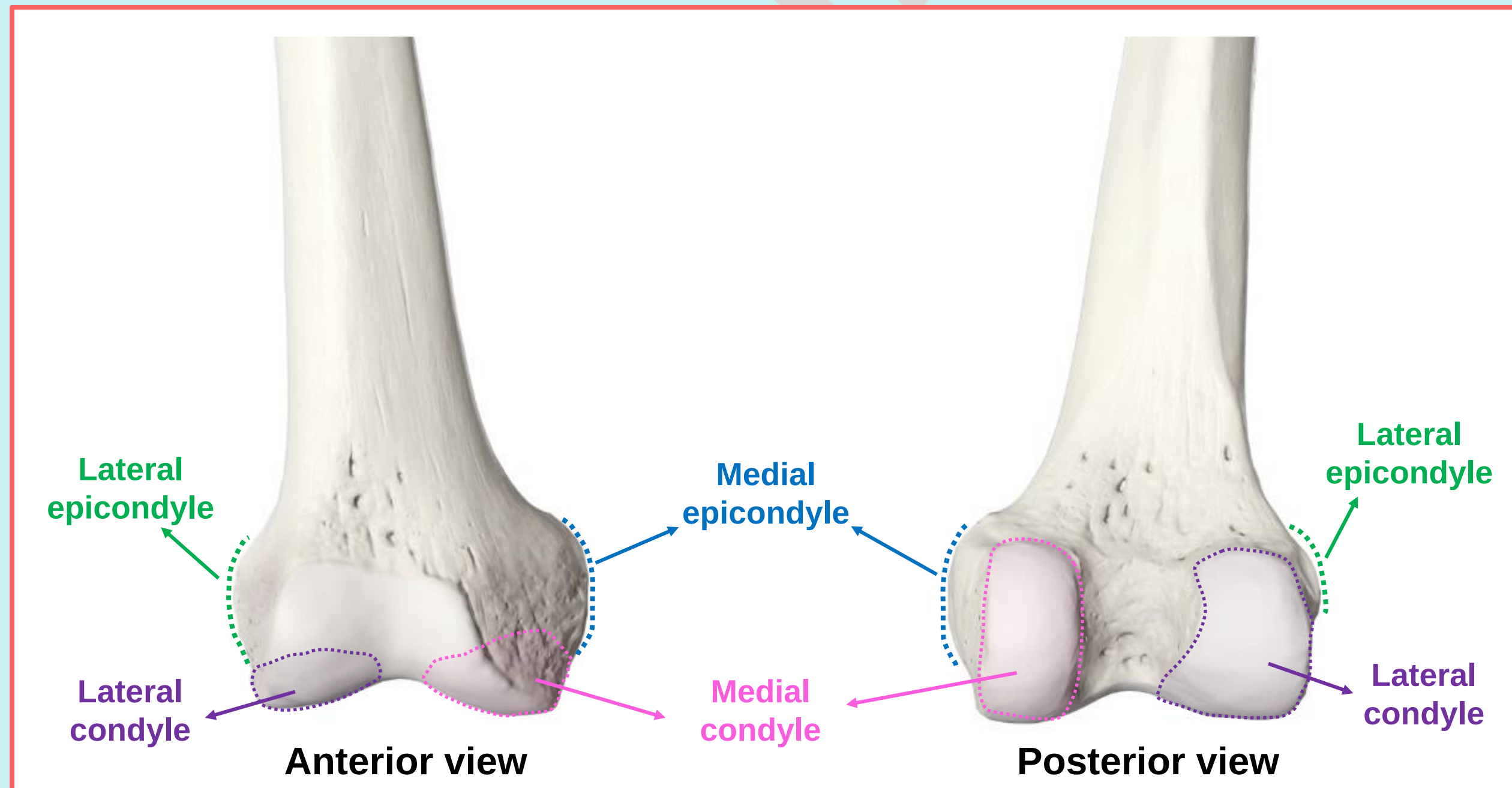


Check List:

1. Femur

3. **Distal end:** consists of:

- i. **Condyles:** **Medial condyle** and **Lateral condyle**, which articulate with the medial and lateral condyles of the tibia.
- ii. **Epicondyles:** **Medial epicondyle** and **lateral epicondyle** are located above the corresponding condyles.



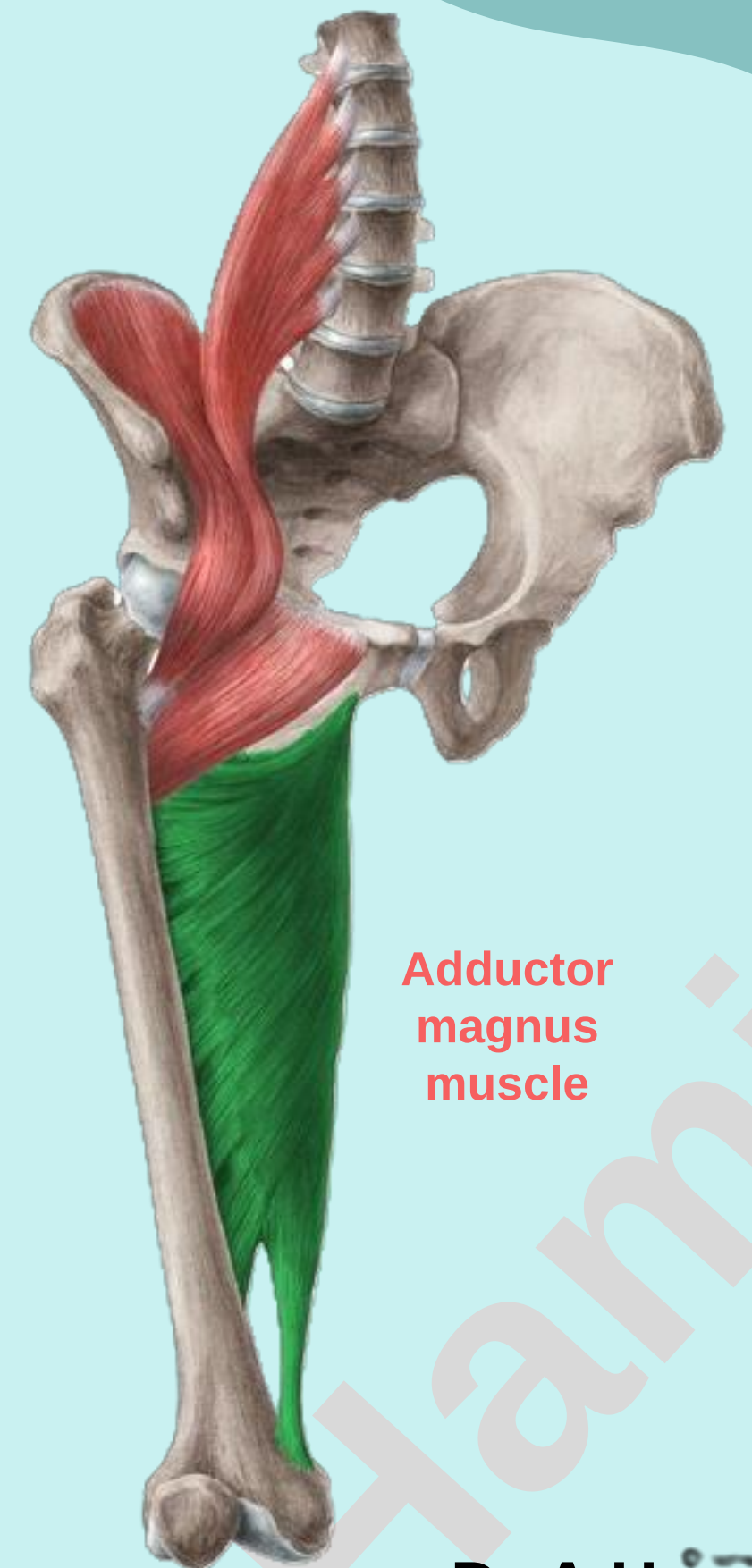
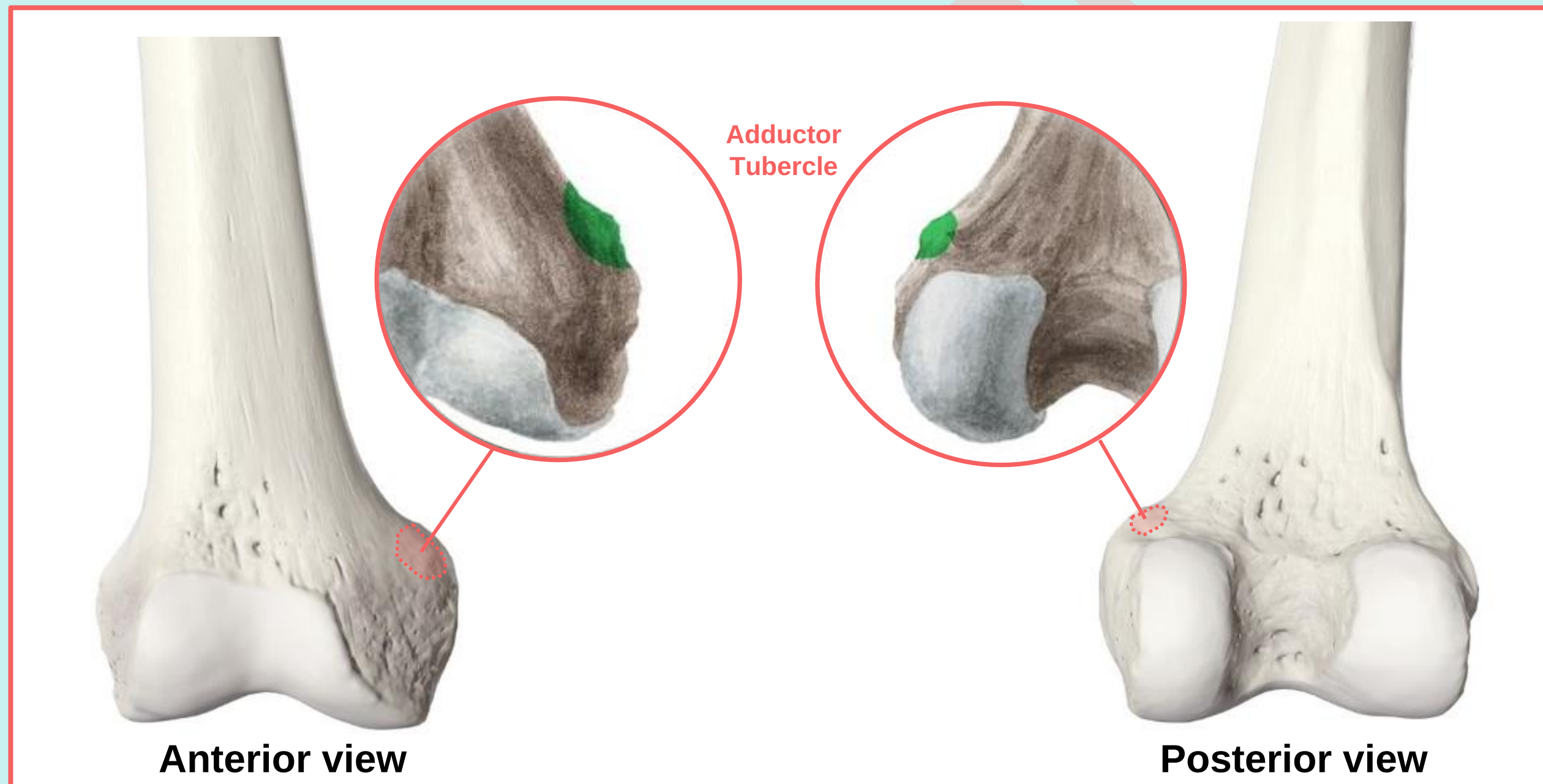
Check List:

1. Femur

3. **Distal end:** consists of:

iii. **Adductor Tubercle:**

- Presents at the posterosuperior surface of the medial condyle.
- Provides insertion for the **adductor magnus muscle**.



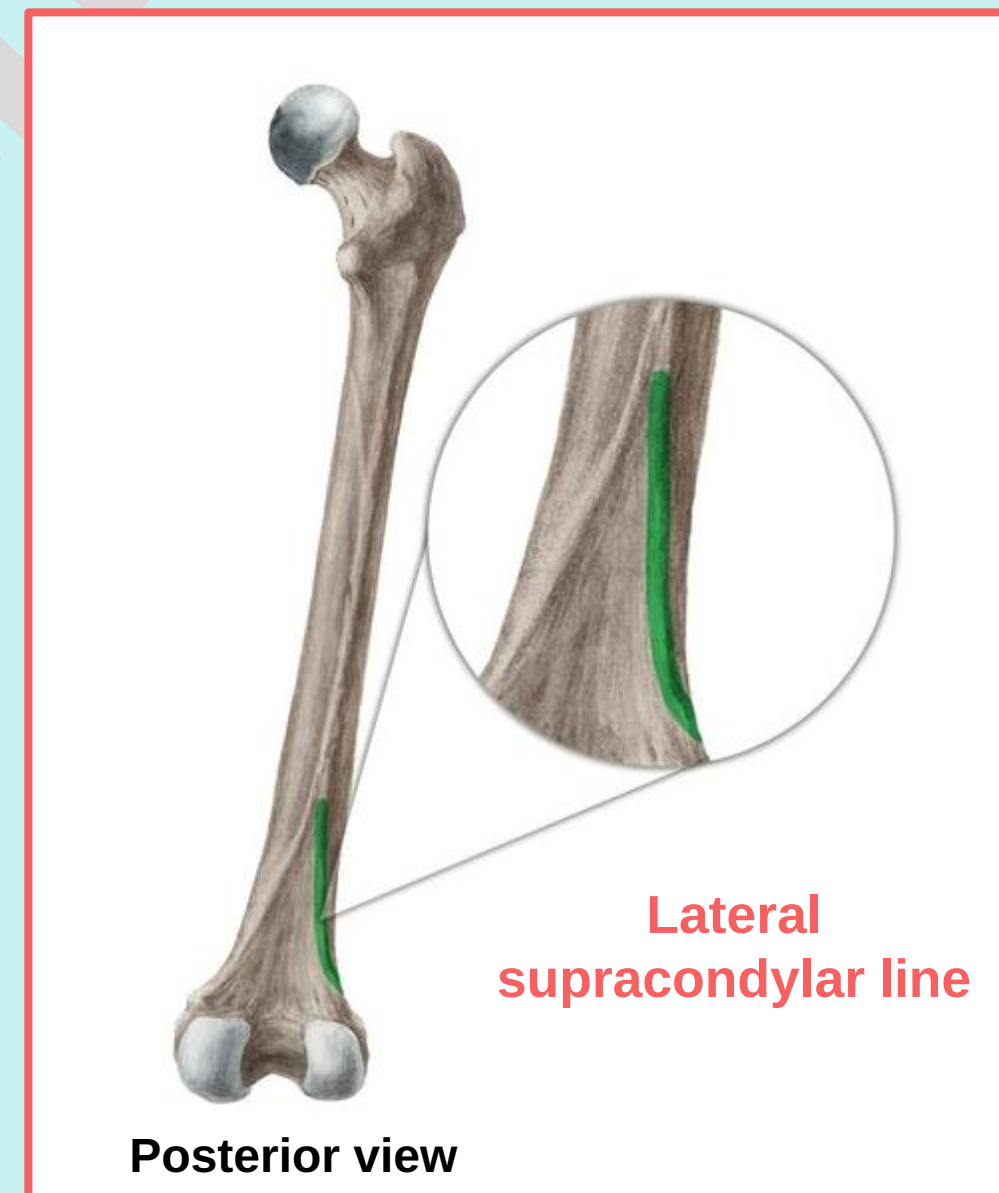
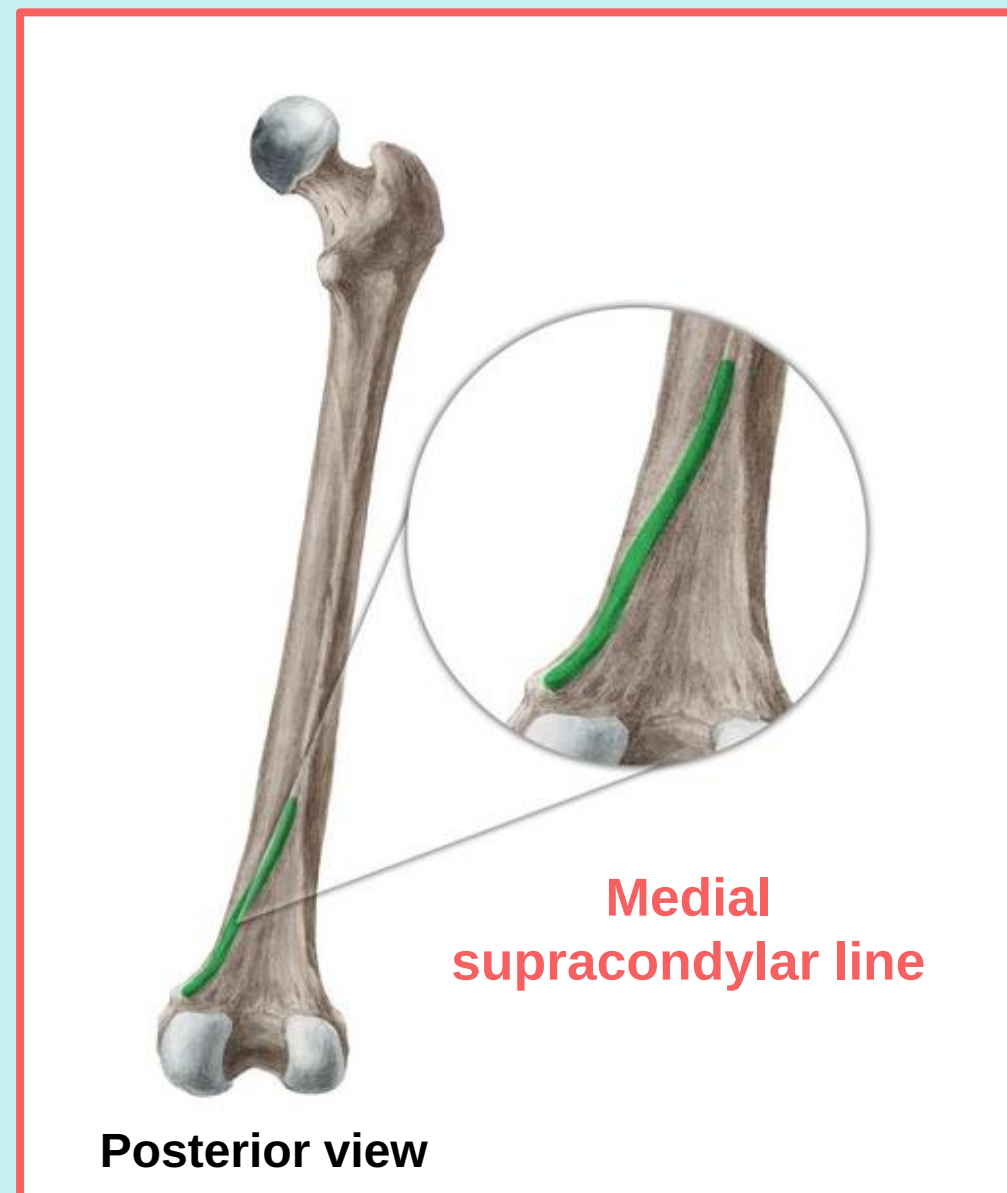
Check List:

1. Femur

3. Distal end: consists of:

iv. Supracondylar lines:

- Medial and lateral supracondylar lines are located above the corresponding epicondyles posteriorly.



Check List:

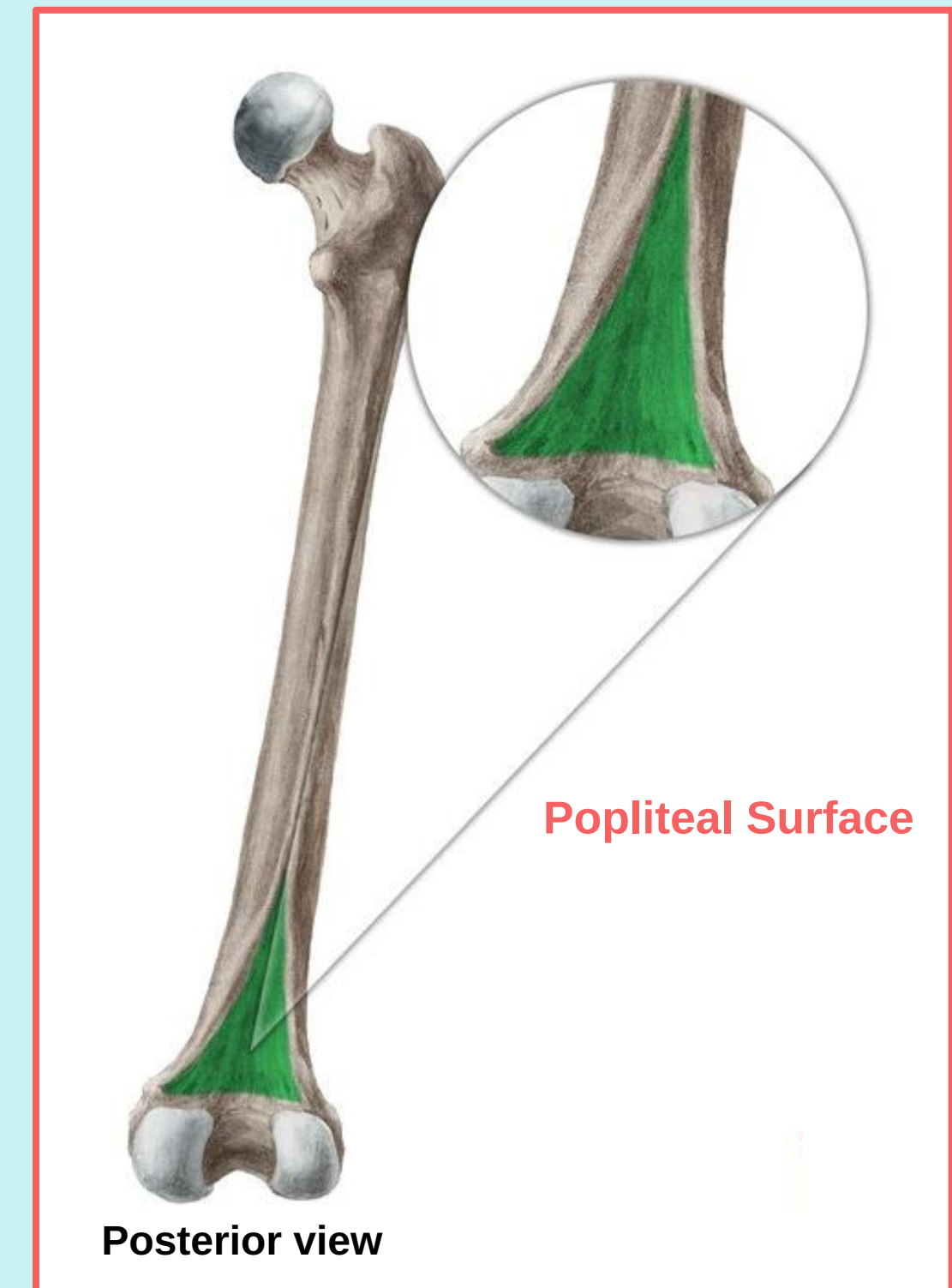
Practical Lab-6

1. Femur

3. **Distal end:** consists of:

v. **Popliteal Surface:**

- A smooth, flat, triangular area located on the posterior aspect of femur, between the medial and lateral supracondylar lines.



Check List:

1. Femur

3. Distal end: consists of:

vi. Intercondylar Fossa (Intercondylar Notch):

- A deep notch that separates two condyles posteriorly.



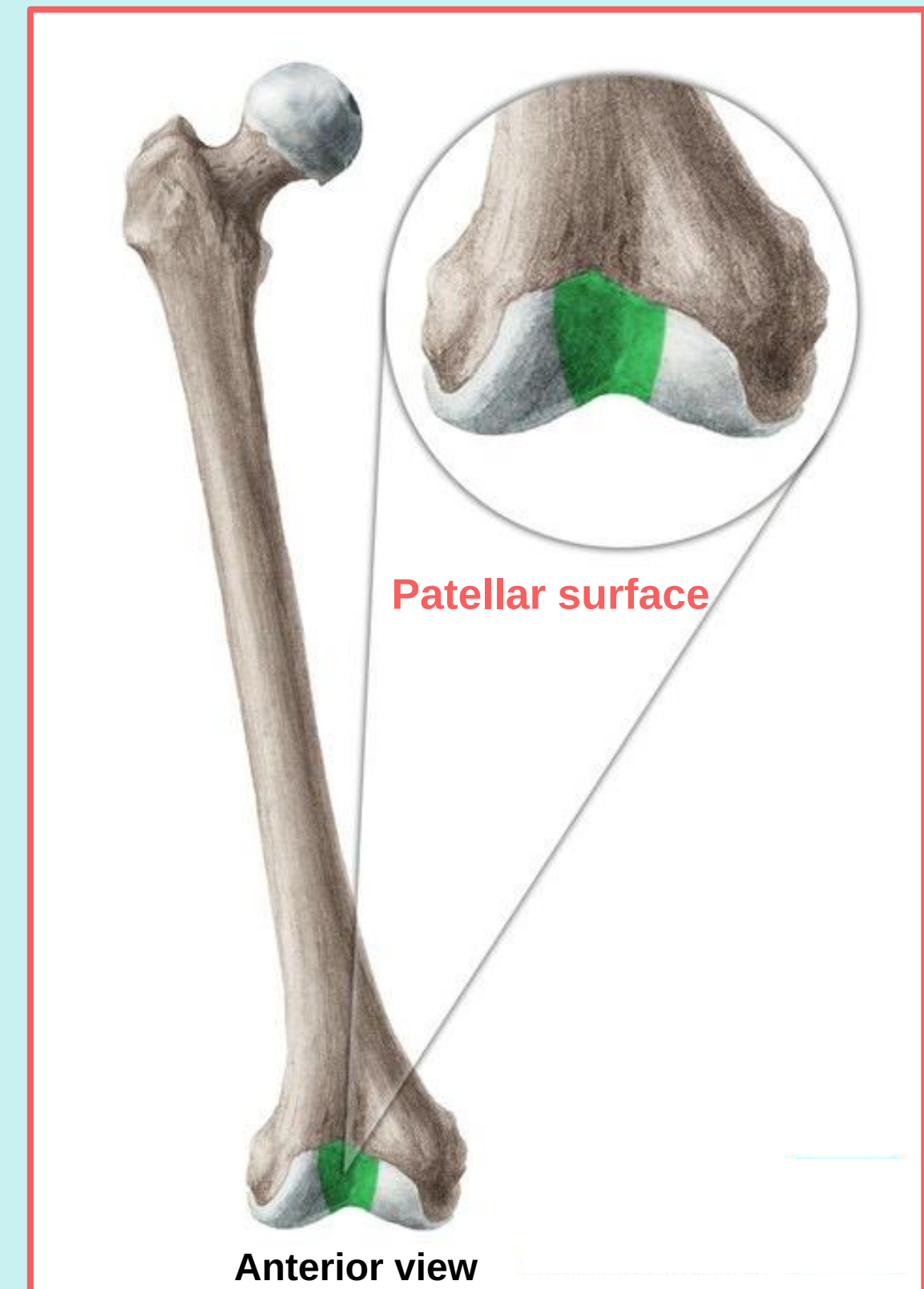
Check List:

1. Femur

3. **Distal end:** consists of:

vii. Patellar surface (trochlear surface):

- It is the anterior distal surface of the femur articulating with the patella.



Check List:

Practical Lab-6

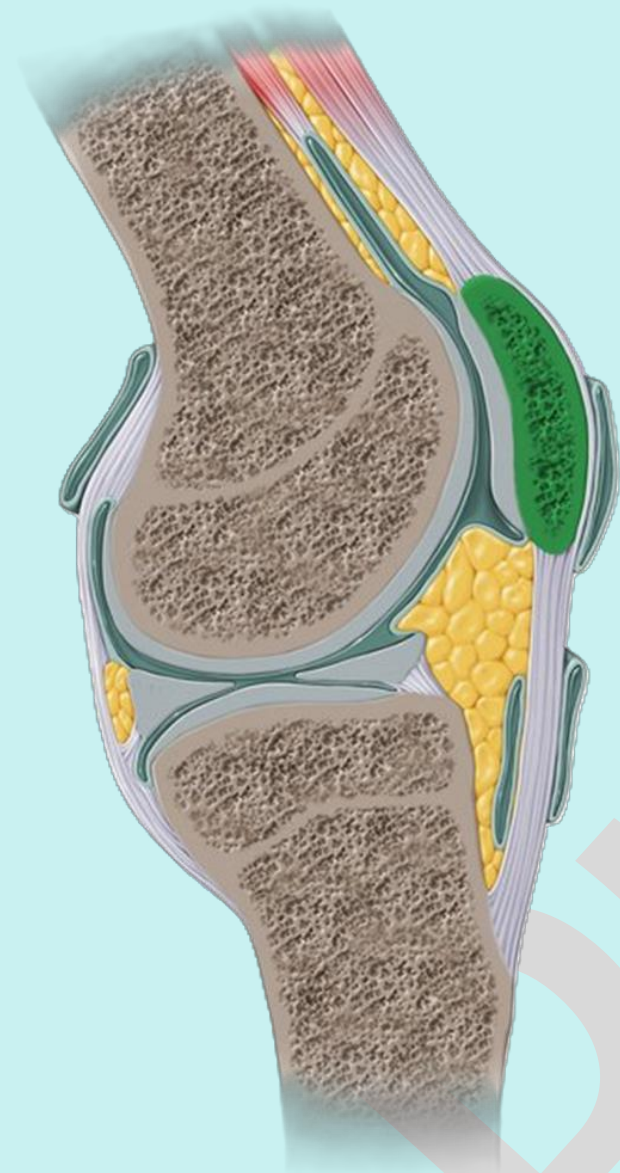
1. Femur

- ✓ **Determine the side and anatomical position by holding it in such a way that:**
 - 1. The head faces upward, medially, and slightly anteriorly.**
 - 2. The linea aspera is directed posteriorly.**
 - 3. The intercondylar fossa is directed posteriorly and inferiorly.**

Check List:

2. Patella (kneecap)

- ✓ The patella is the largest sesamoid bone, located within the tendon of the quadriceps femoris muscle.
- ✓ It lies anterior to the knee joint.



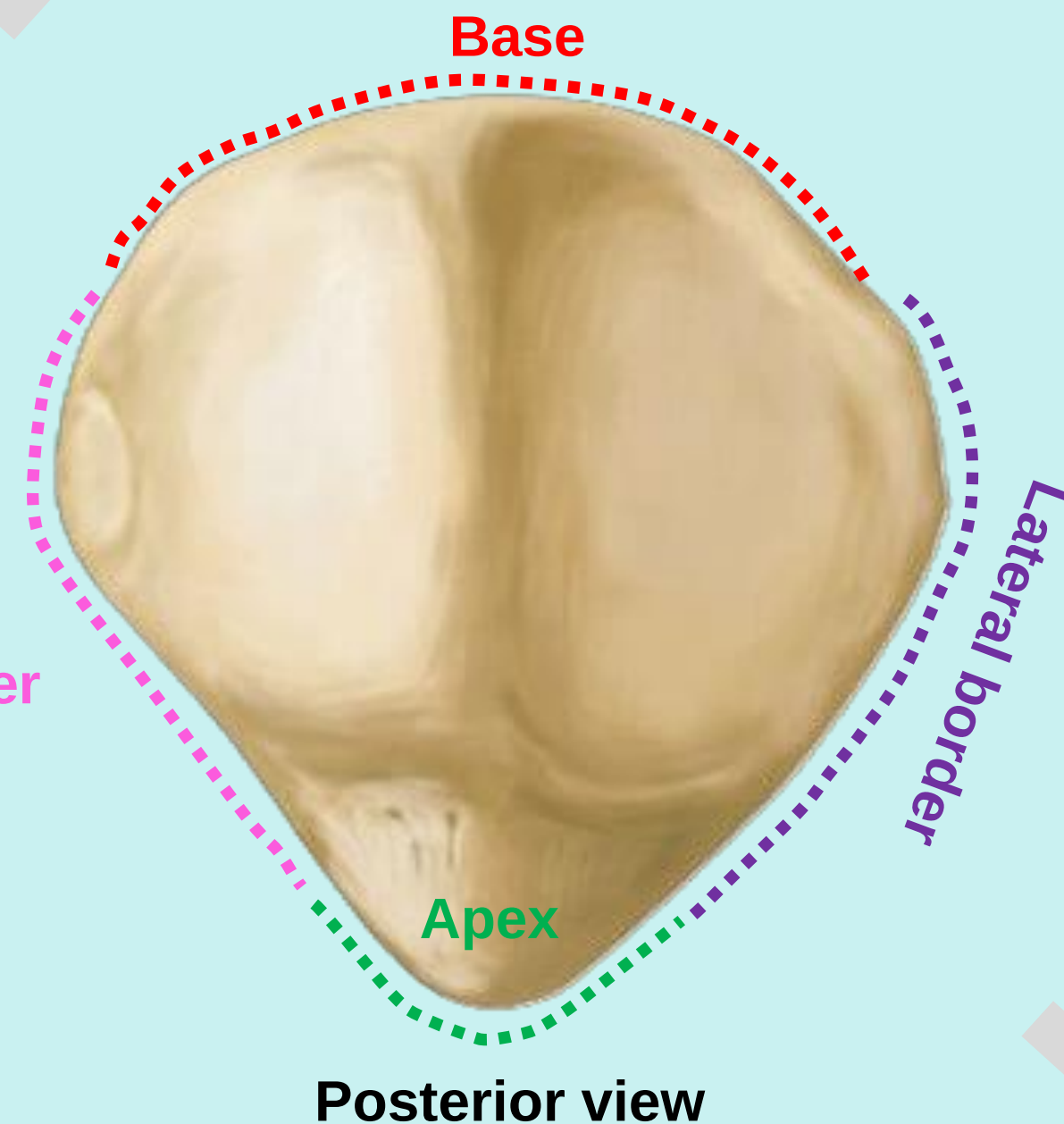
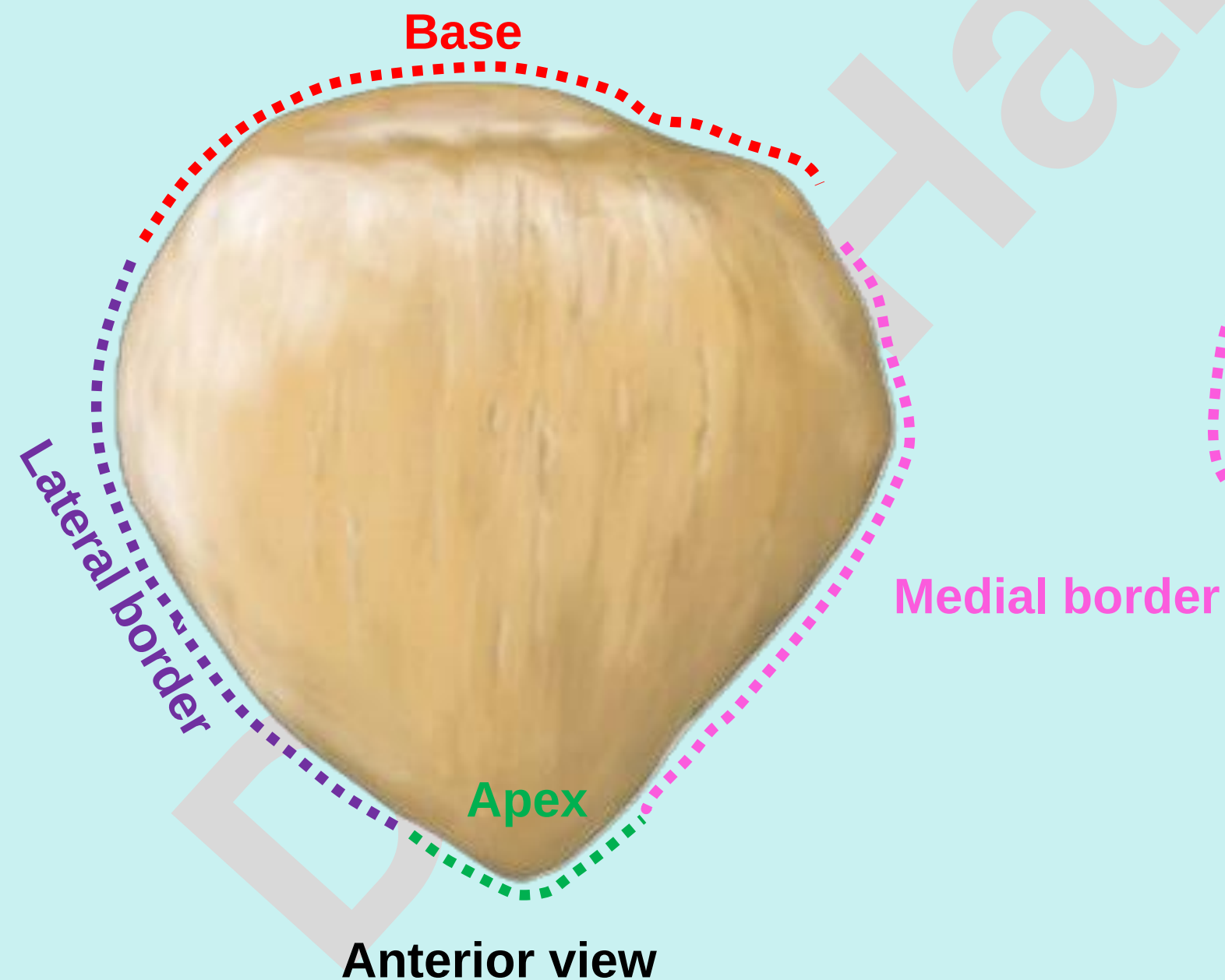
Quadriceps
femoris
muscle

Check List:

2. Patella (kneecap)

✓ Describe the general shape and orientation:

- Triangular in shape, with the **Base** directed superiorly and the **Apex** directed inferiorly.
- It has three borders: **Superior (base)**, **Medial**, and **Lateral**.
- It has two surfaces: Anterior and Posterior.



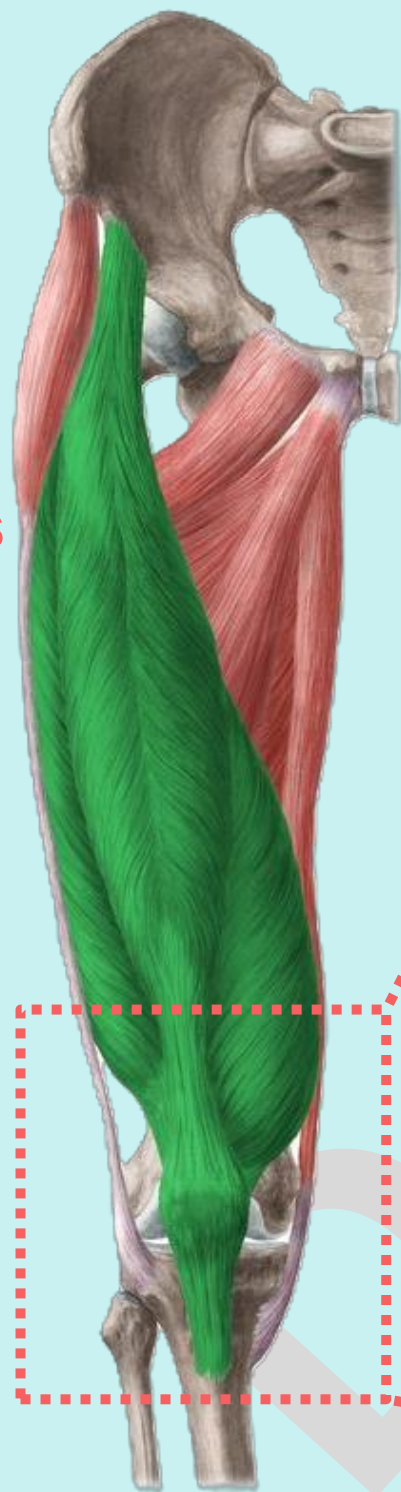
Check List:

2. Patella (kneecap)

✓ Describe the general shape and orientation:

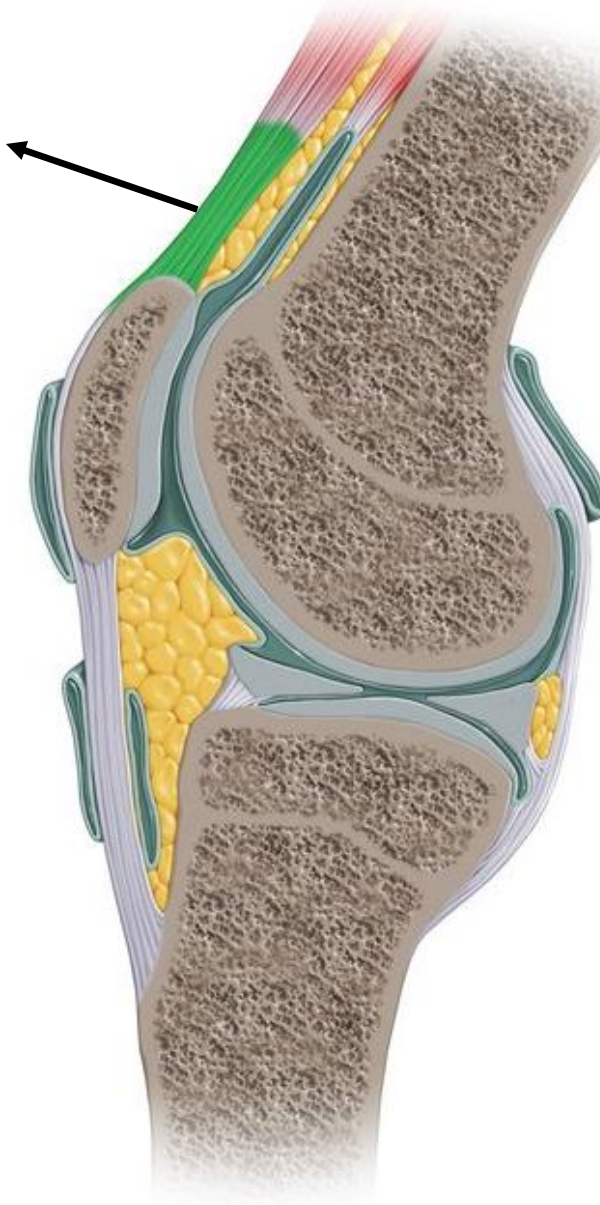
Borders: all borders provide attachment for the quadriceps tendon.

Quadriceps femoris muscle



Anterior view

Quadriceps Tendon



Lateral view

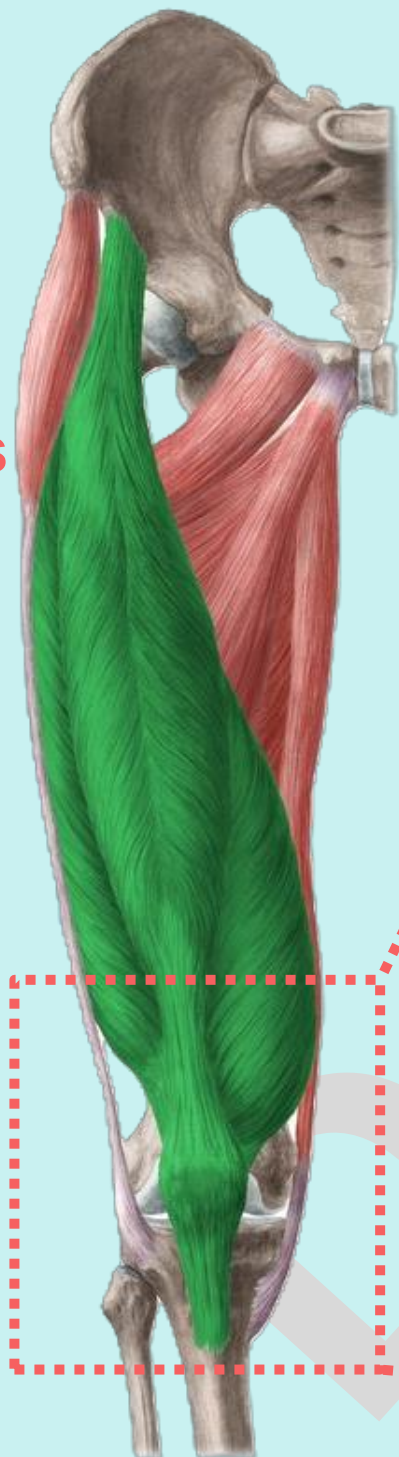
Check List:

2. Patella (kneecap)

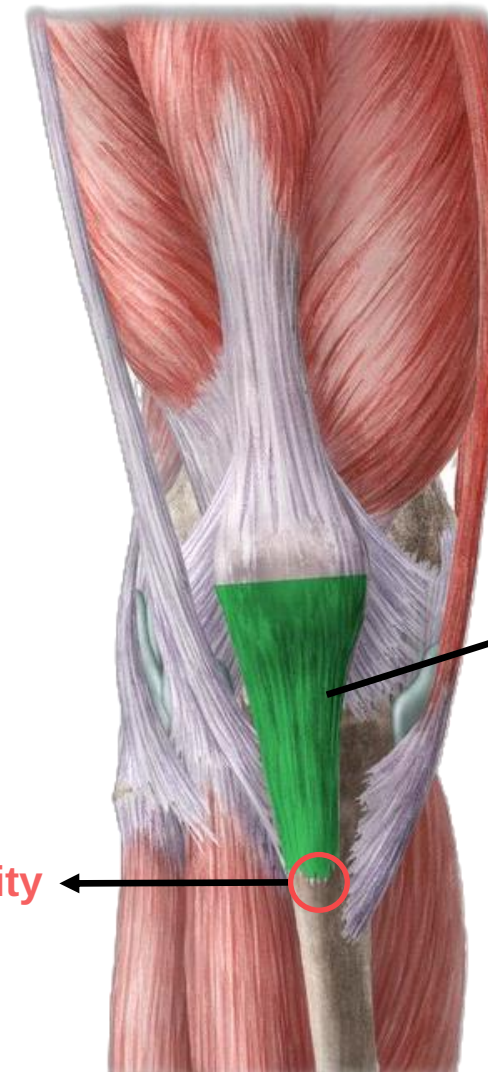
- ✓ Describe the general shape and orientation:

Apex: Provides attachment to the ligamentum patellae (patellar ligament), which connects the patella to the tibial tuberosity.

Quadriceps femoris muscle

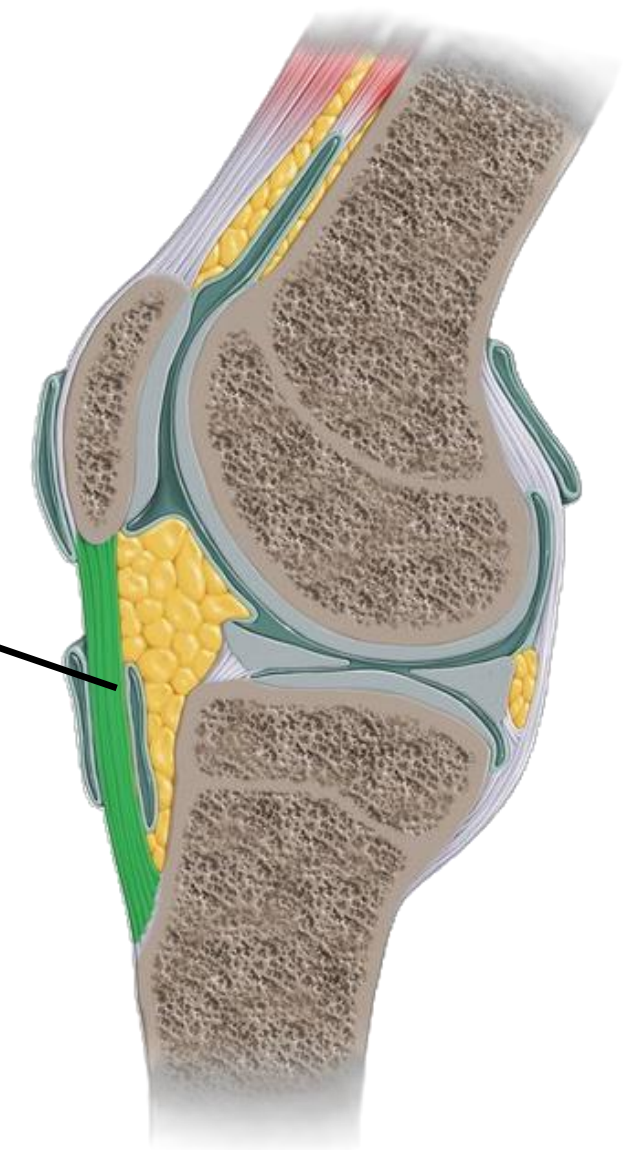


Anterior view



Patellar Ligament

Tibial Tuberosity



Lateral view

Check List:

2. Patella (kneecap)

- ✓ Describe the general shape and orientation:
Surfaces

Anterior surface:

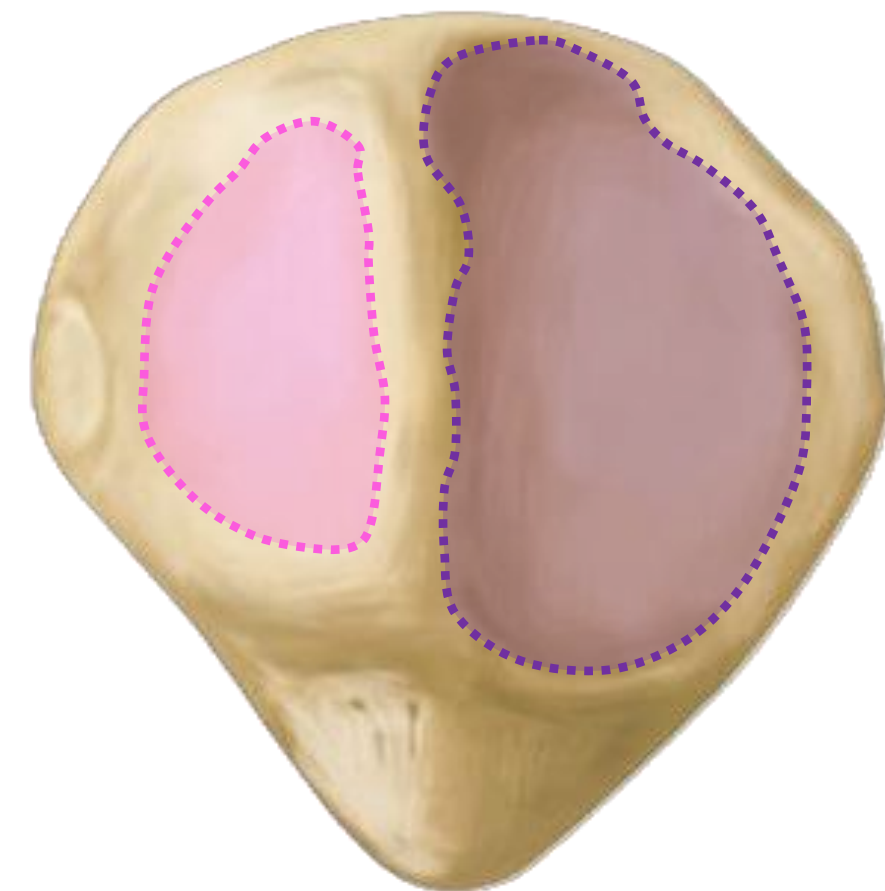
- Rough and convex; lies directly beneath the skin (subcutaneous).
- Helps protect the knee joint and improves the efficiency of the quadriceps muscle.



Anterior view

Posterior surface:

- Smooth and covered with cartilage.
- Articulates with the femoral condyles; divided into a small medial facet and a large lateral facet.



Posterior view

Check List:

2. Patella (kneecap)

✓ Determine the side and anatomical position by holding it in such a way that:

1. The apex is directed inferiorly.
2. The base is directed superiorly.
3. The articular surface faces posteriorly.

✓ Practical trick:

- Place the patella on a flat surface (table-top) with:
 - The articular surface facing downward.
 - The base toward you and the apex away from you.
 - Observe the tilt of the patella: **The patella tilts toward the side to which it belongs.**