# BONES OF LOWER LIMB

## ISCHIAL TUBEROSITY (SE)

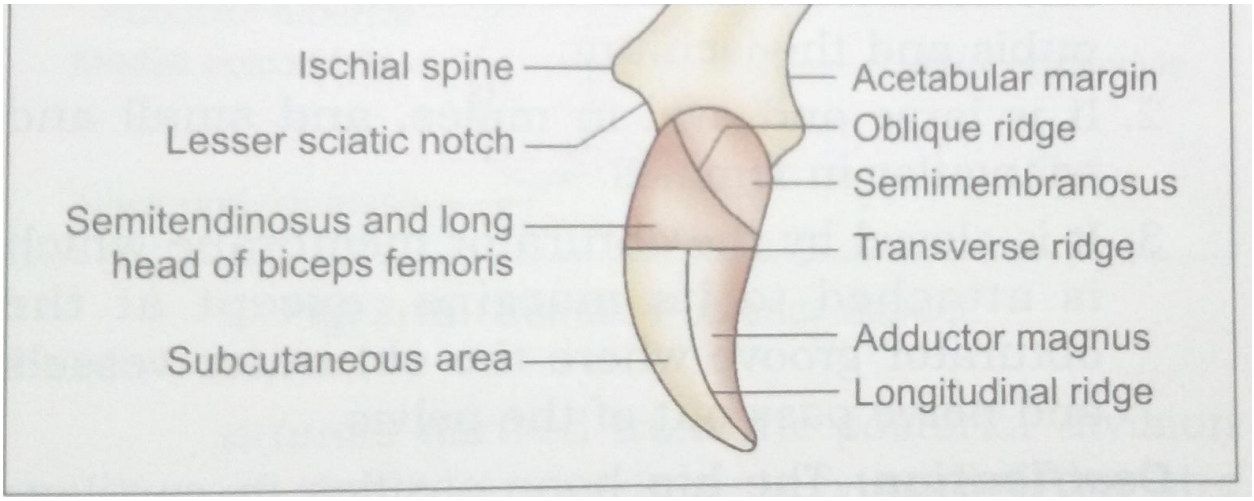
## DRAW LABELED DIAGRAM OF ISCHIAL TUBEROSITY (SA)

Ischial tuberosity is a part of the body of the ischium.

The ischial tuberosity is divided into two parts by a transverse ridge into an upper and lower part.

The upper part is further divided by an oblique ridge into lateral and medial areas.

The lower part is also divided by a vertical ridge into lateral and medial areas




Attachments

Upper medial – semitendinosus and long head of biceps femoris muscles

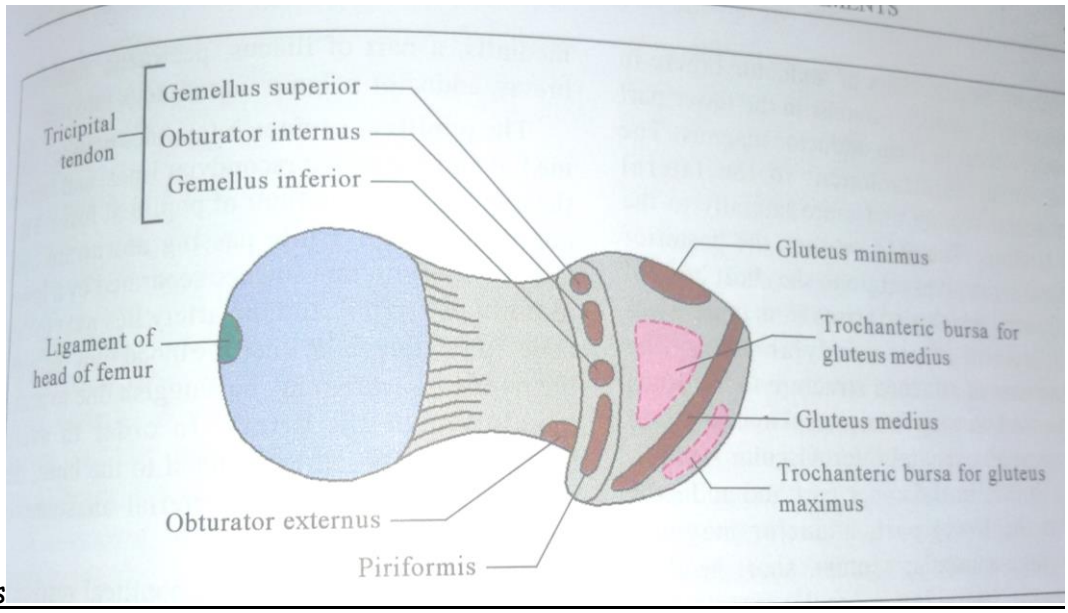
Upper lateral- semimembranous muscle

Lower medial- covered by fibrofatty tissue. Transmits body weight in sitting position.

## GREATER TROCHANTER (SE)

Greater trochanter is a quadrilateral projection at the junction of the neck and shaft of femur.

It presents three surfaces- anterior, medial and lateral and two borders- upper and posterior



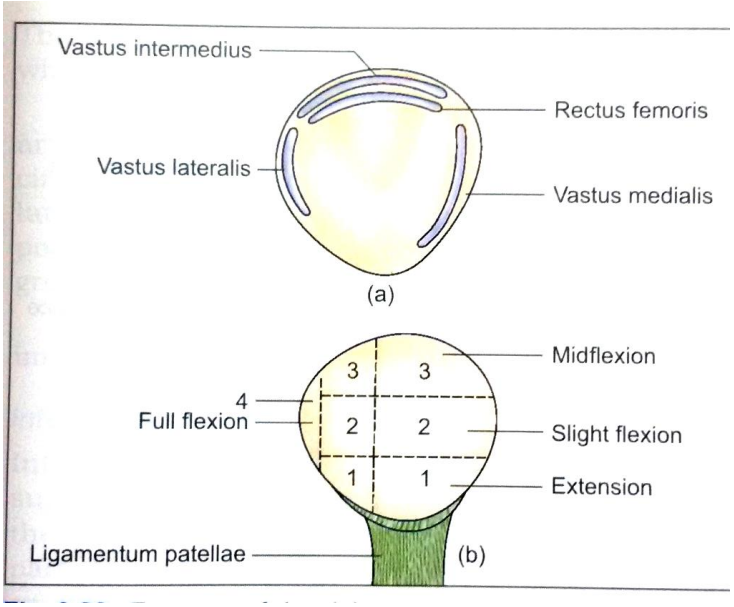

Attachments

Anterior surface-attachment of gluteus minimus
Medial surface- presents trochanteric fossa, for attachment of obturator externus. obturator internus , superior and inferior gamellii are attached in front of the fossa.
Lateral surface- is divided by an oblique ridge into upper and lower areas.
The oblique ridge gives attachment to gluteus medius.
Upper and lower areas are occupied by trochanteric bursa.
Upper border- attachment of piriformis
Posterior border is continuous with trochanteric crest.

**PATELLA (SE)/(SA)**

Patella is the largest sesamoid bone in the tendon of quadriceps femoris.

It is triangular and has- apex, base, medial and lateral borders and anterior and posterior surfaces.




Attachments

Apex- ligamentum patellae

Base- rectus femoris, vastus medialis lateralis and intermedius.

Medial border- continuation of attachment of vastus medialis

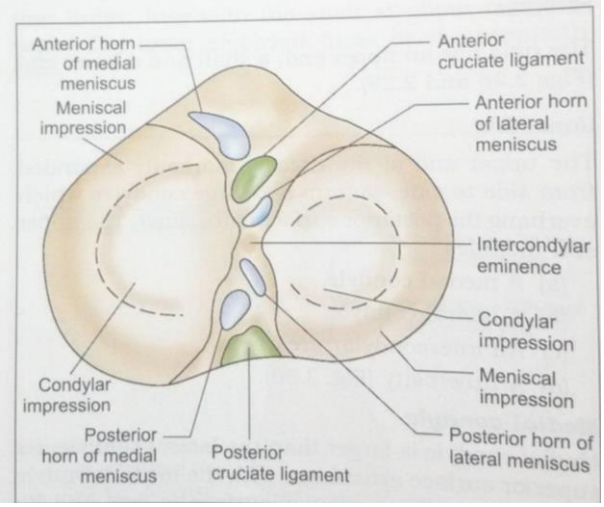
Lateral border- continuation of attachment of vastus lateralis

Anterior surface- is subcutaneous and separated from the skin by pre-patellar bursa.

Posterior surface – articulates with patellar articular surface of femur. Most of the upper surface and narrow medial marginal part lies in contact with the femur during flexion. The lower articular part contacts the femur during extension.

**UPPER END OF TIBIA (SE)**

The upper end of tibia consists of right and left tibial condyles, separated by intercondylar area. The anterior surface of the condyles presents tibial tuberosity.




Features

Upper articular surface- articulates with femoral condyles, separated by fibrocartilagenous menisci.

Intercondylar area- has an eminence in the middle. Structures attached from before backwards are- anterior horn of medial meniscus, anterior cruciate ligament,anterior horn of lateral meniscus, posterior horn of lateral meniscus, posterior horn of medial meniscus,posterior cruciate ligment.

Tibial tuberosity- attachment of ligamentum patellae.

Anterior surface of lateral condyle provides attachment to iliotibial tract, groove for tendon of popliteus and superior tibiofibular articulation.

Medial condyle provides attachment for tendon of semimembranosus.

**ISCHIAL SPINE (SA)**

Ischial spine lies along the posterior border of ischium and ilium. It presents a pelvic surface, dorsal surface and a tip. It divides the posterior border into greater and lesser sciatic notches.

**Attachments and relations**

Pelvic surface- levator ani and coccygeus muscles

Dorsal surface- is crossed by neuro-vascular elements- nerve to obturator internus ,internal pudendal vessels and pudendal nerve.

Tip – gives attachment to sacrotuberous ligament.

**FEMORAL TORSION(SA)**

Femoral Angle of Torsion:

The angle of torsion is the relationship between the axis of the femoral head and neck, greater trochanter and the femoral condyles.

The normal femur has an angle of torsion between 12 and 15 degrees.

An increase in this angle is termed anteversion, while a decrease in this angle is termed retroversion.

**LOWER END OF FEMUR(SA)**

The lower end of femur is enlarged to form medial and lateral condyles. the condyles are separated by intercondylar fossa. The femoral condyles articulate with tibial condyles to form knee joint. Patella articulates with the anterior surface of lower end of femur. Outer surfaces of both condyles are rough and the prominent point on them are known as epicondyles.

Attachments

Lateral epicondyle- politeus muscle and fibular collateral ligment.

Medial epicondyle- adductor magnus at the adductor tubercle and tibial collateral ligament.

Intercondylar fossa

This fossa provides attachment to anterior and posterior cruciate ligaments.

Applied anatomy- Secondary center of ossification at the lower end appears at birth. If a baby is born alive, it will show the ossification center. If the baby is born dead it will not show the secondary ossification center. This knowledge is used in forensic science.

**LINEA ASPERA(SA)**

Linea aspera is a prominent crest on the posterior border of the middle third of shaft of femur.

It has a medial and lateral lip and intermediate crest.

**Attachments** (from medial to lateral side)

Vastus medialis, medial intermuscular septum, adductor brevis and longus,adductor magnus, posterior intermuscular septum,short head of biceps femoris,lateral intermuscular septumand vastus lateralis.

**ADDUCTOR TUBERCLE(SA)**

Adductor tubercle is present on the lower part of medial supracondylar ridge.

It provides attachment for adductor(hamstring part) of adductor magnus.
The epiphyseal line of lower end of femur passes through the tubercle.
It is a bony landmark for surface anatomy.

**MEDICO-LEGAL IMPORTANCE OF LOWER END OF FEMUR (SA)**

Secondary center of ossification at the lower end of femur appears at birth (ninth month). If a baby is born alive, it will show the ossification center. If the baby is born dead it will not show the secondary ossification center. This knowledge is used in forensic science.

**TIBIAL TUBEROSITY (SA)**

The anterior surface of tibial condyles presents an elevation called tibial tuberosity.
It is triangular with apex downwards. It provides attachment for ligamentum patellae.
The secondary center of ossification for upper end of tibia appears at birth which also includes the upper part of tibial tuberosity.

**SOLEAL LINE(SA)**

Soleal line is an oblique line present on the posterior surface of tibia.
it divides the posterior surface into an upper and lower area. The lower part is further subdivided by a vertical ridge into a medial and lateral part.

**Attachments**

Soleal line- soleus muscle
Area Above Soleal Line- Popliteus Muscle
Lower Medial Area- Flexor Digitorum Longus
Lower Lateral Area- Tibialis Posterior

**ANTERIOR INTERCONDYLAR AREA(SA)**

Intercondylar area- has an eminence in the middle. Structures attached from before backwards are- anterior horn of medial meniscus, anterior cruciate ligament,anterior horn of lateral meniscus, posterior horn of lateral meniscus, posterior horn of medial meniscus,posterior cruciate ligment.

**LIGAMENTS ATTACHED TO LATERAL MALLEOUS (SA)**

Ligaments attached

Malleolar fossa- inferior transverse tibio-fibular ligament and posterior talofibular ligament.

Anterior border- anterior talofibular ligament

Tip- calcaneo-fibular ligament.