

Unit 6:

Bones and joints of the lower limb: leg and foot

GENERAL OBJECTIVES:

- recognize, name and correctly orient leg bones (tibia/fibula) and bones of the foot
- explain how is anatomy of the leg and foot (in particular) fitting particular functions
- name and describe all joints of the leg and foot focusing anatomical and functional properties
- remember concepts and common structural properties of long and short bones

SPECIFIC OBJECTIVES:

Bones of the leg and foot

PATELLA

TIBIA - Upper End (condyles, tibial plateau, intercondilar eminence and areas)

- Shaft (surfaces and borders, soleal line, tibial tuberosity)
- Lower End (articular facets, medial malleolus)

FIBULA- Upper End (head, apex)

- Shaft (borders)
- Lower End (lateral malleolus)

Identify the following bones and their principal features:

TARSALS

METATARSALS

PHALANGES

Identify the bony features on each part of the:

Talus and of the Calcaneus.

Identify the major bony feature of the:

Navicular and of the Cuboid.

Indicate the attachments of Flexor Retinaculum and define the "Tarsal Tunnel".

Demonstrate the ARCHES of the foot:

- (i) Medial Longitudinal
- (ii) Lateral Longitudinal
- (iii) Transverse

Deduce (from the shape of the articular surfaces) the movements at:

- (i) the knee joint
- (ii) the tibiofibular joints
- (iii) the ankle joint
- (iv) the subtalar and talo-calcaneo-navicular joints
- (v) the other joints of the foot

Indicate the bony attachments of the major ligaments which help to maintain the stability of these joints (while allowing their mobility).

Joints of the leg and foot

Knee Joint

Articular Surfaces (Patello-femoral & Femoro-tibial)

Fibrous Capsule & deficiencies

Synovial Membrane (& Communication with Suprapatellar Bursa)

Ligaments: *Ligamentum Patellae*
Collateral Ligaments (Medial & Lateral)
Cruciate Ligaments (Anterior & Posterior)
Oblique Popliteal
Arcuate Popliteal, Transverse

Special Structures: *Menisci (Medial & Lateral)*
Intracapsular tendon of popliteus
Bursae: Suprapatellar, Prepatellar, Semimembranosus
Others (Many)
Infrapatellar Pad of Fat

Movements at the Knee Joint:

Locking Mechanism (Passive)
Unlocking Mechanism (Active)
Flexion/Extension
Medial Rotation/Lateral Rotation (of Flexed Knee)

Stability

Tibiofibular Joints

Proximal Tibiofibular Joint

Distal Tibiofibular Joint (Syndesmosis)

Ankle Joint

Articular Surfaces

Fibrous Capsule

Synovial membrane

Collateral Ligaments (Medial & Lateral)

Movements at the Ankle Joint: *Planter Flexion/Dorsi Flexion*

Stability

Joints of the Foot

Joints under the Talus: (Subtalar & Talocalcaneonavicular)

Articular Surfaces, Spring Ligament

Movements (of the Foot): *Inversion/Eversion*

Other Intertarsal Joints (including Calcaneocuboid)

Tarsometatarsal & Intermetatarsal Joints

Metatarsophalangeal (M.P.) & Interphalangeal (I.P.) Joints

Movements of the Toes: Flexion/Extension, Abduction/Adduction

Arches of the Foot

Longitudinal Arch (Medial & Lateral)

Transverse Arch

Maintenance of the Arches