Human Movements

Osteology and Myology: Part III

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A Location of the patella
Right knee joint, lateral view. The red line indicates the plane of section in C.
Tibia

- Lateral condyle
- Tibial plateau
- Medial condyle
- Tibial tuberosity
- Tibiofibular joint
- Head of fibula
- Neck of fibula
- Interosseous membrane
- Intercondylar eminence
- Head of tibia
- Soleal line
- Tibiofibular joint
- Head of fibula
- Neck of fibula
- Interosseous membrane
D The right tibial plateau
Proximal view.

E The right ankle mortise
Distal view.

F Cross section through the middle third of the right leg
Proximal view.
Knee

Hyperextension

Neutral

Flexion

150°

90°
Ankle

- Stable hinge joint
- Medial/lateral dislocation prevented by malleoli
- Square shape of talus adds stability of ankle
- Most stable during dorsiflexion, Least stable in plantar flexion
Ankle Motions

- Plantar flexion, Dorsiflexion
- Inversion, Eversion
- Pronation, Supination
Foot

Tarsus
  • 7 tarsal bones

Metatarsus
  • 5 metatarsal bones

Phalanges
  • 14 phalanges
Metatarsal Bone

Meta / tarsal

Metatarsal bones

head, body (shaft), base
Phalange: 발가락뼈 (지골)

phalange는 발가락뼈를 말하고, 엄지 발가락은 마디가 proximal, distal 두개이며 나머지 발가락은 proximal, middle, distal 로 세개로 이루어져 있습니다.

phalange 경우는 proximal phalange만 head, body, base로 구성되고 middle phalange는 head, base distal phalange는 tuberosity, base로 구성됩니다.
Ankle Articulation

Talar (Talocrural) Joint

- Tibia & fibula with talus
- Dome of talus articulates with mortise formed by tibia and fibula
- Dorsiflexion and plantar flexion

Subtalar (Talocalcaneal) Joint

- Articulation of talus with calcaneus
- Pronation and supination
Movement of Foot Joints
Midtarsal locking & unlocking

Talonavicular Joint

Calcaneocuboid Joint
Anterior Tibialis

**Origin:**
Upper 2/3 of lateral surface of tibia
Crural interosseous membrane
Highest part of Superficial crural fascia

**Insertion:**
Medial and plantar surface of medial cuneiform
Medial base of metatarsal

**Action:**
Ankle dorsiflexion
Inversion
Fibularis longus

**Origin:**
Head of fibula
Proximal 2/3 of lateral surface of fibula

**Insertion:**
Plantar side of medial cuneiform
Base of first metatarsal

**Action:**
Ankle plantar flexion
Eversion
Triceps Surae
Gastrocnemius

Origin:
Lateral and medial femoral condyle

Insertion:
Calcaneus (via Achilles tendon)

Action:
Knee flexion
Ankle plantar flexion
Soleus

Origin:
Posterior fibula head
Soleal line of tibia

Insertion:
Calcaneus (via Achilles tendon)

Action:
Ankle plantar flexion
Posterior Tibialis

**Origin:**
Crural interoseous membrane and adjacent borders of tibia and fibula

**Insertion:**
Tuberosity of navicular
Cuneiforms, cuboid
base of second to fourth metatarsals

**Action:**
Ankle plantar flexion
Inversion
Flexor hallucis longus

**Origin:**
Distal 2/3 of posterior surface of fibular

**Insertion:**
Base of distal phalanx of big toe

**Action:**
Bit toe flexion
Ankle plantar flexion
Inversion
Flexor digitorum longus

**Origin:**
Middle third of posterior surface of tibia

**Insertion:**
Base of second through fifth distal phalanges

**Action:**
Ankle plantar flexion
Inversion