

# Joints of the Leg

## Articulatio talocruralis - ankle joint (upper tarsal joint)

**Articulatio talocruralis** ( *upper tarsal joint, ankle joint* ) is the joint in which the lower leg bones ( tibia and fibula ) articulate with the talus . Articulatio talocruralis Tarsometatarsal and intertarsal joints

**Joint type:** compound pulley joint

**Articulating surfaces:** the fork-shaped fossa is formed by the articular surfaces on the distal part of the fibula and tibia , the head is formed by the trochlea tali and the articular surfaces on the sides of the talus

**Joint sheath:** it is clamped along the edge of the joint surfaces, the outer surfaces of the ankles are outside the joint + in front and behind it is weak and loose so that the movements of the joint are sufficient.

**Lateral ligaments:** they strengthen the sides of the case, they are fan-shaped, and in each position of the joint, at least one of the strips of the lateral ligament is stretched on both sides, thus ensuring the correct guidance of movement.

*Ligamentum collaterale mediale (deltoideum)* – has the shape of a triangle

- pars tibiotalaris anterior and posterior
- pars tibionavicularis
- pars tibiocalcanearis

*Lateral collateral ligament*

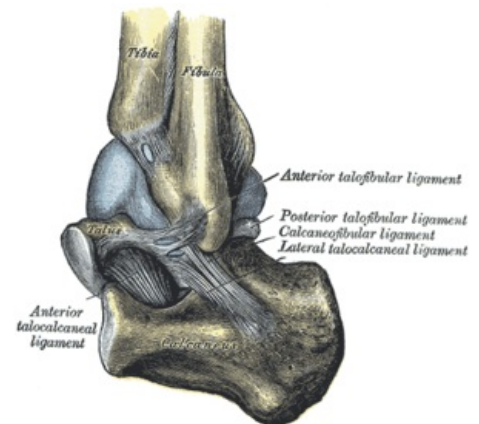
- ligamentum talofibulare anterior and posterior
- calcaneofibular ligament

### Moves:

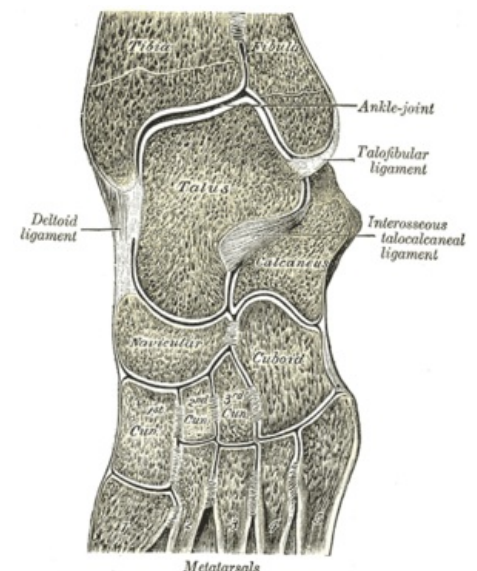
The trochlea tali is wider in front, so it tends to push the ankles apart when moving. The basic position is occupied by the joint while standing, from which plantar flexion (30–35°) and dorsiflexion (up to 20–25°) movements are possible. The range of movements on the live is increased by the movements of other joints in the forefoot. The middle position of the joint corresponds to the basic position.

### Vessels and nerves of the joint:

- arteries from the rete articulare;
- n. fibularis profundus et superficialis , n. tibialis , possibly. n. plantaris medialis.



Articulatio talocruralis



Tarsometatarsal and intertarsal joints

## Lower phalanx joint

It consists of a posterior compartment (articulatio subtalaris) and an anterior compartment, which has a medial part (articulatio talocalcaneonavicularis) and a lateral part (articulatio calcaneocuboidea).

### Articulatio subtalaris (talocalcanea)

**Articular surfaces:** between facies articularis talaris posterior calcanei and facies articularis calcanea posterior tali

**Joint capsule:** reinforced by external and interosseous ligaments

### Articulatio talocalcaneonavicularis

**Articular surfaces:** the head consists of the caput tali and two articular surfaces on the lower surface of the talus, the socket consists of the navicular axis and two surfaces on the calcaneus

### Strengthening ligaments:

- ligamentum calcaneonaviculare plantare
- ligamentum talonaviculare dorsale

### Articulatio calcaneocuboidea

Low mobility joint.

**Articular surfaces:** between the calcaneus and cuboid

**Combo moves:**

- foot inversion – plantar flexion + adduction + supination
- leg eversion – dorsiflexion + abduction + pronation

**Chopart's joint (articulatio tarsi transversa)**

Functional and clinical unit of the lower ankle joint. It has the shape of the letter S. It is composed of the articulatio talonavicularis and calcaneocuboidea.

Amputation of the distal part of the leg is performed in it.

**Ligaments:**

- ligamentum plantare longum
- ligamentum bifurcatum – it is composed of the ligamentum calcaneonaviculare and calcaneocuboideum (= the key of Chopart's joint – after cutting, it will allow the joint to open)

## Articulatio cuneonavicularis

**Joint type:** rigid joint

**Articular surfaces:** between ossa cuneiformia and os naviculare

**Similar joints:**

- articulatio cuneocuboidea – between os cuneiforme laterale and os cuboideum
- articulationes intercuneiformes – between ossa cuneiformia

They are connected by interosseous and plantar ligaments that help hold the transverse arch of the foot (eg ligamentum cuneonaviculare plantare, dorsale and ligamenta intercuneiformia).

## Articulationes tarsometatarsales

**Joint type:** rigid joint

**Articular surfaces:** between the distal surfaces of the sphenoid bones and the 1st–3rd metatarsal and between the cuboid bone and the 4th and 5th metatarsals

Together with the articulationes intermetatarsales, it forms **the Lisfranc joint** (functional and clinical unit – in leg amputations).

## Articulationes metatarsophalangeales

**Articular surfaces:** between the bones of the metatarsals and the heads of the proximal phalanges

The joints are strengthened by collateral ligaments and supported by ligamenta plantaria.

The heads of the metatarsals are connected to each other by **the ligamentum metatarsale transversum profundum**.

**Movements:** flexion, extension and mild duction (extension only)

## Articulationes interphalangeales pedis

**Joint type:** pulley joints

**Ligaments:** ligamenta collateralia and plantaria

**Movement:** flexion and extension

## Links

### Related Articles

- Bones of the lower limb

### References

- GRIM, Miloš – DRUGA, Rastislav. *Základy anatomie 1*. 1. edition. Galén, 0000. 105 pp. ISBN 80-7262-112-2.

- ČIHÁK, Radomír – GRIM, Miloš. *Anatomie 1.,.* Ilustrace Milan Med. 2., upravené a doplněné vydání edition. Grada, 2001. 497 pp. ISBN 80-7169-970-5.