

## Talus Fractures

### Abstract

The incidence of fractures of the talus ranges from 0.1% to 0.85% of all fractures.

Aviators fracture; secondary to forced dorsiflexion of the ankle [neck of the talus against the anterior border of the tibia]

Failure to recognize fracture displacement (even when minimal) can lead to poor outcomes.

The accuracy of closed reduction is difficult to assess.

Operative treatment should, therefore, be considered for all displaced fractures.

Osteonecrosis and malunion are common complications, and prompt and accurate reduction minimizes their incidence and severity.

Unrecognized medial talar neck comminution can lead to varus malunion and a supination deformity with decreased range of motion of the subtalar joint.

Combined anteromedial and anterolateral exposure of talar neck fractures can help ensure anatomic reduction.

Posttraumatic hindfoot arthrosis has been reported to occur in more than 90% of patients with displaced talus fractures.

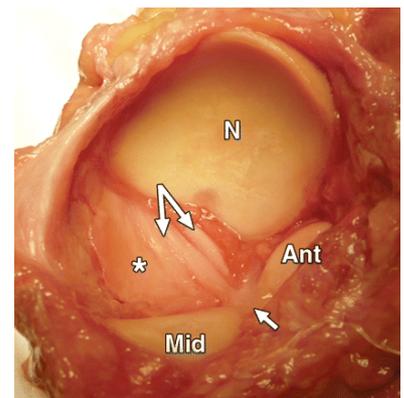
Salvage can be difficult and often necessitates extended arthrodesis procedures.

### Anatomy

1. The talus is the second largest tarsal bone
2. 60% of its surface covered by articular cartilage.
3. The superior aspect of the body is widest anteriorly and therefore fits more securely within the ankle mortise when it is in dorsiflexion.
4. The neck of the talus is oriented medially approximately 30° with reference to the axis of the body of the talus and is the most vulnerable area of the bone after injury.  
In the sagittal plane, the neck deviates plantarward between 30°.
5. The talus has no muscle or tendinous attachments.

### Articulation of the head of the talus

1. Spring ligament complex: Note fibrocartilage (asterisk) that articulates with inferior and medial aspects of talar head and medioplantar oblique calcaneonavicular ligament, which is composed of two bundles (double arrow), arising from coronoid fossa (small arrow).



2. Anterior (Ant) and middle (Mid) calcaneal facets are shown.
- 3.N = navicular.

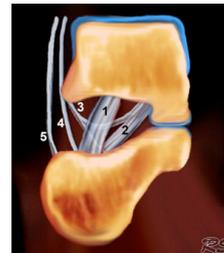
**Ligaments** [check under lateral and medial sprain]

1. Lateral ankle ligaments
2. Medial deltoid ligaments
3. Inferior tibio-fibular ligament
4. Spring ligament: acts like a sling to suspend the head.

Inferiorly, the posterior, middle, and anterior facets correspond to the articular facets of the calcaneus.

**Sinus Tarsi:** Between the posterior and middle facets is a transverse groove, which, with a similar groove on the dorsum of the calcaneus, forms the dorsal canal that exits laterally into a cone-shaped space, the tarsal sinus.

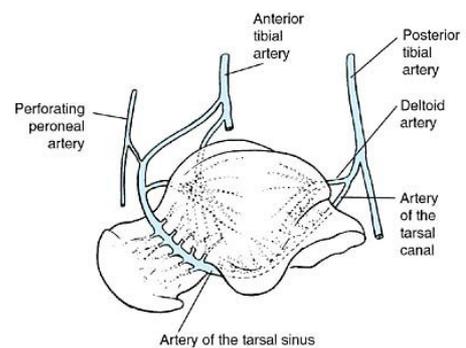
Attachment sites of the cervical ligament (1); the interosseous talocalcaneal ligament (2); and the medial (3), intermediate (4), and lateral (5) roots of the inferior extensor retinaculum.



**Tarsal canal** is located just below and behind the tip of the medial malleolus.

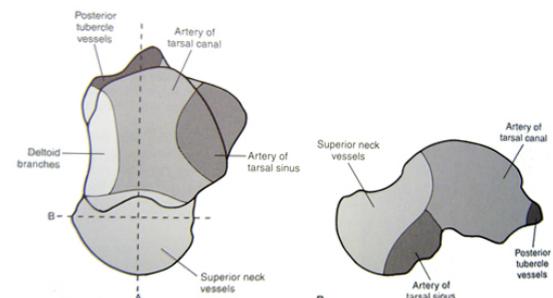
**Blood Supply**

Vessels can perforate only two fifths of the talus; the other three fifths is covered by cartilage.



The extrasosseous blood supply

1. Mainly from the posterior tibial artery
2. The anterior tibial artery
3. The perforating peroneal arteries.



Medial: The artery of the tarsal canal (a branch of the posterior tibial artery)

Lateral: The artery of the tarsal sinus: a branch of the anterior tibial artery and perforating peroneal artery.

Branches of the artery of the tarsal canal supply most of the talar body. The dor-salis pedis artery and the artery of the tarsal sinus supply the head and neck. The posterior part of the talus is supplied by branches of the posterior tibial artery via calcaneal branches that enter through the posterior tubercle.

