

Arthrokinematics

The talar dome is convex

The tibio-fibular mortise is concave



Nashed, A.H., Murthy, R., & Fink, G. (1996). Calcaneus fracture - lateral view. NetMedicine Radiology Library. [On-line]. Available: http://www.netmedicine.com/xray/img_xr/foot12az.jpg

During Plantarflexion

The talus rolls posteriorly and glides anteriorly on the tibio-fibular surface.

During Dorsiflexion

The talus rolls anteriorly and glides posteriorly on the tibio-fibular surface.

As the talus glides posteriorly, its relatively wide anterior margin contacts the tibio-fibular mortise and actually spreads the tibia and fibula apart. As it does so, the talus locks against the sides of the ankle mortise and close-packs the ankle joint.

Ligamentous restraint:

Ligament	Elongates with / limits:
Medial collateral (deltoid)	Valgus angle between the talus and calcaneus
Lateral collateral	Varus angle between the talus and calcaneus
Plantar calcaneo-navicular (spring)	Prevents the collapse of the foot's medial arch

Ankle motion interacts with motion at other joints. In a closed chain:

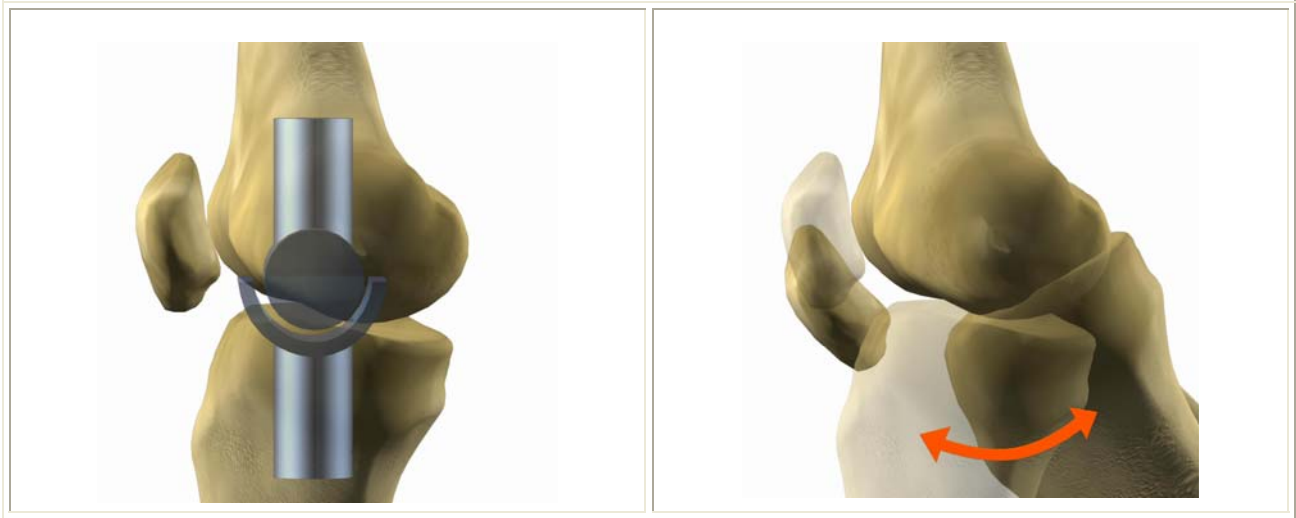
- Ankle plantar flexion contributes to knee extension.
- Ankle dorsiflexion contributes to knee flexion.



The Knee Joint

Joint Structure and Function

The knee is the largest synovial joint in the body and the most complicated in structure. It consists of six articulating surfaces, including the two condyles of the femur, the two condyles of the tibia, and the motion between the posterior aspect of the patella on the anterior surface of the femur. The knee joint is essentially a hinge joint capable of flexion and extension.



Muscles of the Knee

Flexion is brought about by the hamstring muscles (biceps femoris, semitendinosus, semimembranosus) and is assisted by the gastrocnemius.

