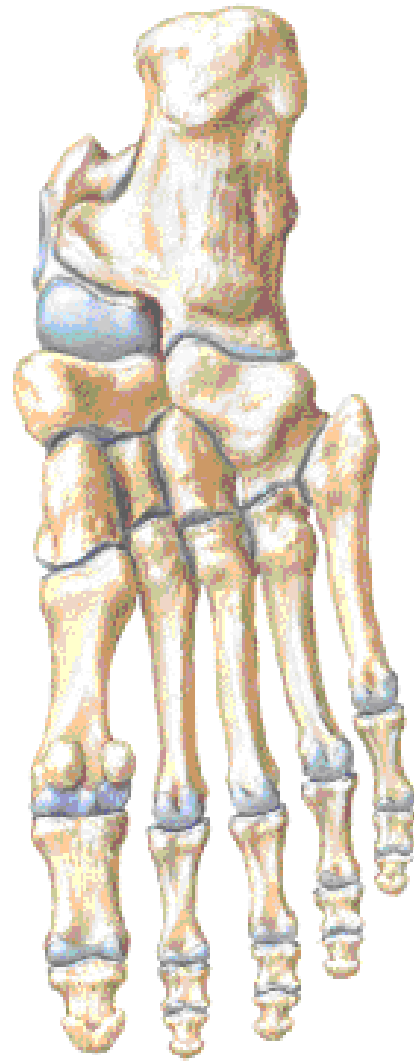


Dorsal View



## Plantar View



**Bones of Foot**  
Medial View



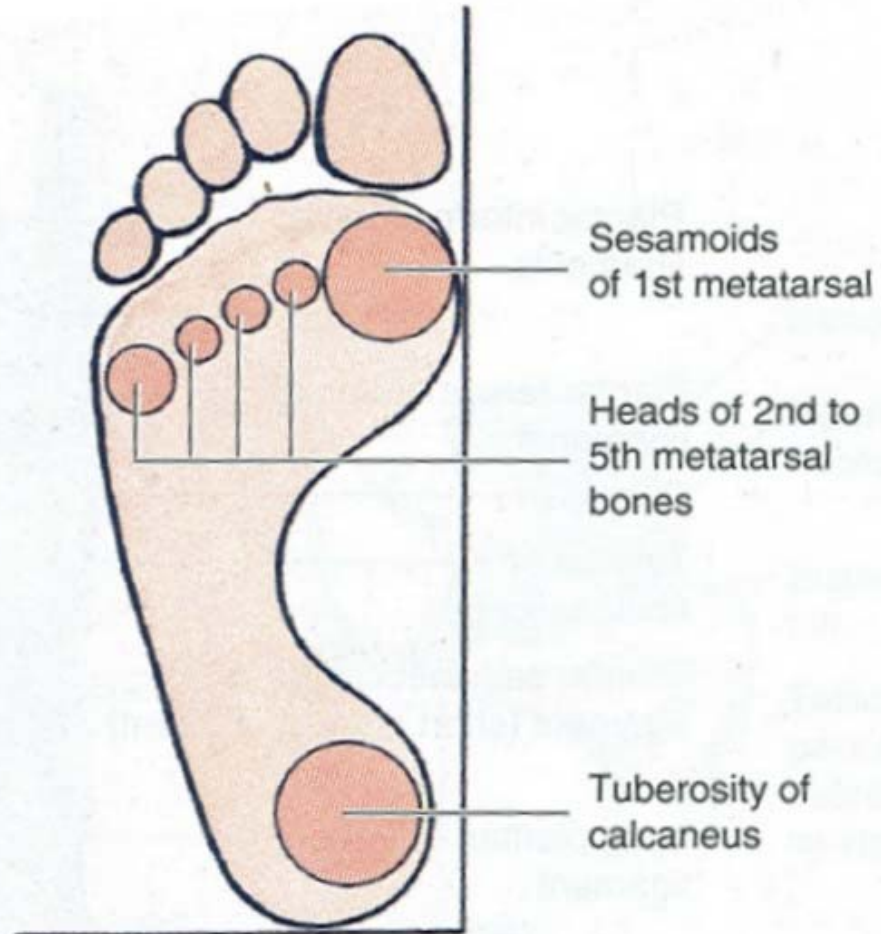
## **Bones of Foot**

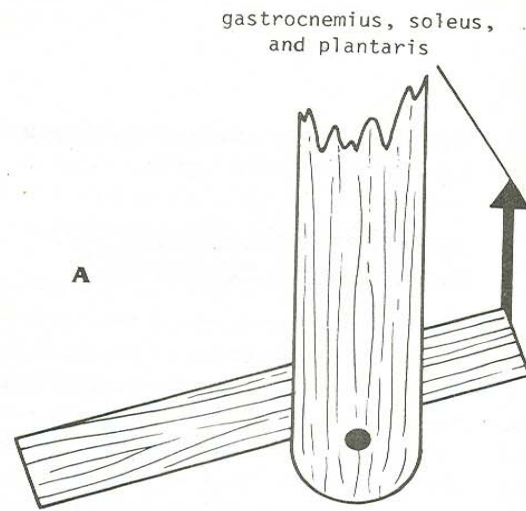
### **Lateral View**



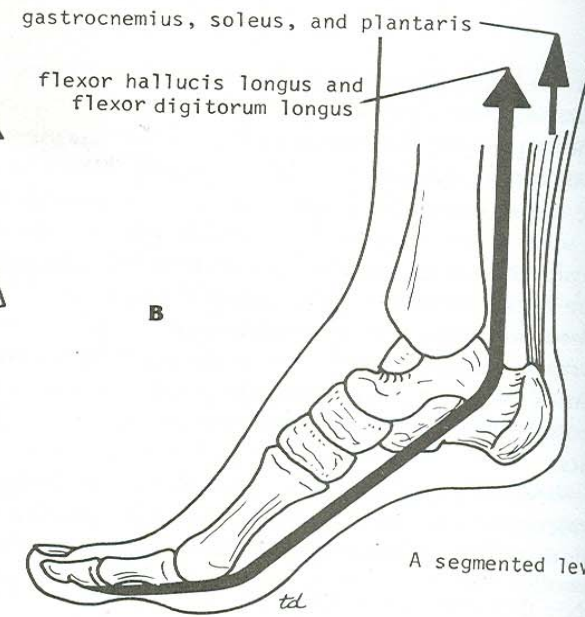
# Arches of foot

- Foot serves two main functions:  
Support the body weight  
Serve as a lever to propel the body

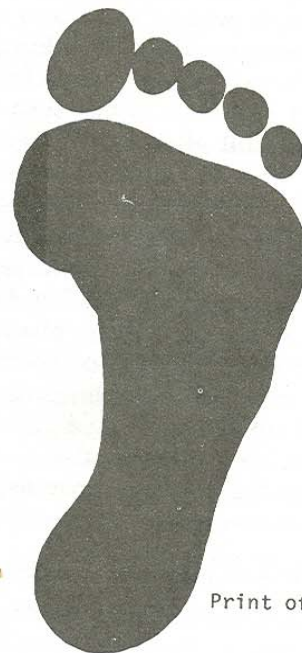




A simple lever



A segmented lever



Print of normal foot



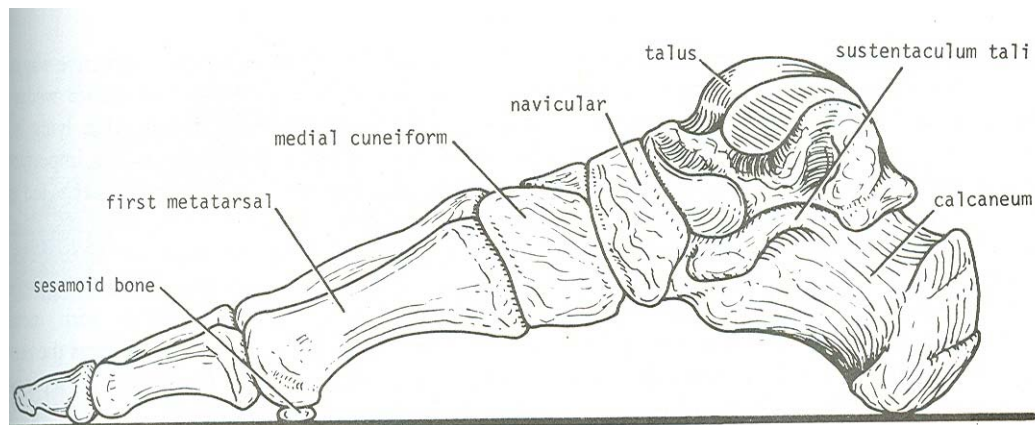
Print of flat foot

# Arches of foot

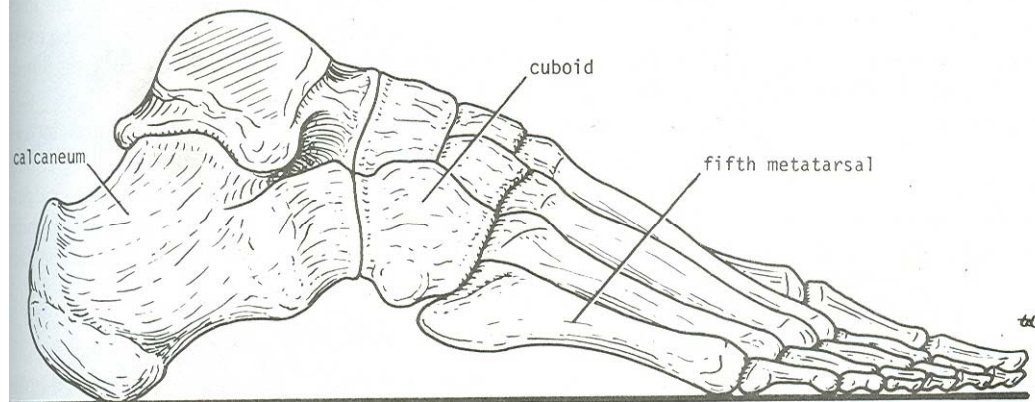
Integrity of foot is maintained by:

- Shape of the interlocking bones
- Strength of the plantar ligaments
- Plantar aponeurosis
- Action of Muscles

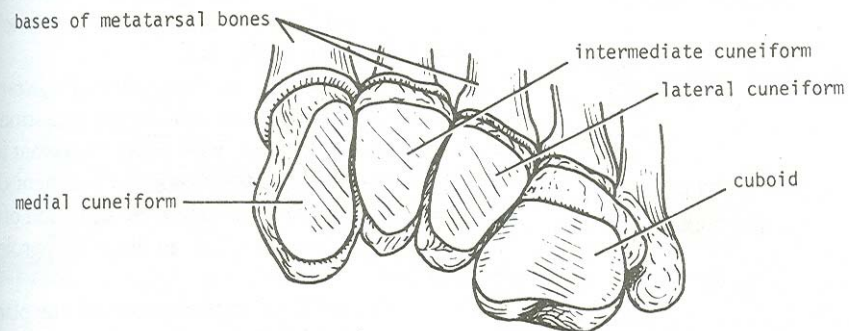




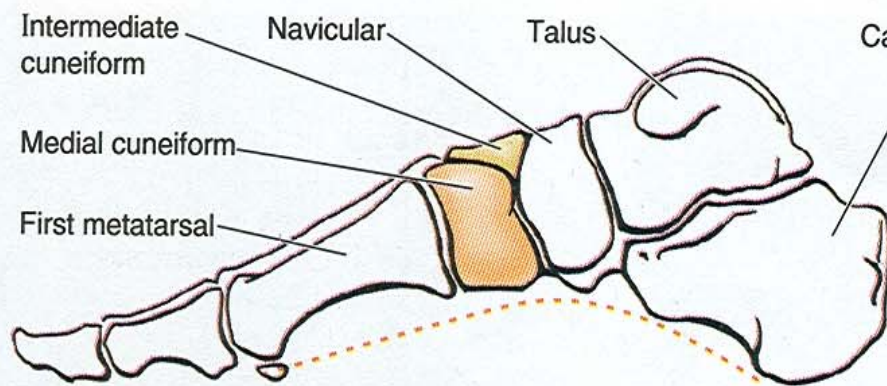
Medial longitudinal arch



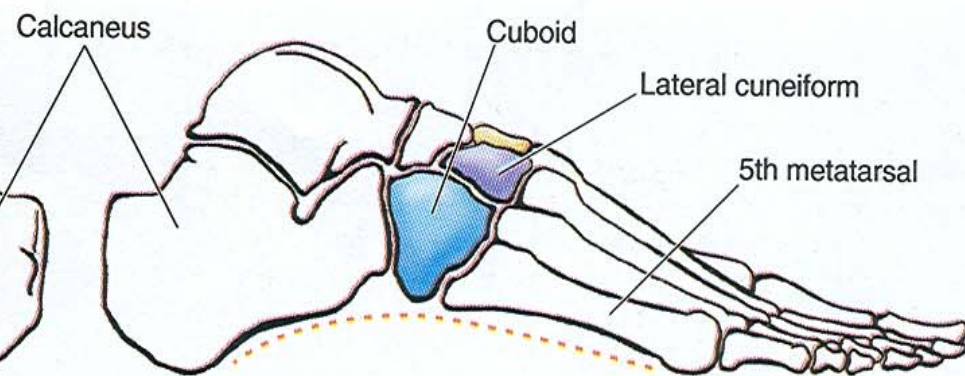
Lateral longitudinal arch



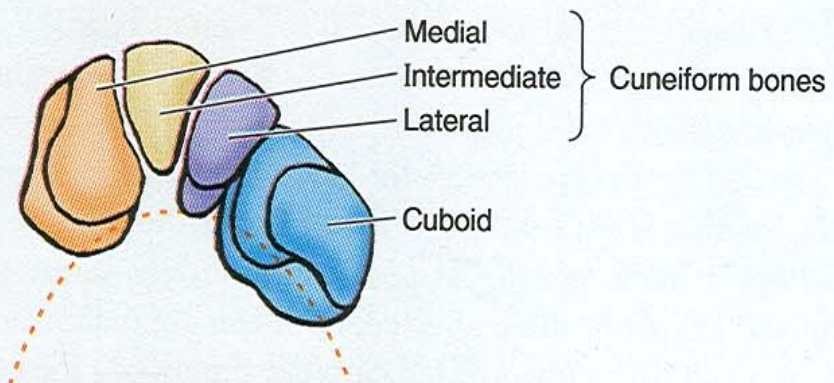
Transverse arch



**(A) Medial longitudinal arch**



**(B) Lateral longitudinal arch**



A

Click to view full size



Medial longitudinal arch



Lateral longitudinal arch

B



Transverse arch

## Bones of the Arches

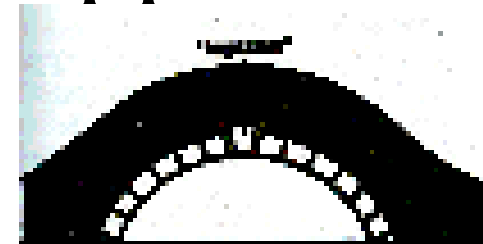
**Medial:** Calcaneum, talus, navicular, three cuneiforms and first three metatarsals

**Lateral:** Calcaneum, cuboid and 4<sup>th</sup> & 5<sup>th</sup> metatarsals

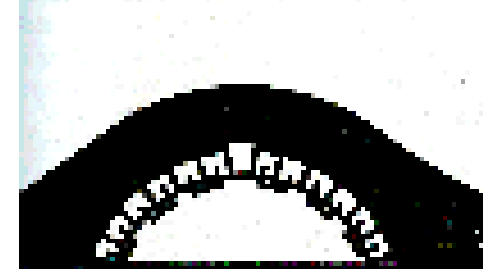
**Transverse:** Bases of metatarsals, cuboid and three cuneiforms.

# Mechanism of Arch support

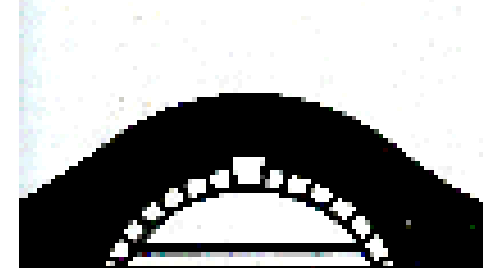
- **Shape:** Wedge shaped.  
Central stone as keystone.
- **Staples:** Inferior edges of the stones are tied together.
- **Tie beam:** connecting the ends to prevent separation of pillars and sagging of the arch.
- **Suspension bridge:** Multiple supports suspending the arch from the cable above the level of bridge.



Shape of stones



Staples

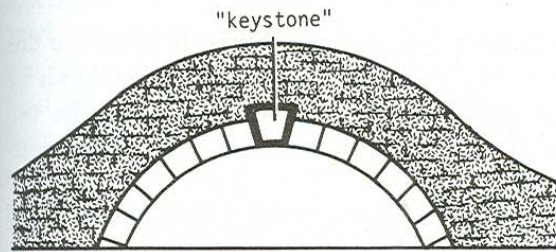


Tie beam



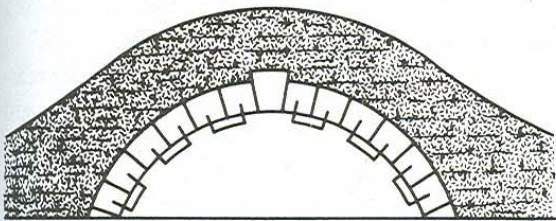
Suspension bridge



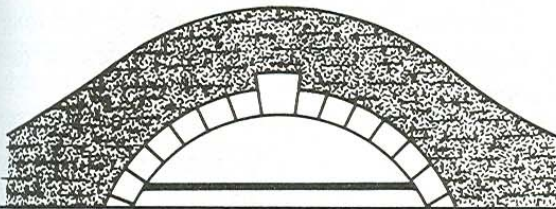


"keystone"

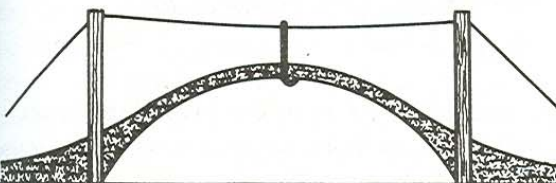
Shape of stones



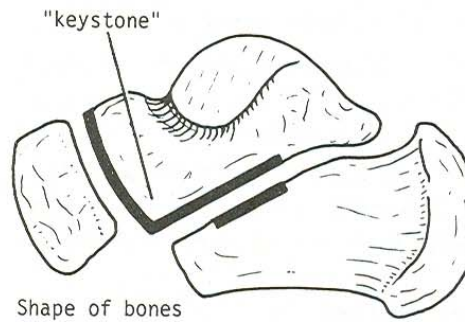
Staples



Tie beam

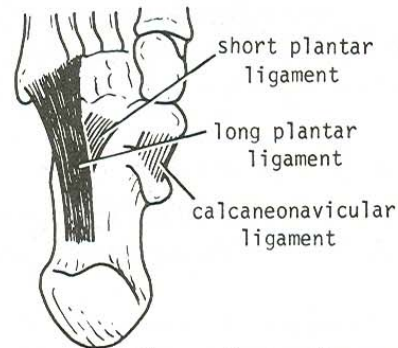


Suspension bridge

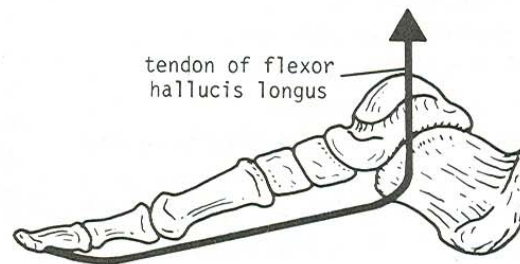


"keystone"

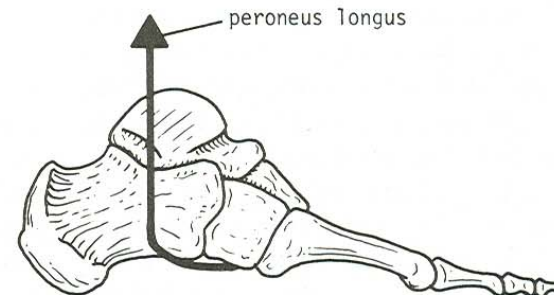
Shape of bones



Strong plantar ligaments

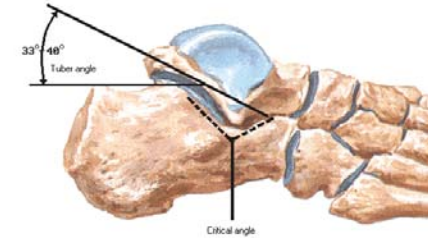


tendon of flexor  
hallucis longus



peroneus longus

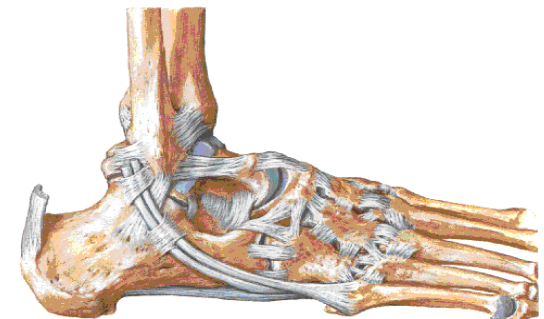
Calcaneus of Right Foot  
Functional Relations of Calcaneus



Plantar View



Ligaments and Tendons of Right Ankle  
Lateral View



# Maintenance of the arches

- Medial: **Shape** (key stone-talus)

**Staples:** Plantar ligaments, Tendon of tibialis posterior

**Tie beam:** Plantar aponeurosis, flexor dig. brevis, abductor hallucis, flexor hallucis longus, flexor dig. Longus, flexor hallucis brevis

**Suspension arch:** Tibialis anterior, post. And medial ligaments of ankle joint.

# Maintenance of the arches

- Lateral: **Shape** (key stone-cuboid)  
**Staples:** Long and short plantar ligaments, short muscles of foot.  
**Tie beam:** Plantar aponeurosis, abductor digiti minimi, flexor dig. brevis & flexor dig. longus (lateral part)  
**Suspension arch:** peroneus longus and brevis.

# Maintenance of the arches

- Transverse: **Shape** Wedge shape cuneiforms & bases of metatarsals.

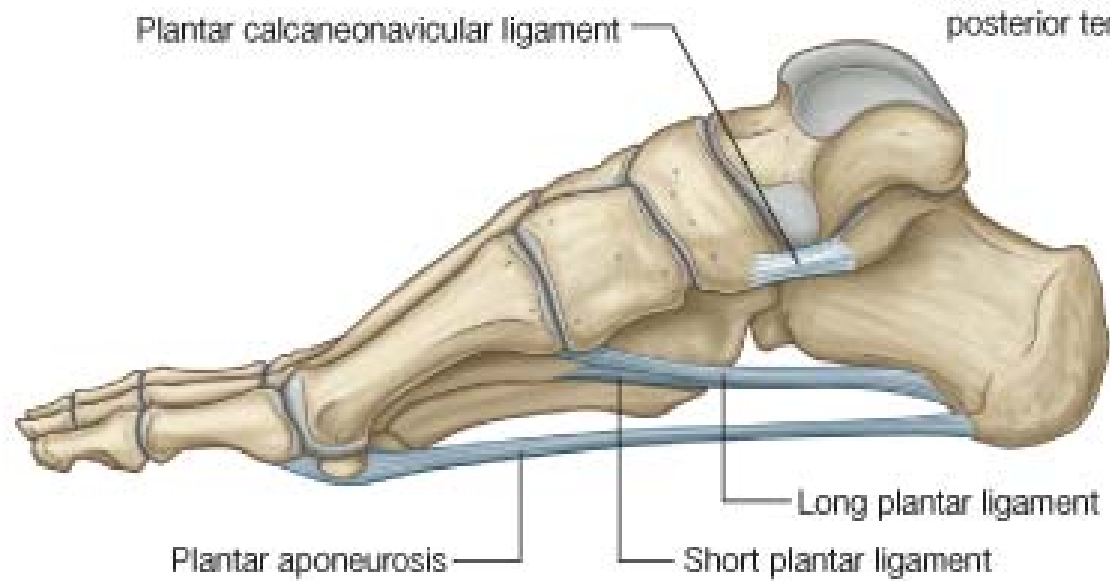
**Staples:** deep transverse ligaments, plantar ligaments, short muscles of foot (dorsal intrinsics & adductor hallucis).

**Tie beam:** Tendon of peroneus longus

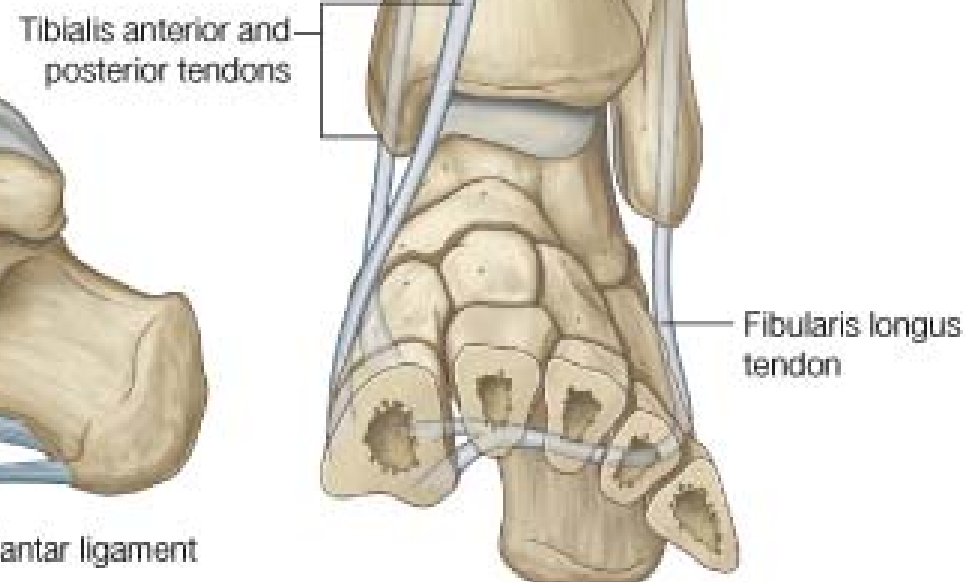
**Suspension arch:** peroneus longus and brevis.

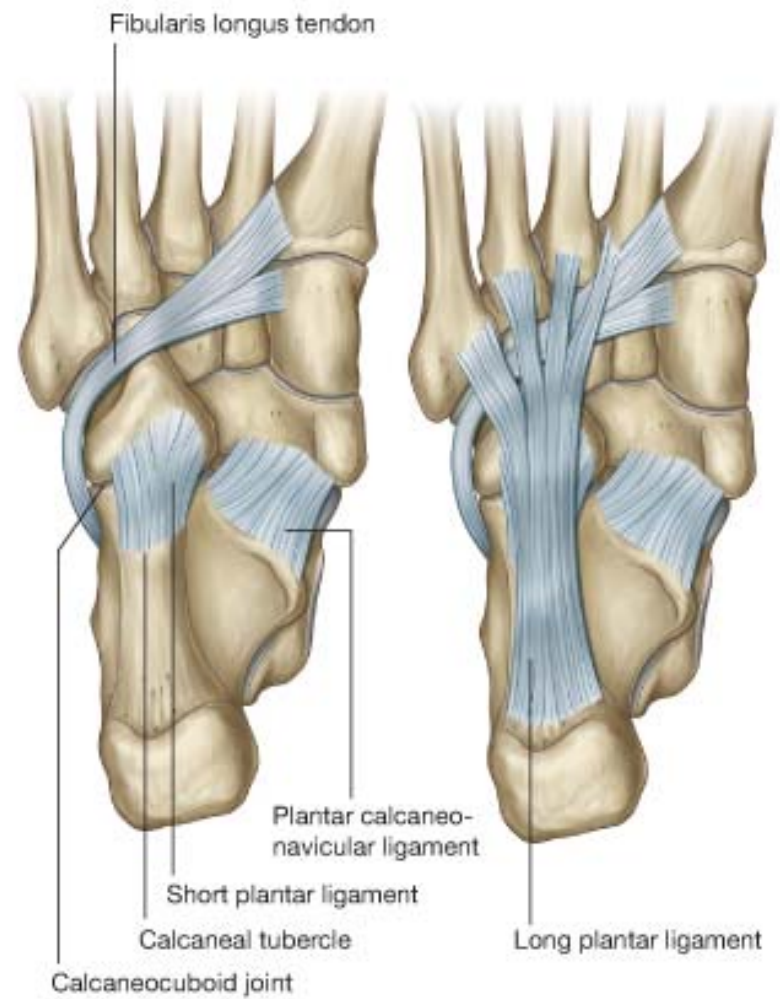
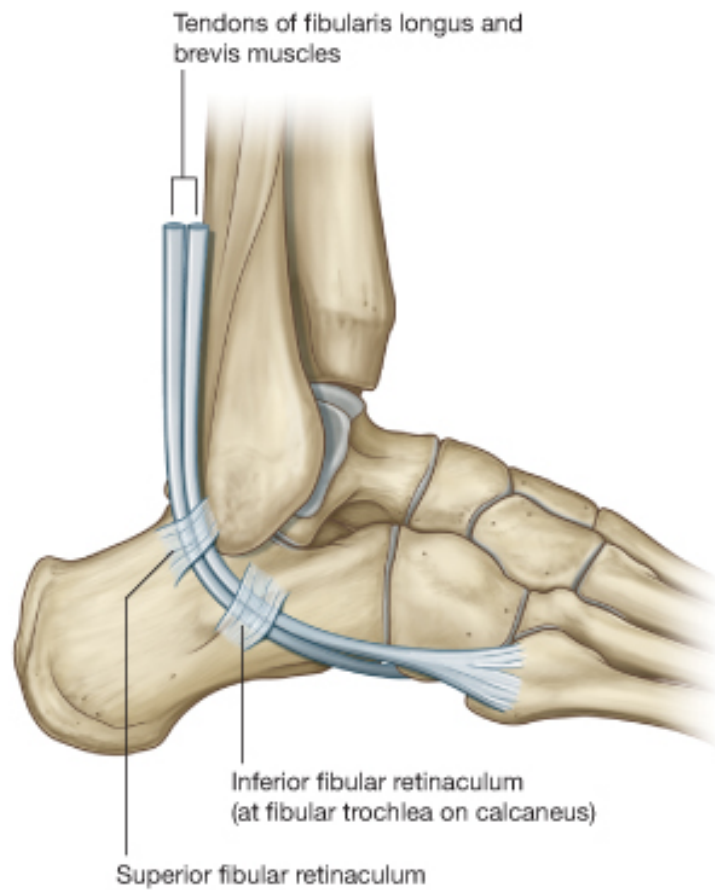


**A**



**B**





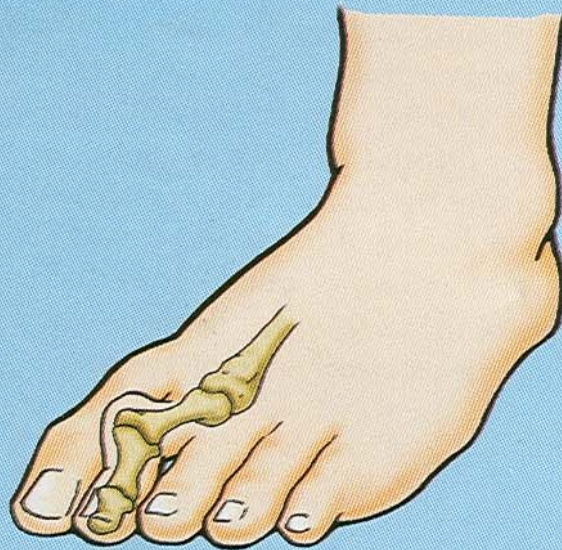
# Applied anatomy

- Pes planus (flat foot)
- Claw foot (pes cavus)
- Hallux Valgus
- Hammer toe
- Club foot (talipes equinovarus)

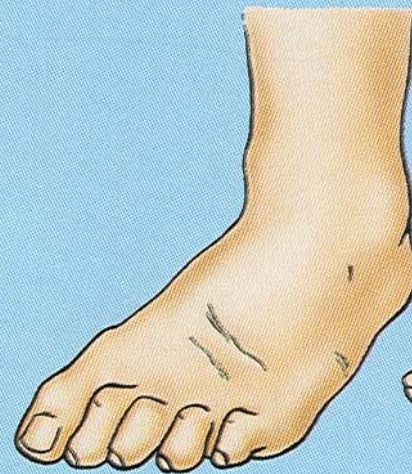


the forefoot.

and ankle.



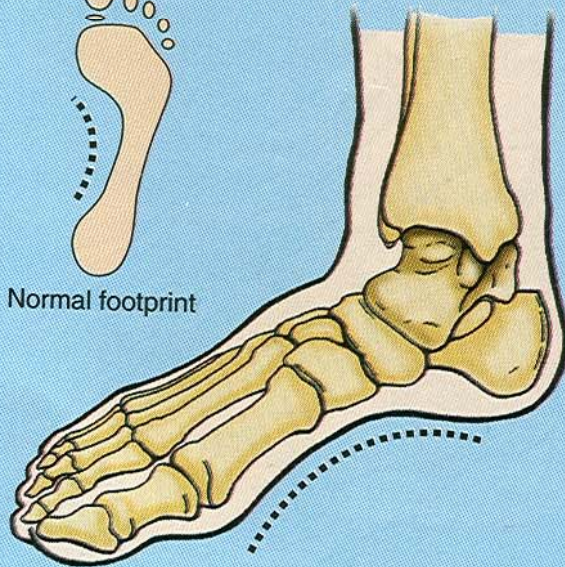
**Hammer toe**



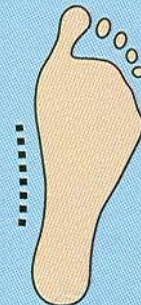
**Claw toes**



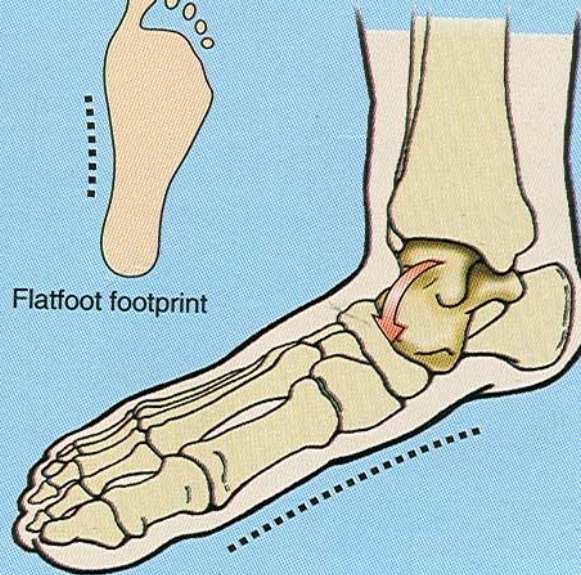
**Normal footprint**



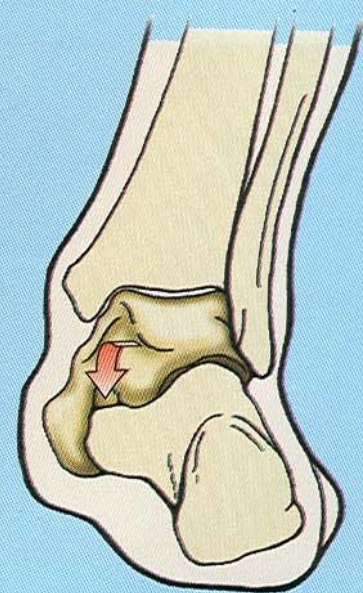
**(A) View of normal arch**



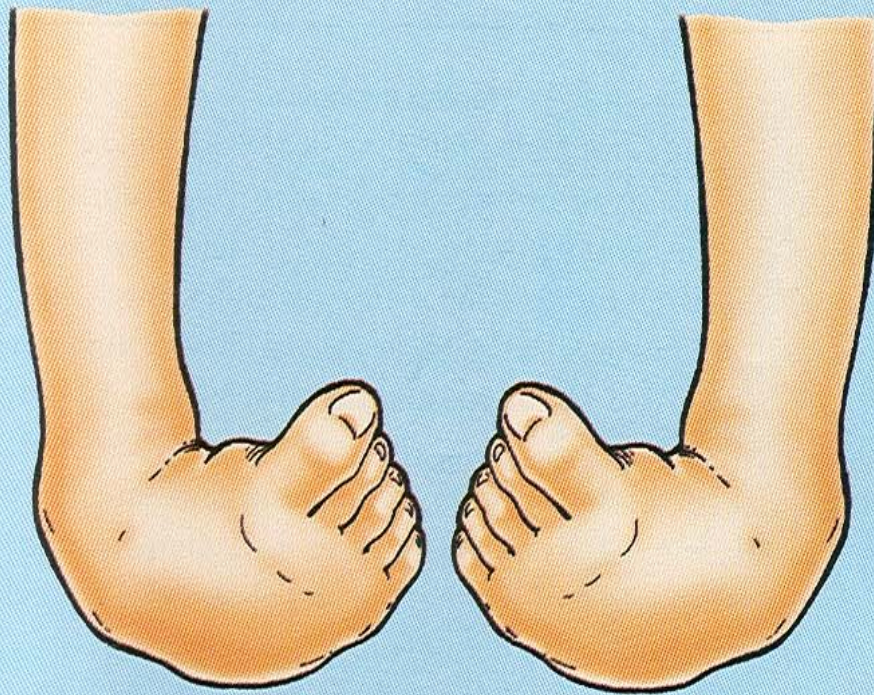
**Flatfoot footprint**



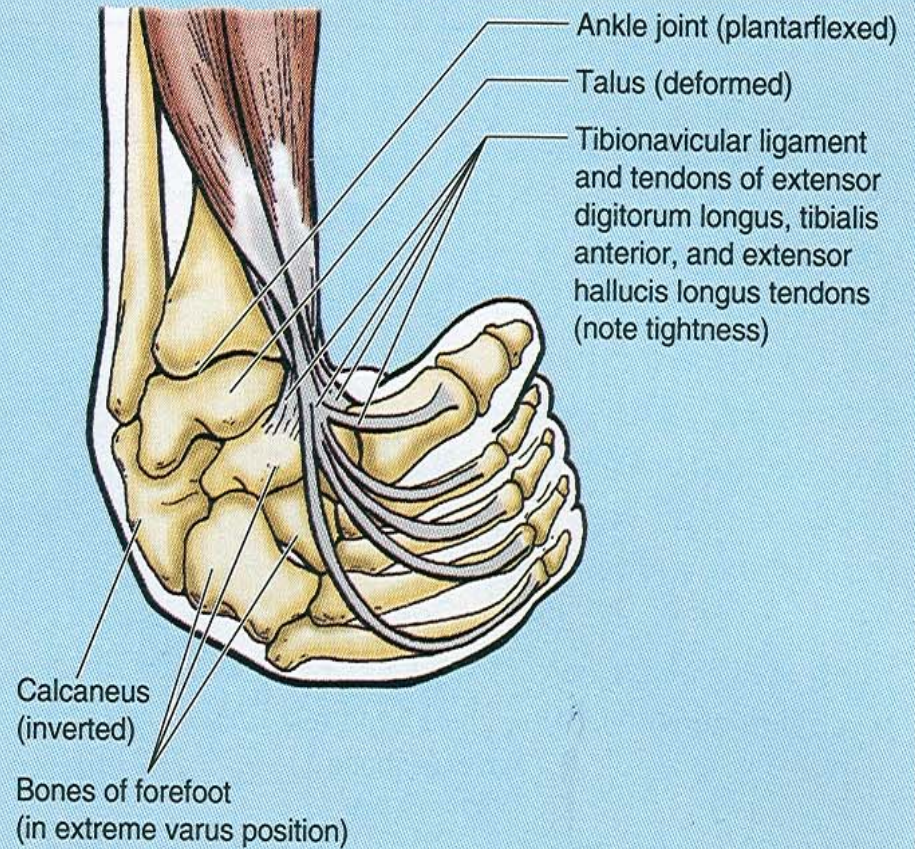
**(B) View of fallen arch**







(A) Clubfeet or talipes equinovarus



(B)