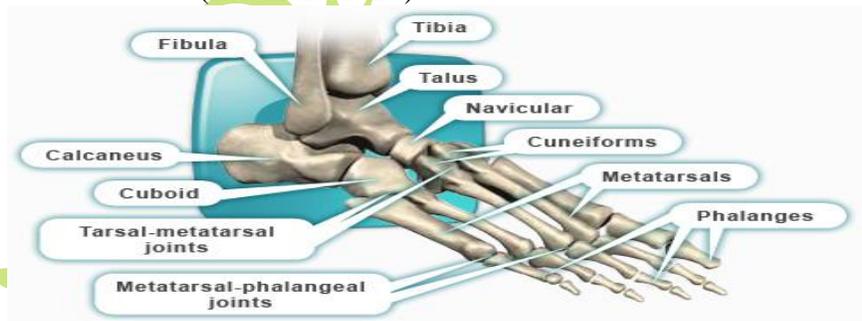


## ANKLE JOINT ANATOMY

The ankle joint is a synovial joint of the hinge type. The joint is formed by the distal end of the tibia and medial malleolus, the fibula and lateral malleolus and talus bone. It is unusual in that no muscle or tendons are attached to the talus bone. Three quarters of its surface is covered with articular cartilage. The remainder of its surface is regular bone for ligament attachments.

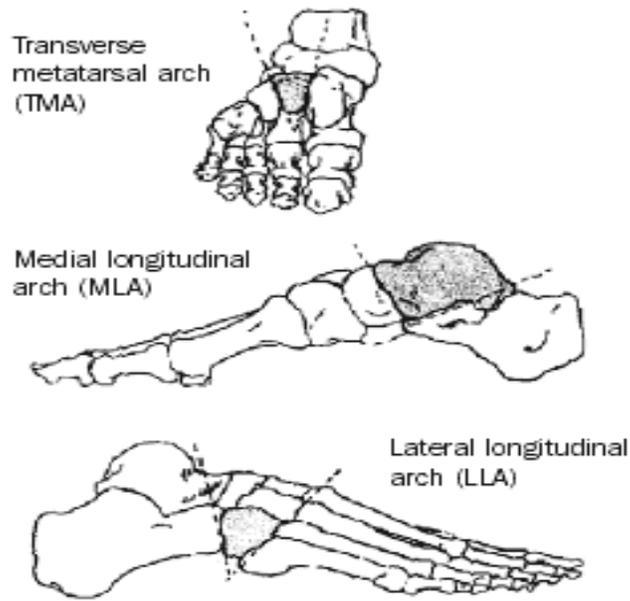
From this platform, agility, endurance, strength and stability originate to meet the demands placed on the ankle and foot during complex sporting activities. It is comprised of 26 bones

1. **TIBIA** (LOWER LEG BONES) MEDIAL MALLEOLI Distal head of Tibia. The Tibia is the largest bone of the lower leg and bears the weight of the leg, on the Talus.
1. **FIBULA** The Fibula is a much smaller bone and is non weight bearing. It is located on the lateral aspect of the leg and overhangs on the talus. LATERAL MALLEOLI Distal head of Fibula
3. **TALRSALS** = (FOOT BONES)

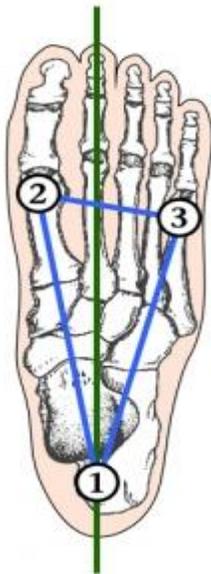


1. CALCANEUS
2. TALUS
3. NAVICULAR
4. CUBOID
5. MEDIAL CUNEIFORMS
6. INTERMEDIALE CUNEIFORMS
7. LATERAL CUNEIFORMS
8. METATARSAL X 5
9. PHALANGES X 14 (GREAT TOE. 2 JOINTS)
10. TIBIA
11. FIBULA

## ARCHES OF THE FOOT



1. METATARSAL ARCH
2. TRANSVERSE ARCH
3. MEDIAL LONGITUDINAL ARCH
4. LATERAL LONGITUDINAL ARCH



## Arches of the foot

- 1 **Metatarsal Arch**  
Shaped by distal heads of the metatarsal bones.
- 2 **Transverse Arch**  
Transverse tarsal bones it gives the appearance of 1/2 Dome It aims at giving protection to the soft tissues and increases the foot's mobility.
- 3 **Medial Longitudinal Arch**  
Medial border of calcaneus and extends to the distal head of the first metatarsal.  
Main supporting ligament = Plantar Calcaneonavicular ligament, Spring ligament. Great flexibility present
- 4 **Lateral Longitudinal Arch**  
Calcaneus, Cuboid, & 5th metatarsal bones. Less flexible

## MOVEMENTS



**PLANTAR FLEXION** = Soleus, Gastrocnemius, Plantaris,

**\*\*Tibialis posterior**

**DORSIFLEXION** = Tibialis Anterior

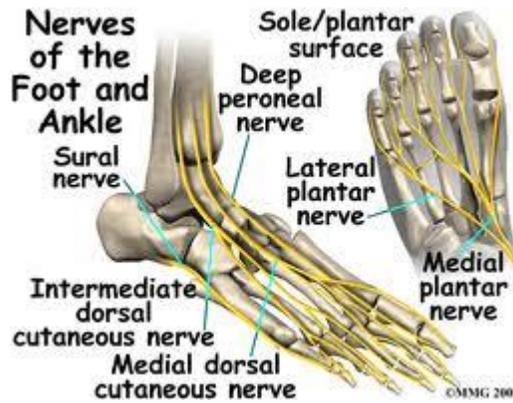
**\*\* extensor digitorum longus**

**\*\* Extensor hallucis longus**

**INVERSION** - Anterior Tibialis

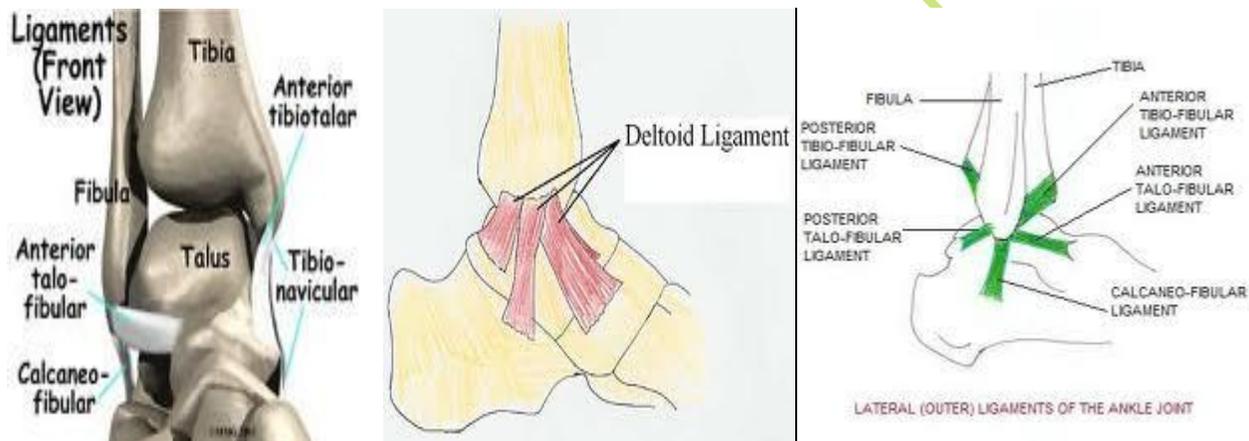
Posterior Tibialis

**EVERSION** - Peroneus Longus & Brevis



MSc

## LIGAMENTS



1. **Tibio Fibular Ligament**
2. **The Deltoid - medial malleolus and the medial aspect of the talus bone.**
3. **Anterior Talo - fibular ligament - lateral malleolus to the ankle bone.**
4. **Calcaneal fibular ligament - the tip of lateral malleolus to the heel bone (calcaneus).**
5. **The posterior talo - fibular - ligament is rarely injured in sports.**

## Plantar Fascia

It is a white band of fibrous tissue running from the calcaneus to the heads of the metatarsals. The fascia supports the plantar aspect of the foot. It is subjected to Microtrauma, it can become inflamed and tear under severe stress. The more it is pressed, the tighter it gets and the more it wants to spring back to its normal shape. This mechanism help provide a spring to ones running and jumping activities. 7 out of 10 people have problems with their ankles and feet.

The major difference between walking & running is that in running the body is airborne for a period of time. The causes of foot injuries in running are based on factors which influence the distribution of the load,

- (1) Anatomical factors
- (2) The Footwear
- (3) Training programme
- (4) Surfaces - Road, Track Grass etc.

The shape of your feet is inherited from your parents. Many people do not believe that you can alter the shape of your foot with supports i.e. Orthotics

### **The running gait includes:**

- (1) Heel strike
- (2) Mid support
- (3) Take off
- (4) Follow through
- (5) Forward running
- (6) Foot decent

If an athlete or any person has a problem with his or her foot arches the distribution of weight will not be even so one can expect problem and trauma e.g. Muscular imbalance.

Shoe wear can be an indicator of the athlete weight bearing pattern and running gait.

Next issues or on the education of web would be how to manage postural problems associated with the feet and how we as therapists can help.

With the use of regular sports massage NMT, TP, MET, SCS, PNF and stretching exercises for the arches one may reduce the severity of trauma, stress to the arches and the general muscular skeletal frame of the body. Fatigue of the lower legs will be reduced and therefore there will be a reduction the incident of injuries. It is vital that everyone, competitors, trainers and managers are aware of the importance of good foot care.