

ခြေကျင်းဝတ်အဆစ်လွဲခြင်း (Dislocation of Ankle)

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1. Anatomy of ankle joint
2. Function of ankle joint
3. Mechanisms of injury
4. Types of dislocation of ankle joint
5. Signs and symptoms of dislocation of ankle joint
6. Line of treatment for ankle joint dislocation

- The ankle joint is a uniaxial joint (hinge joint).  
Articular surface are covered with hyaline cartilage.

# 1. Anatomy of ankle joint

- Distal end of the tibia and its malleolus (medial malleolus)
- Distal end of fibula (lateral malleolus) and
- Talus

The talus consists of a head, body and neck. The head articulates with the navicular, the body with the tibia ( the superior articular surface of the body is called the trochlea) and the calcaneus. The neck extends between the body and head.



# Ankle Ligament Injury (Sprain)

- There are three major ligament groups
  - **Medial ligaments** – broad-based deltoid complex
  - **Lateral ligaments** – three small ligaments
  - **Syndesmotic ligaments** – join tibia and fibula together
  
- Most ankle injuries occur when toes are pointing towards the ground (ankle is most unstable)

## Ligament

- Deltoid ligament
- Syndesmosis complex (interosseous membrane, anterior tibiofibular ligament, posterior tibiofibular ligament, inferior transverse ligament, and interosseous ligament).
- Collateral ankle ligament



1. Deltoid ligament consists of superficial (attaching to the anterior colliculus) and deep (attaching to the posterior colliculus) parts and runs between the medial malleolus and the talus.

2. Syndesmosis complex consists of the interosseous membrane, anterior tibiofibular ligament, posterior tibiofibular ligament, inferior transverse ligament, and interosseous ligament.

3. Collateral ankle ligaments- run from the fibula to the talus and calcaneus.



## 2.Function of ankle joint

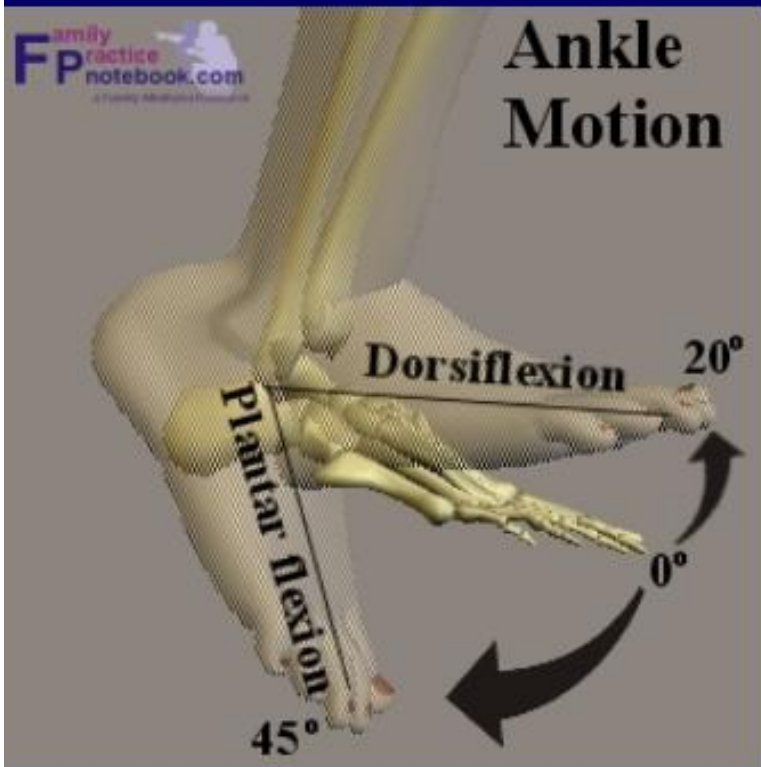
Flexion (dorsiflexion)-Anterior tibial assisted by the muscle with the toes.

Extension (plantar flexion)-Gastrocnemius and soleus assisted by the muscles which flex the toes.

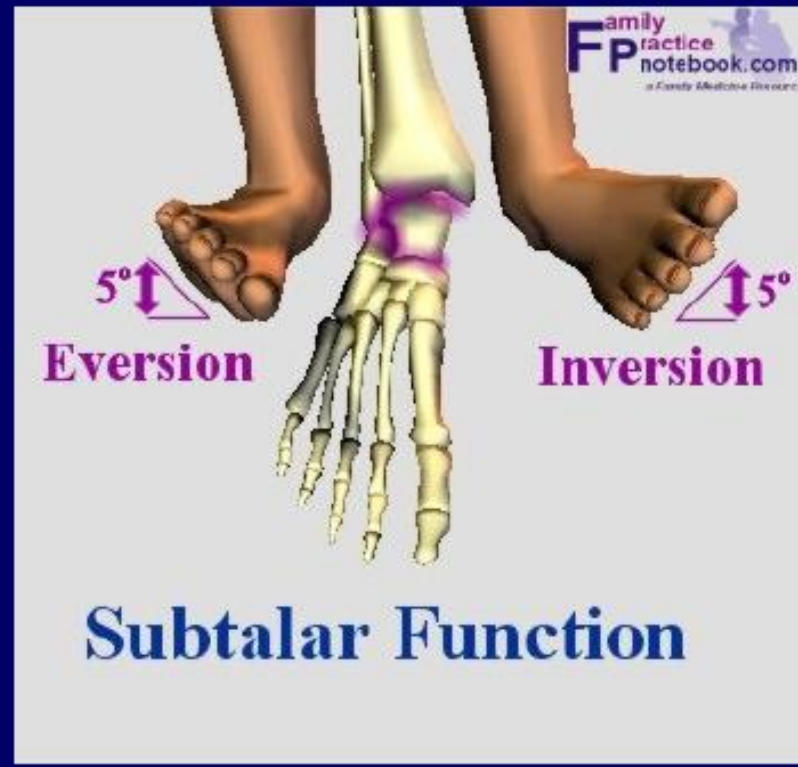
The movement of inversion and eversion occur between the tarsal bones and not at the ankle joint.

# Talocrural and Subtalar Joint Motion

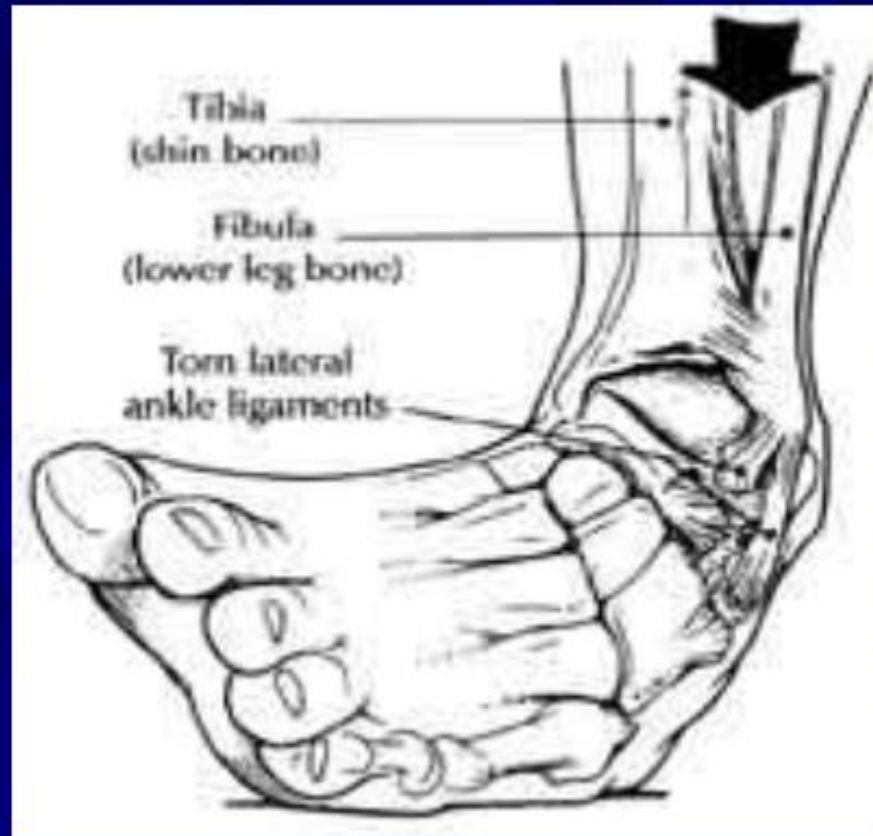
## Talocrural Joint



## Subtalar Joint



# Ankle Ligament Injury (Sprain)



- **Inversion**- injury to lateral ligaments
- **Eversion** – injury to medial ligaments

### 3. Mechanisms of injury (incidence of injury)

It is estimated that each year 4% of the Western population suffer ankle sprains. A large majority of these injuries are sustained during sporting activity; in fact ankle sprains have been shown to be the most common injury in a total of 24 different sports. They are particularly common in sports that involve change of direction or jumping, with high incidences reported in football and hurling.



Almost 70-85% of ankle injuries involve the lateral ligaments (the ligaments on the outside of the ankle). Eversion or external rotation injuries are less common and damage the ligaments on the inside (medial) part of the ankle. A ‘syndesmotic’ or ‘high ankle sprain’ involves the tibiofibular joint (the joint just above the ankle at the front of the shin) and can often take longest to heal.



#### 4. Types of ankle dislocation

Torn ligament without Talus (major ankle bone) fracture

Torn ligament with Talus (major ankle bone) fracture

What is an ankle sprain?

Sprain= a stretched or torn ligament



Inversion



Eversion



High ankle sprain

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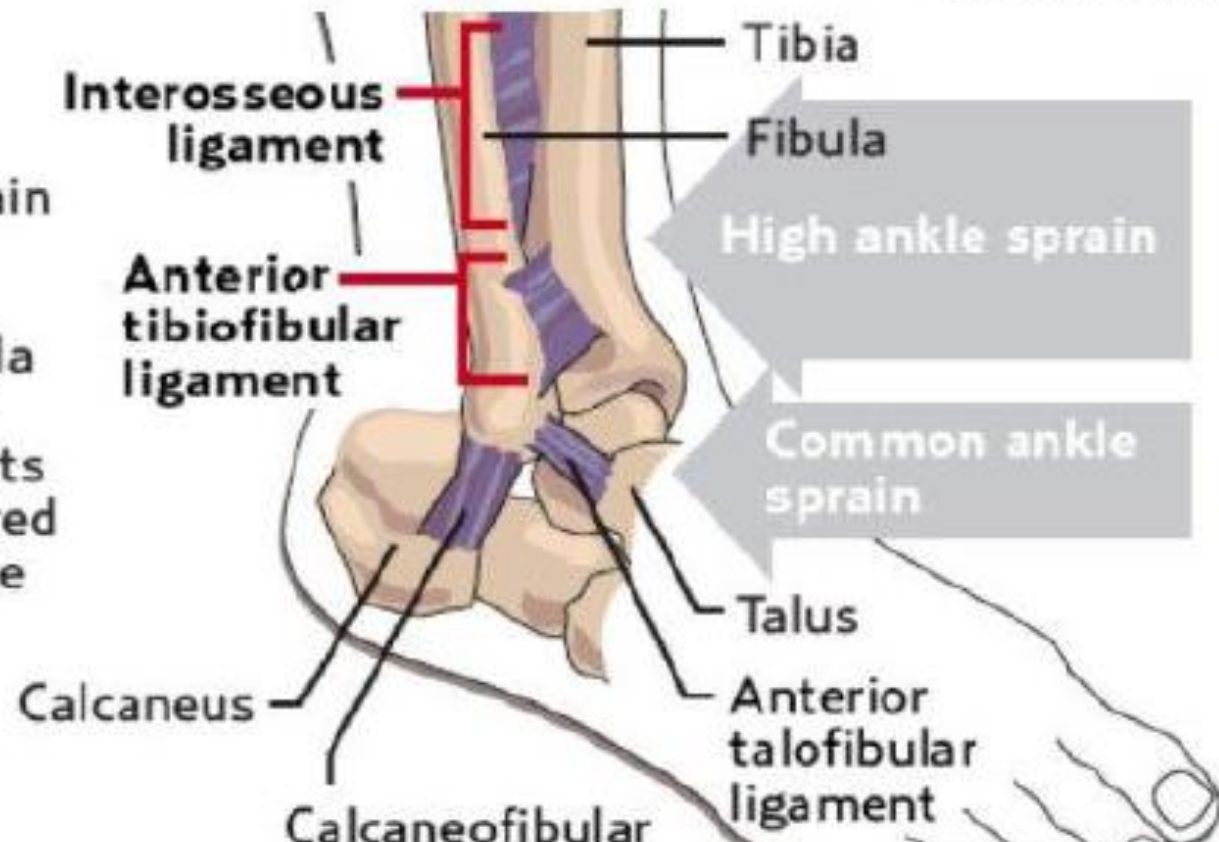
# High ankle sprain

## What is a common ankle sprain?

A tearing of the ligaments that connect the Fibula to the Talus or Calcaneus.

## Detail of high ankle sprain

A high ankle sprain is a tear of the ligaments that connect the Fibula to the Tibia. The adjacent ligaments may also be injured when a high ankle sprain occurs.



## 5. Signs and symptoms for ankle joint dislocation

- Pain Deformity around the ankle
- Swelling
- Heamatoma
- Deformity around the ankle
- Bony tenderness
- Normal function disability
- Instability and pain on attempting to walk

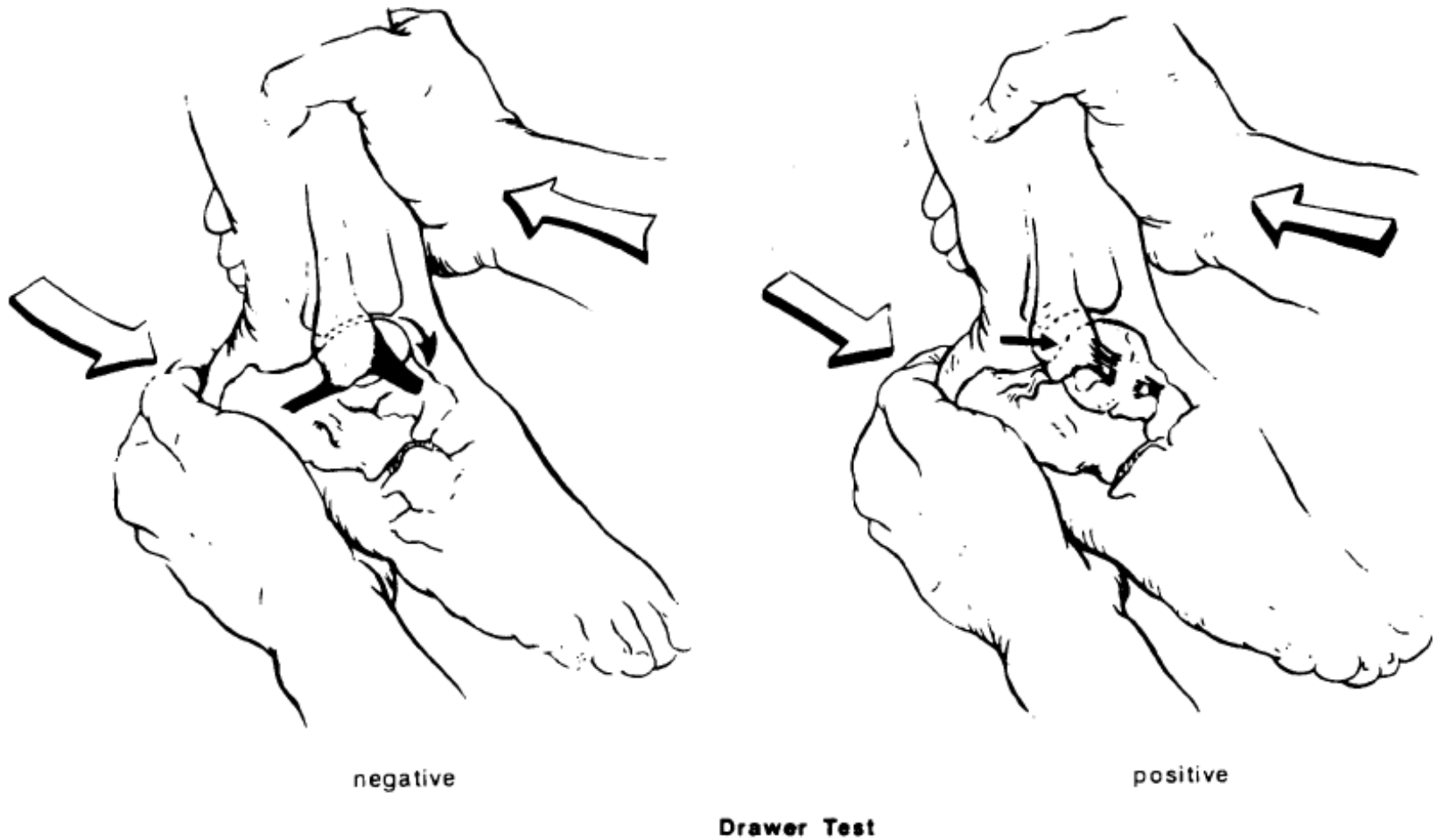
# Ankle Ligament Injury (Sprain)

- Player will complain of
  - Pain
  - Swelling of ankle
  - Bruising





# Line of treatment



**Figure 2. Joint assessment using the drawer maneuver.**



negative



positive

**Talar Tilt**

**Figure 3. Joint assessment using the tilt maneuver.**

## ■ On-Field Mx

- Rest , Ice, Compression and Elevation (RICE)
- Apply compression using ACE wrap
- Rigid compression splint allows earlier mobilisation and hence shorter recovery time



# Ankle Ligament Injury (Sprain)

## ■ Return to play

- Player must undergo ankle rehabilitation programme
- Return to play when there is adequate strength with a full pain free ROM
- **Bracing** – support with tape for 6 months during play

# The Future of Acute Ankle Sprain Treatment Intervention?

**FOOTBEAT**  
MICRO-MOBILE COMPRESSION®



CONTROLS

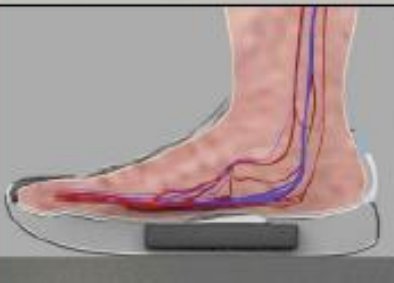


BATTERY

AVEX ENGINE



## MECHANISM OF ACTION



1. Peak perfusion burst
2. Endothelial wall scouring
3. Evacuates metabolic waste
4. Reoxygenates cells
5. Hydrates tissues
6. Augments fibrinolysis
7. Enhances vasodilation





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tarsal bones (Chapter 13 ...  
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Closed medial total subtalar **joint**  
**dislocation** without **ankle** ...  
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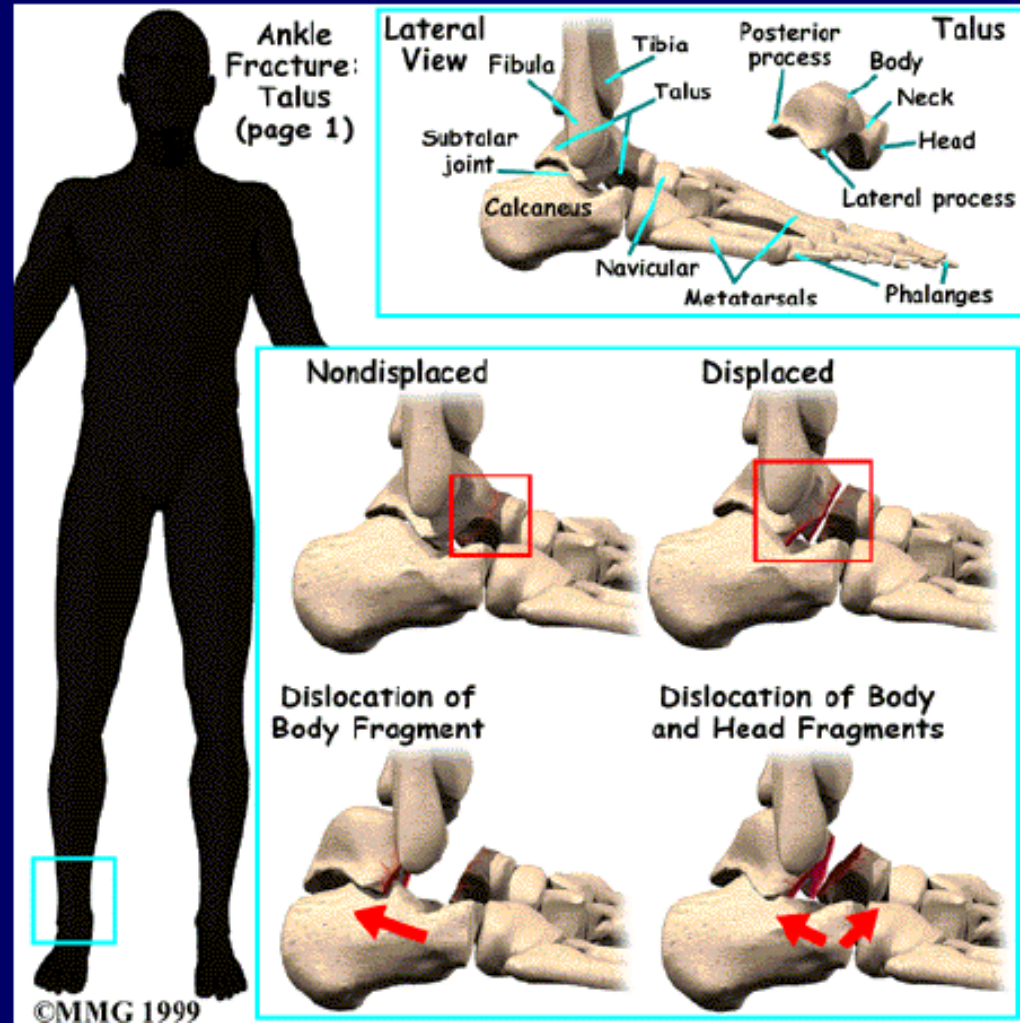
**Figure 1.** Radiographs of the right ankle. (a): Anteroposterior (AP) view: medial displacement of the whole foot, bony superposition between the medial malleolus and calcaneus and telluric debris around tibial and fibular malleoli. (b): Lateral view: bony superposition between tibia, fibula and talus and telluric debris around tibial and fibular malleoli.

# Acute Ankle Dislocation



# Ankle Dislocation

- Ankle dislocation results from complete disruption of articular elements in the ankle
- An isolated ankle dislocation without associated fracture is quite rare





# TM management for ankle joint dislocation

- Reduction
- Medical Bandaging
- Oral medication
- External application
- Supportive treatment
- Do and Don't

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