

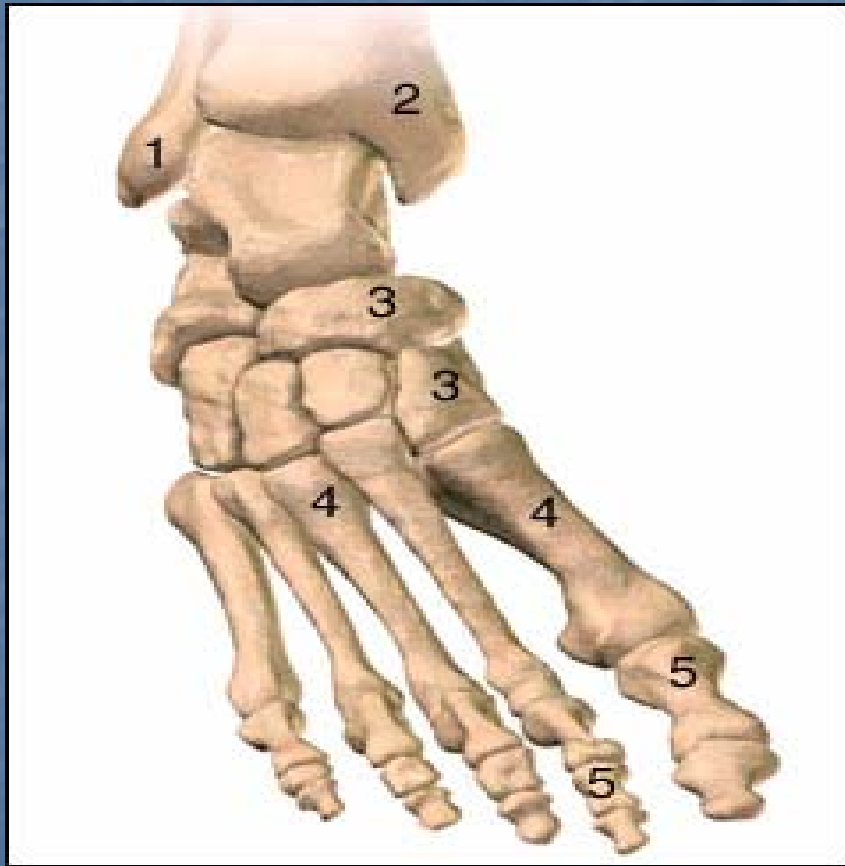
# Ankle Anatomy

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# Facts

- Most frequently injured joint in the body
- Works to maintain balance
- 26 bones in the ankle
- Toes numbered 1-5 starting at the “big toe” great toe

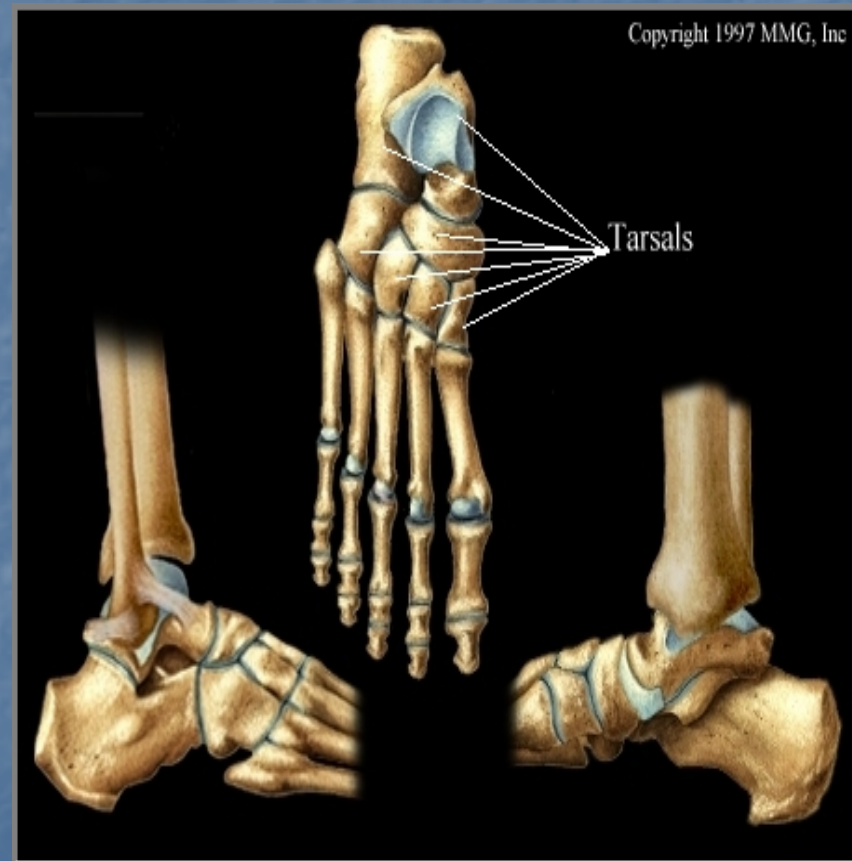
# Bones of the Feet



- Metatarsals
  - Long bones of the foot

# Bones of the Feet

- Phalanges
  - Small bones at the distal end of the metatarsals



# Upper Ankle Joint

- Fibula – lower leg bone on the lateral side
- Lateral malleolus- distal end of the fibula

## ■ When to x-ray the ankle

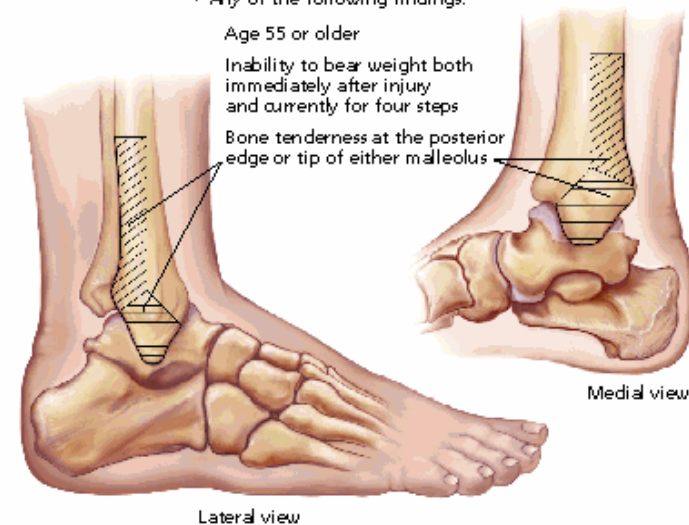
The Ottawa rule: Obtain an ankle radiographic series only if there is:

- Pain near the malleoli, and
- Any of the following findings:

Age 55 or older

Inability to bear weight both immediately after injury and currently for four steps

Bone tenderness at the posterior edge or tip of either malleolus

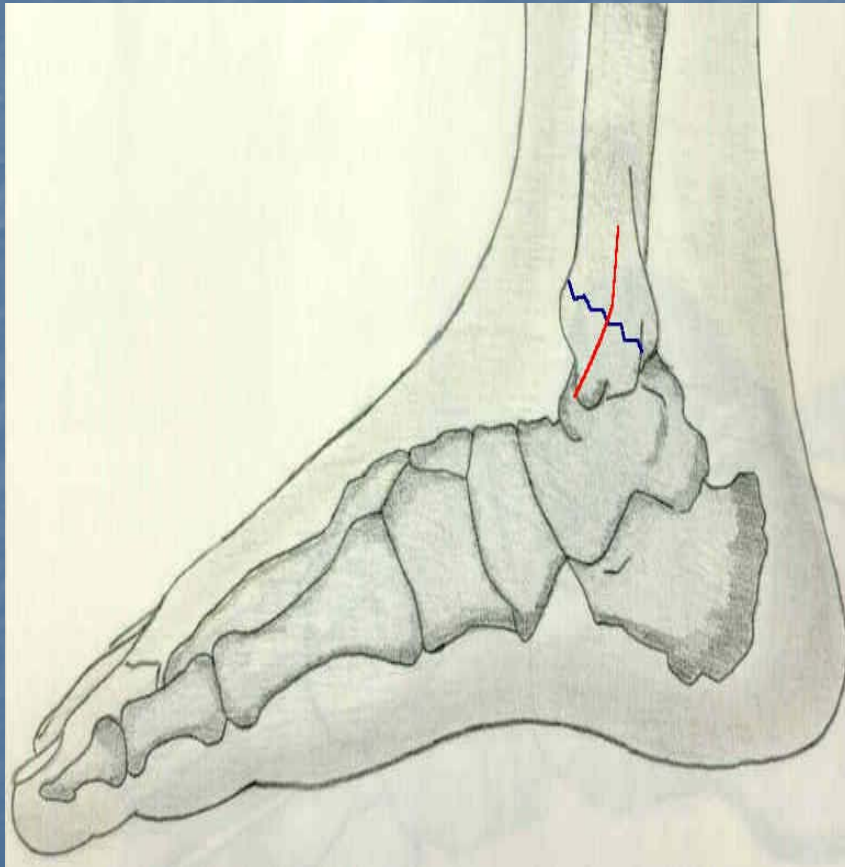


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ADAPTED FROM STELLIS, GREENBERG, OH, MCKINSTRY, HARRIS, MCCOWELL, WORTHINGTON JR. A STUDY TO DEVELOP CLINICAL DECISION RULES FOR THE USE OF RADIOGRAPHY IN ACUTE ANKLE INJURIES. ANN EMERG MED 1992; 21:544-550.

FIGURE 1

# Upper Ankle Joint



- Tibia – lower leg bone on the medial side
- Medial malleolus- distal end of the tibia

# Ankle Bones

- Talus – large bone at the distal end of the tibia
- Calcaneus – large bone that forms the heel



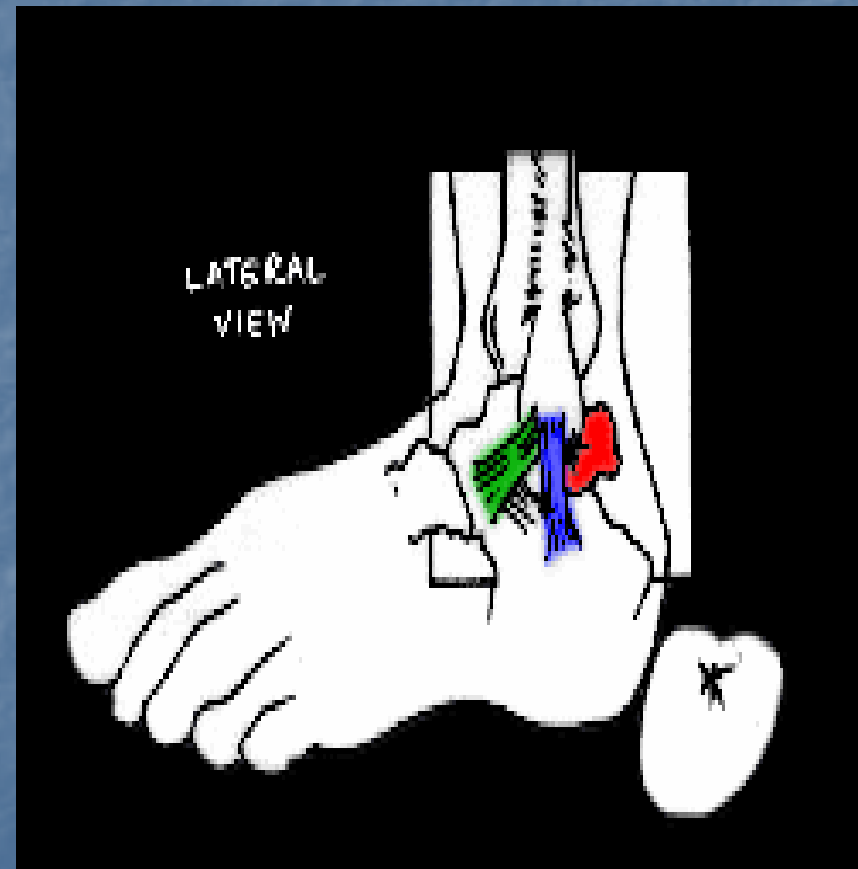
# Ankle Ligaments

- Note – Most of the names of the ankle ligaments, give the attachment point.

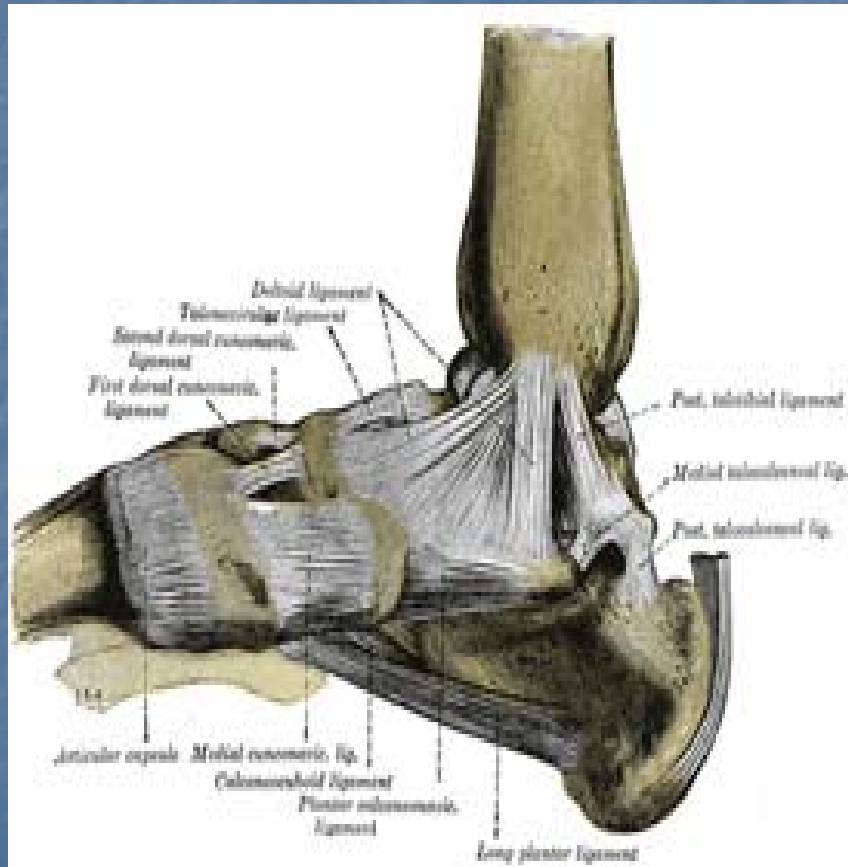


# Lateral Ankle Ligaments

- Commonly injured with ankle inversion
- Talofibular – connects the talus and fibula
- Calcaneofibular – connects the calcaneus and fibula



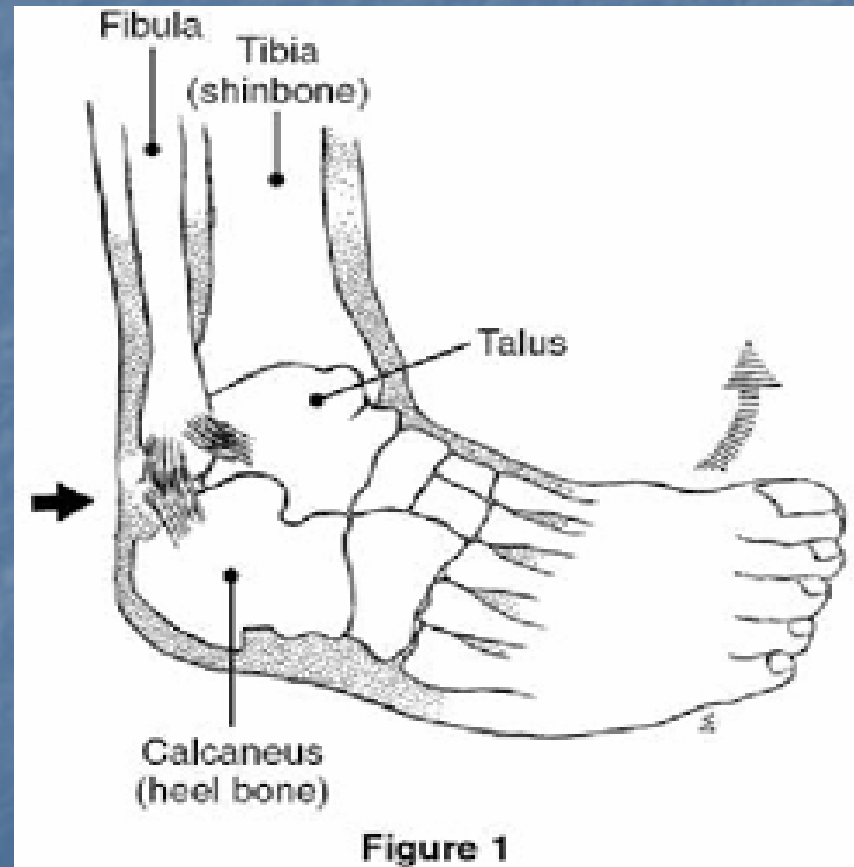
# Medial Ankle Ligaments



- Deltoid ligaments are four strong ligaments maintaining stability during eversion
- Talotibial – connects the talus and tibia
- Talocalcaneal – connects the talus and calcaneus

# Ankle Injuries

- **Grade I** — Only a few muscle fibers are stretched or torn, so the muscle is mildly tender and painful, but muscle strength is normal.



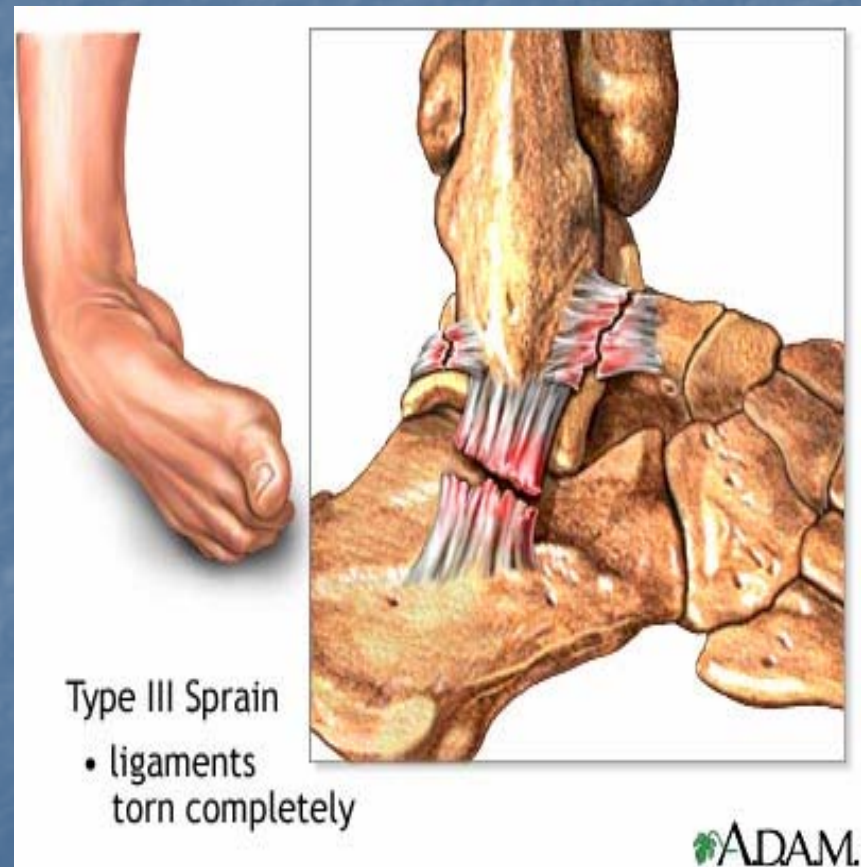
# Ankle Injuries



**Grade II** — A greater number of muscle fibers are torn, so there is more severe muscle pain and tenderness, together with mild swelling, noticeable loss of strength and sometimes bruising

# Ankle Injuries

- **Grade III** — The muscle tears all the way through. Either it rips into two separate pieces, or the fleshy part of the muscle breaks away from the tendon. Grade III muscle strains are serious injuries that cause complete loss of muscle function, as well as considerable pain, swelling, tenderness and discoloration.

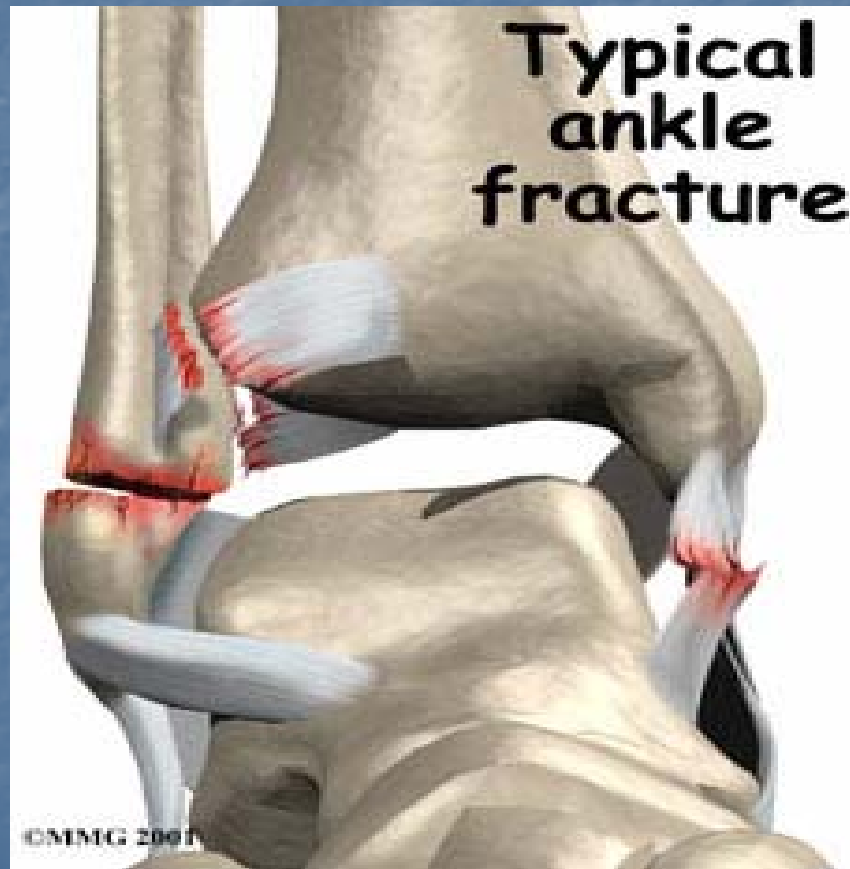


# Ankle Injuries

- Sprains / Strains – 80% of sprains are caused by ankle inversion.
- Inversion sprains cause damage to the lateral ligaments

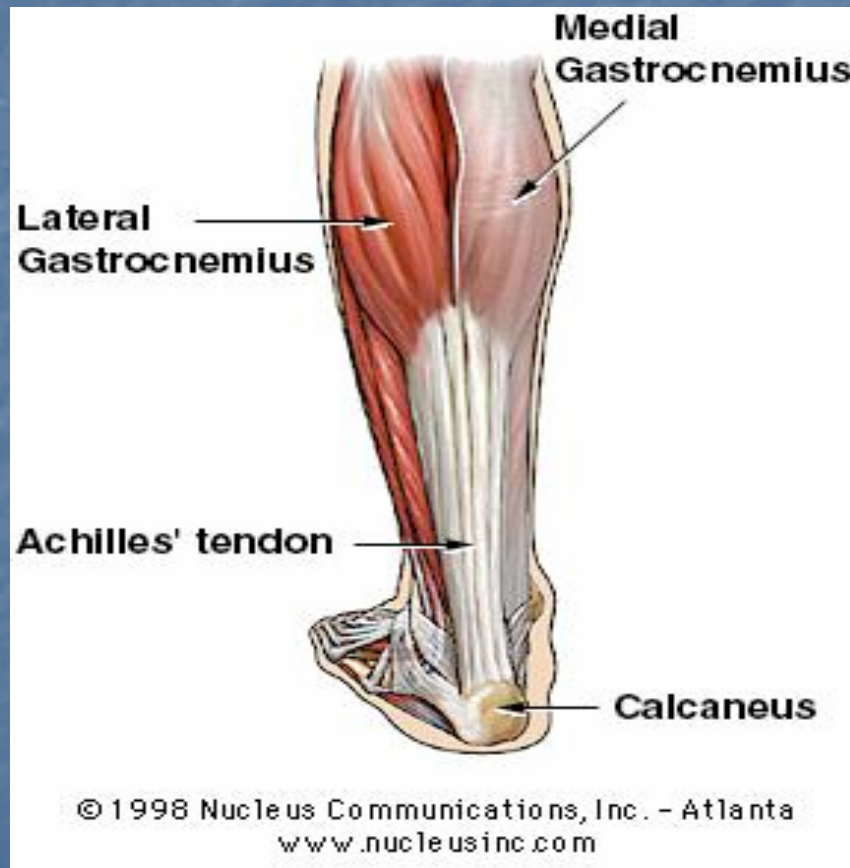


# Ankle Injuries



- Ankle Fracture – commonly caused by eversion. The fibula is often broken.

# Ankle Injuries



- Achilles tendon rupture – third degree strain of the tendon