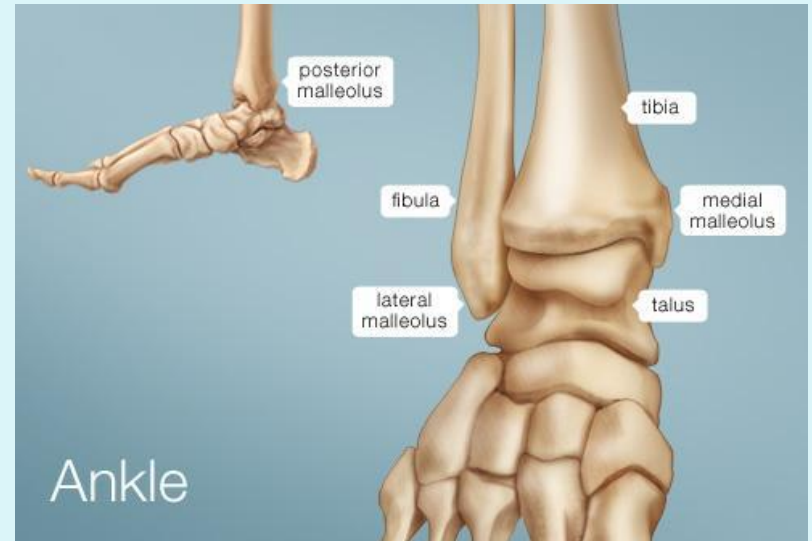


# The Ankle

# Anatomy: Bones

- Calcaneus
- Talus
- Tibia (weight bearing)
  - Medial malleolus
- Fibula (non-weight bearing)
  - Lateral malleolus



# Anatomy: Ligaments

- Lateral Side
  - Anterior Tibiofibular
  - Anterior Talofibular (ATF)
  - Calcaneofibular
  - Posterior Talofibular
  - Posterior Tibiofibular
- Medial Side
  - Deltoid



# Anatomy: Tendons

- Lateral side
  - Peroneus longus: Runs down the lateral side of the lower leg attaches to the medial cuneiform and 1st metatarsal
    - Eversion and plantar flexion
  - Peroneus brevis: Runs down the lateral side of the lower leg attaches to the base of the 5th metatarsal
    - Eversion and plantar flexion

# Anatomy: Tendon

- Posterior
  - Achilles: Attaches the plantaris, soleus and gastrocnemius to the calcaneus
    - Thickest tendon in the human body
    - Plantar flexion

# Movements

- Dorsiflexion
- Plantar flexion
- Inversion
- Eversion



# Ankle Sprains

- Inversion
  - 80% of all ankle sprains
  - The foot turns into plantarflexion and inversion and damages lateral ligaments
- Eversion
  - The occurrence of this type of ankle sprain is minimal because of the bone structure of the ankle and the strength of the deltoid ligament.



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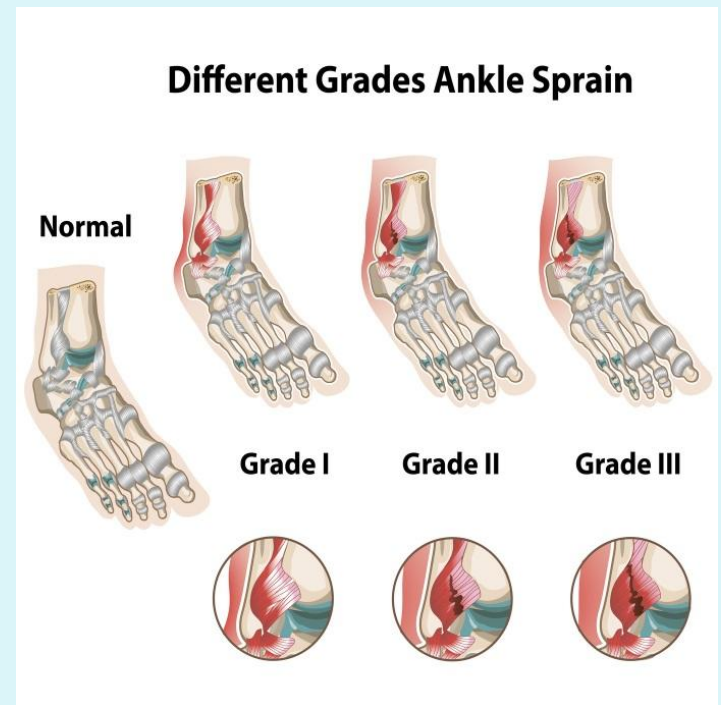


# Degrees of Sprains

- First Degree
  - Stretching of the ligament
  - Tenderness over ligament
  - Little swelling
  - Pain slight with stress
  - No ligament laxity
  - Possible slight loss of function
- Second Degree
  - Partial tearing of the ligament
  - Tenderness over the ligament
  - Swelling
  - Very painful with stress
  - Slight ligament laxity
  - Moderate loss of function

# Degrees of Sprains Continued

- Third Degree
  - Complete tearing of the ligament
  - Tenderness over the ligament
  - Rapid Swelling
  - Extreme pain with stress
  - Ligament laxity
  - Loss of function



# Evaluation of an Ankle (HOPS)

## History

- What happened?
- How did it happen? (mechanism of injury)
- Where does it hurt? (one finger one spot)
- What type of pain is it? (dull, aching, sharp shooting)
- Any radiating pain?
- Has it ever happened before? (if so, how long ago)
- Did it just happen? (acute onset) Has it been going on for a while? (chronic onset)
- Level of pain?
- What type of training have you been doing?
- Any change in surface of training?
- Any medications?
- Any restrictions/limitations? (what they can/can't do)
- Did you feel anything pop or snap?
- Did you feel anything locking, catching or giving out?

# Evaluation of an Ankle (HOPS)

## Observation (Bilateral)

- Swelling
- Discoloration
- Deformity
- Scars
- Bleeding
- Postures (how are they walking or carrying themselves)
- Redness
- Ecchymosis

# Evaluation of an Ankle (HOPS)

## Palpation (Bilateral)

- Begin away from the injured area
- Fibula- from the neck down
- Squeeze the mid-shaft of the fibula
- Interosseous membrane
- Deltoid ligament
- The 5 lateral ligaments
- Base of the 5<sup>th</sup> metatarsal
- Peroneal tendon
- Any other area necessary

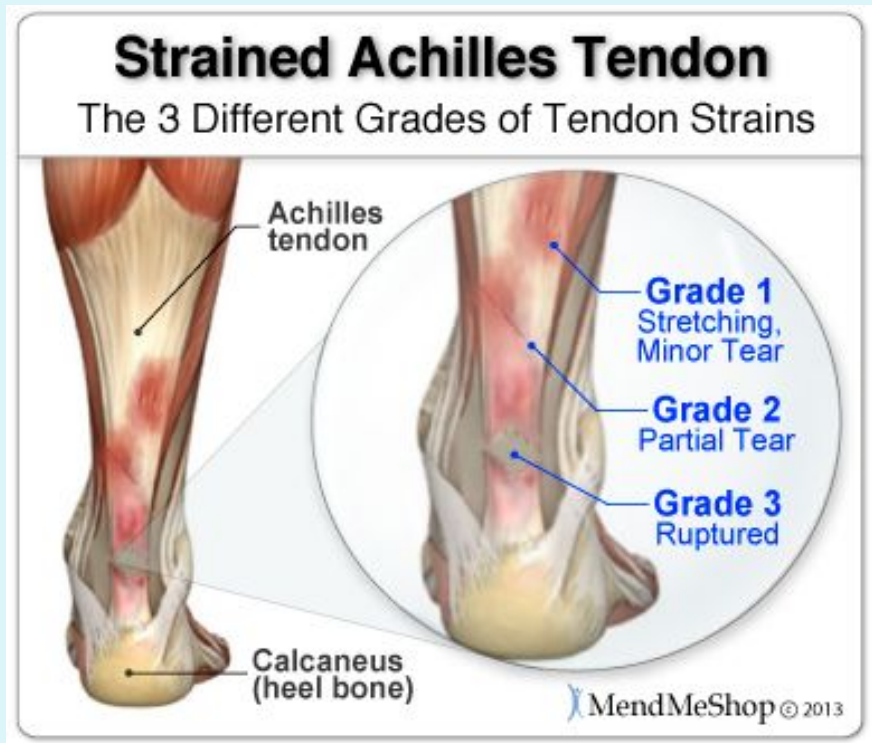
# Evaluation of an Ankle (HOPS)

## Special Tests (Bilateral)

- Start with the unaffected ligaments and then check the affected ligaments
- Check Range of Motion (ROM) Dorsiflexion, Plantar flexion, Inversion and Eversion
  - Passive, active and resistive
- Anterior Drawer (ATF)
  - Ankle is held in slight plantar-flexion. One hand pushes posteriorly by moving the tibia and the other hand brings the calcaneus forward. Also check posteriorly by moving tibia forward on stable heel.

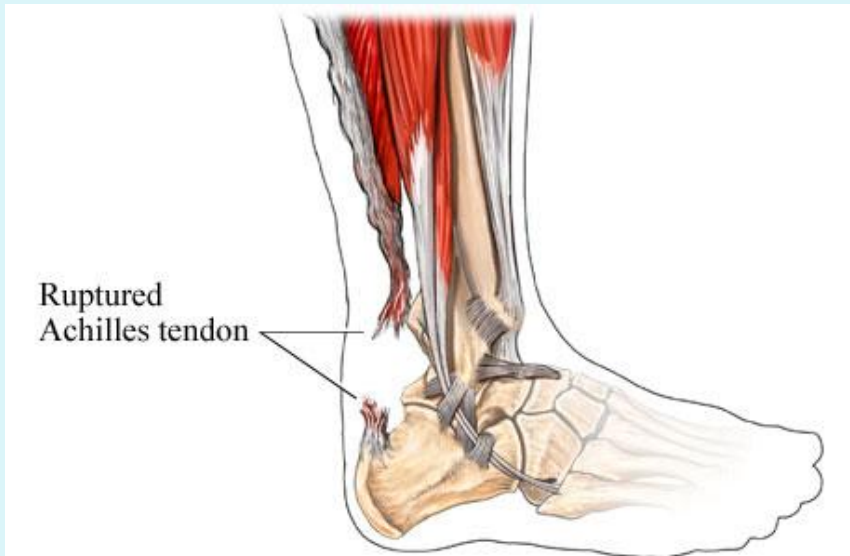
# Conditions of the Ankle: Achilles Tendon Strain

- **Stretching of the tendon**
- **Mechanism**
  - Excessive dorsiflexion
  - Ankle sprain
- **Signs and symptoms**
  - Pain
  - Weakness in plantar flexion
- **Treatment**
  - RICE
  - Heel lift
  - Tape

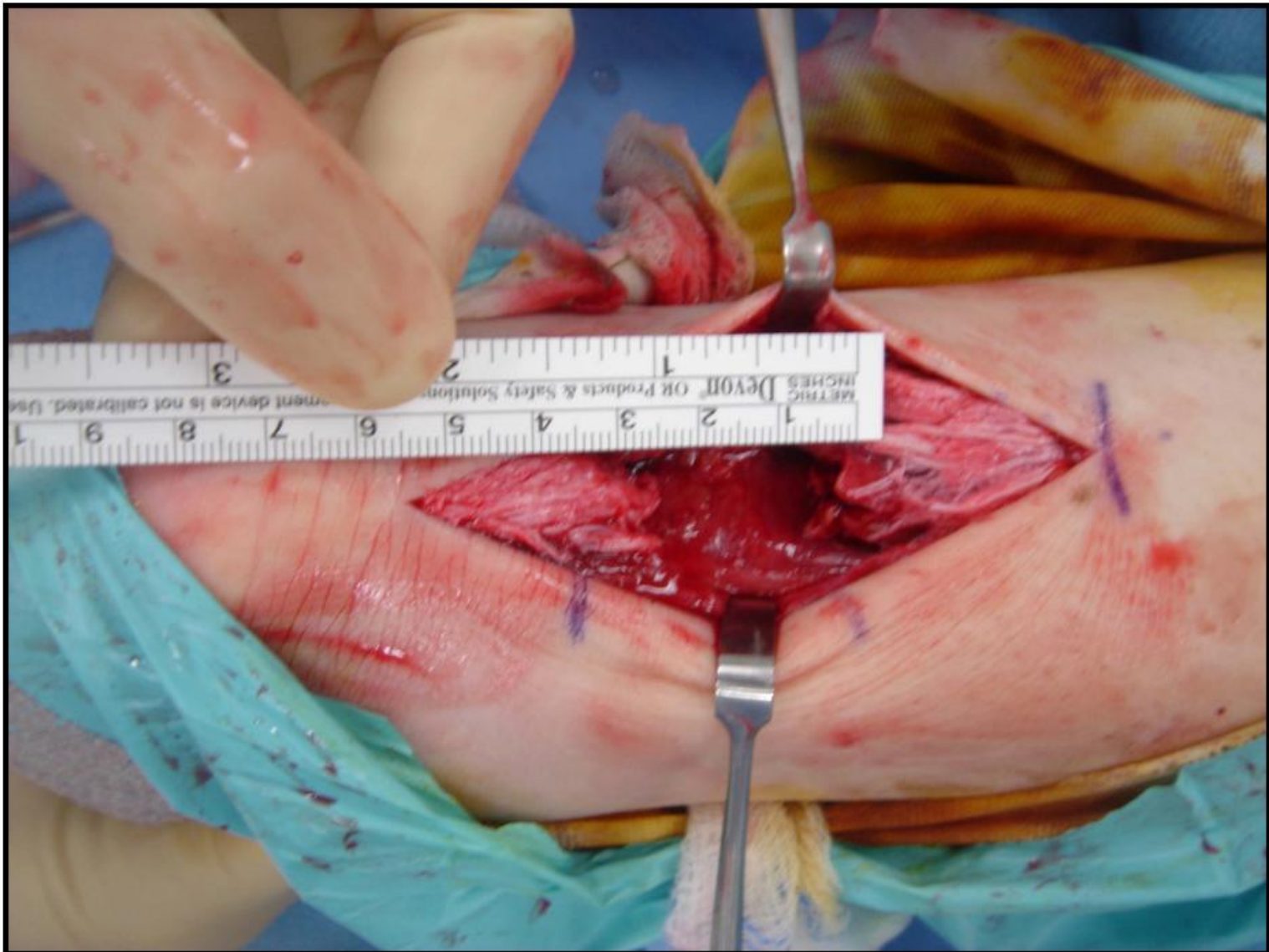


# Conditions of the Ankle: Achilles Tendon Rupture

- Tearing of the tendon completely
- Mechanism
  - Sudden push off with knee in complete extension
- Signs and symptoms
  - Feels a sudden snap
  - Severe pain
  - Point tenderness
  - Swelling
  - Discoloration
  - Positive Thompson Test
    - Squeeze a relaxed calf with the toes pointing down while hanging off a table. It is positive if the heel does not move upward.
  - Indentation
- Treatment
  - See MD



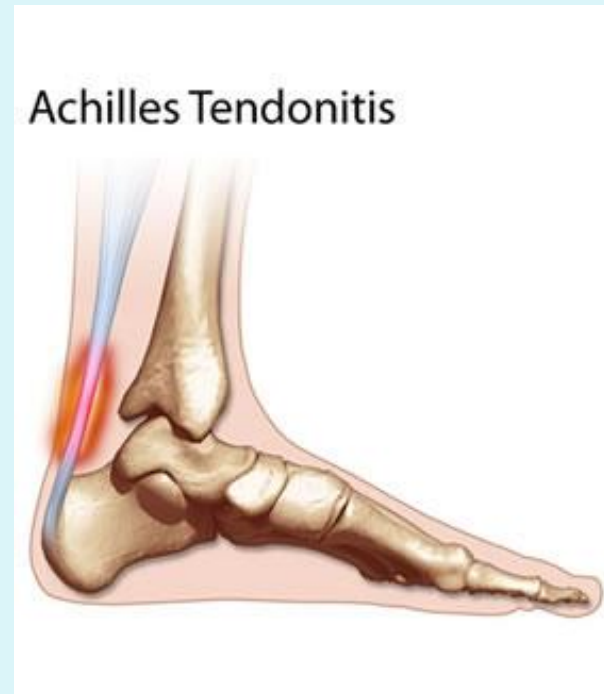




# Conditions of the Ankle

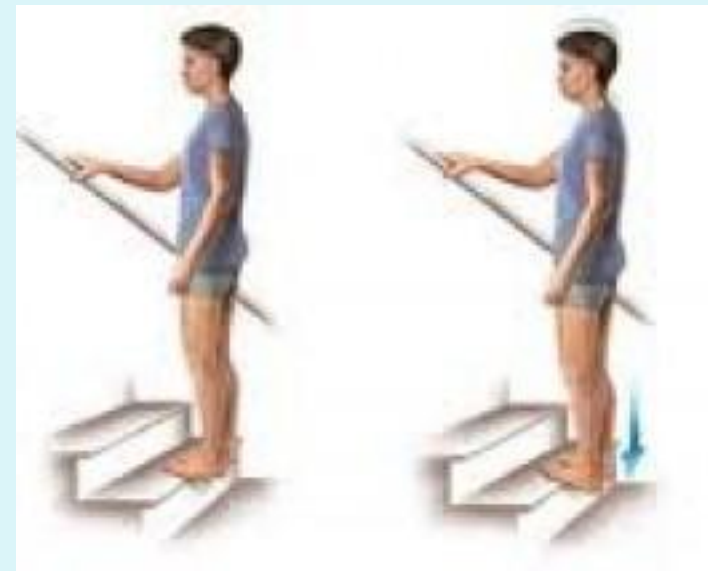
## Achilles Tendonitis and Bursitis

- Inflammation of the tendon or bursa
- Mechanism
  - Overstretching the Achilles tendon over a period of time
- Signs and Symptoms
  - Pain
  - Swelling
  - Crepitus
  - Limited motion
- Treatment
  - Heat therapy
  - Heel stretches
  - Ice after working out



# Rehabilitation of the Ankle

- ROM/ Flexibility
  - Toe wiggling
  - ABC's
  - Stretching in all movements
    - Dorsi flexion, plantar flexion, inversion, eversion
  - Incline board



# Strength



- Strength
  - Toe raises – 3 sets of 20
  - Heel walk
  - Toe walk
  - Towel curls – 5 sets (add weight as ankle improves)
  - Marble pick up
  - Manual resistance
- Proprioception

