

Rehabilitation after ankle injuries

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What are our objectives?

- Principles of Orthopedics management of ankle injuries
- Role of PT in ankles injuries

What do we mean by ankle injuries?

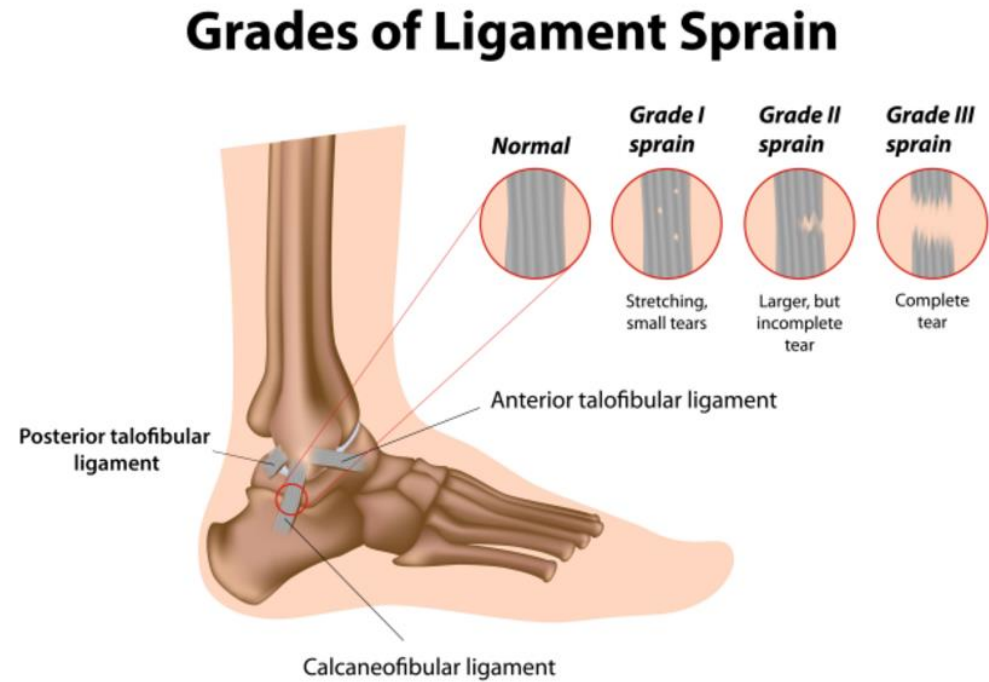
- Ankle sprains
- Ankle fractures
- Distal tibia intra-articular fx (pilon or plafond OTA/ AO 43 fx)
- Others

Common Questions?

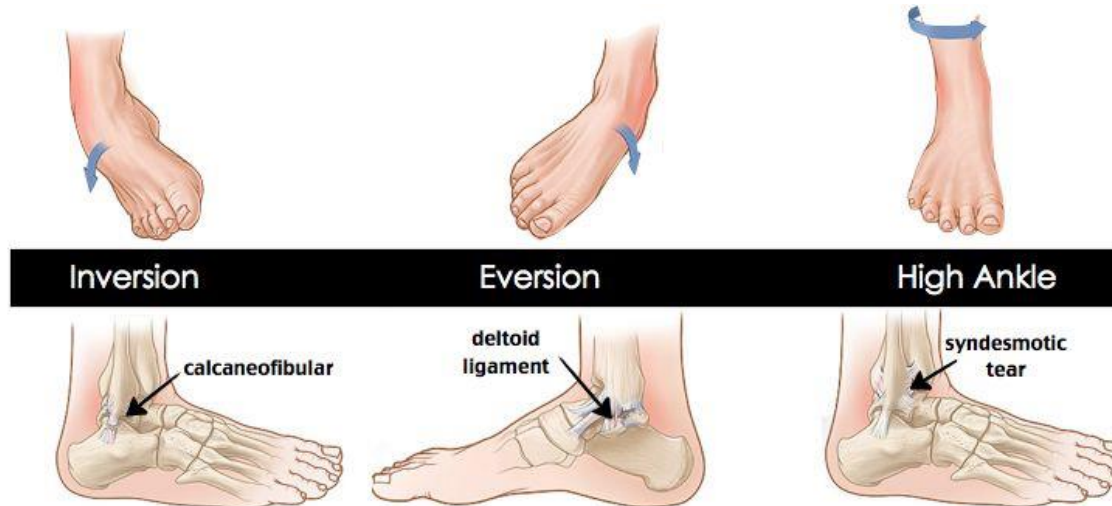
- Acute phase management
- Showering/ bathing
- WB status
- ROM exercises
- Strengthening exercises
- Balancing exercises
- When can I go back to work?
- When am I able to drive?

Ankle sprains

- Severity
- Location of the sprain:
 - Lateral ankle sprain
 - Deltoid sprain
 - High ankle sprain
- Onset:
 - Acute vs chronic

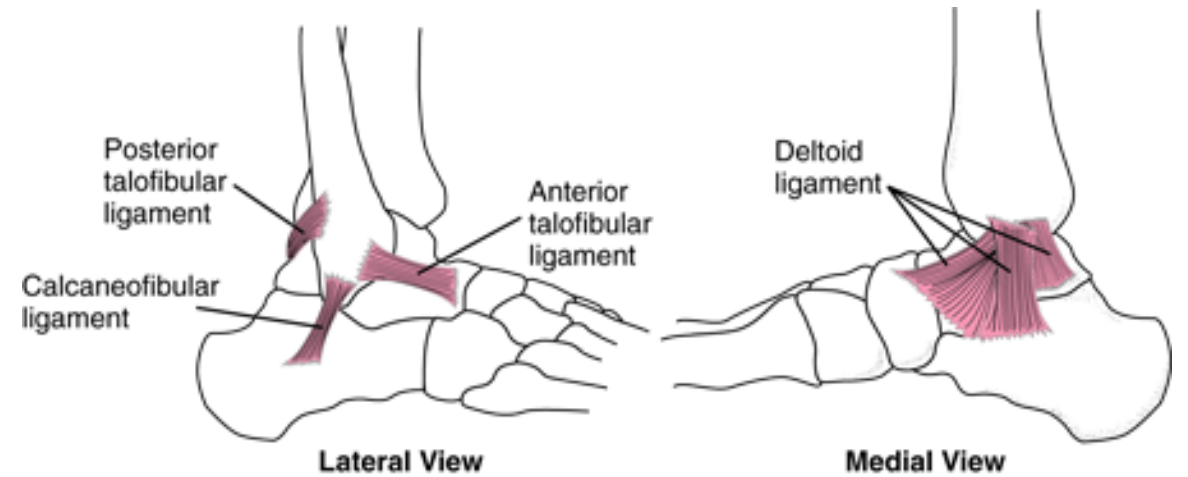


Varieties of ankle sprain



Ankle Sprain Classification by Grade				
Severity	Physical Exam Findings	Impairment	Pathophysiology	Treatment
Grade 1	<ul style="list-style-type: none"> Minimal tenderness and swelling 	Minimal	Microscopic tearing of collagen fibers	<ul style="list-style-type: none"> Weight bear as tolerated, physical therapy
Grade 2	<ul style="list-style-type: none"> Moderate tenderness and swelling Decreased range of motion Possible instability 	Moderate	Complete tears of some but not all collagen fibers in the ligament	<ul style="list-style-type: none"> Immobilize with air splint Physical therapy
Grade 3	<ul style="list-style-type: none"> Significant swelling and tenderness Instability 	Severe	Complete tear or rupture of ligament	<ul style="list-style-type: none"> Immobilization Physical therapy Possible surgical reconstruction

Location of ankle sprain



Rehabilitation after Ankles sprains

Acute phase care: goals

- Limit inflammation, reduce pain, unload and protect the joints as necessary
- Assess the Ability to WB
- Observe the gait/ ability to walk without limping

Acute interventions

- Rice VS PRICE
- Modalities (EMS, US, laser, ultrasound)
- NSAID
- Encourage motion (Prevent stiffness / Maintain greater post injury ROM)
- Manual mobilization/manipulation
- Protect, brace and support :
 - Crutches
 - Bracing options

Operative RX for severe lateral ankle sprains

- If displacement is more than > 2 mm
- Extensive grade III ankle sprains

Severe ankle sprains

- May need surgery
- Intensive PT needed

Deltoid ligament ankle sprain

- Partial tear
- Complete tear

High ankle sprain

- High ankle sprains: return to work/ play
- Intensive PT
- Covered by Becky

High ankle sprain

What is a common ankle sprain?

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

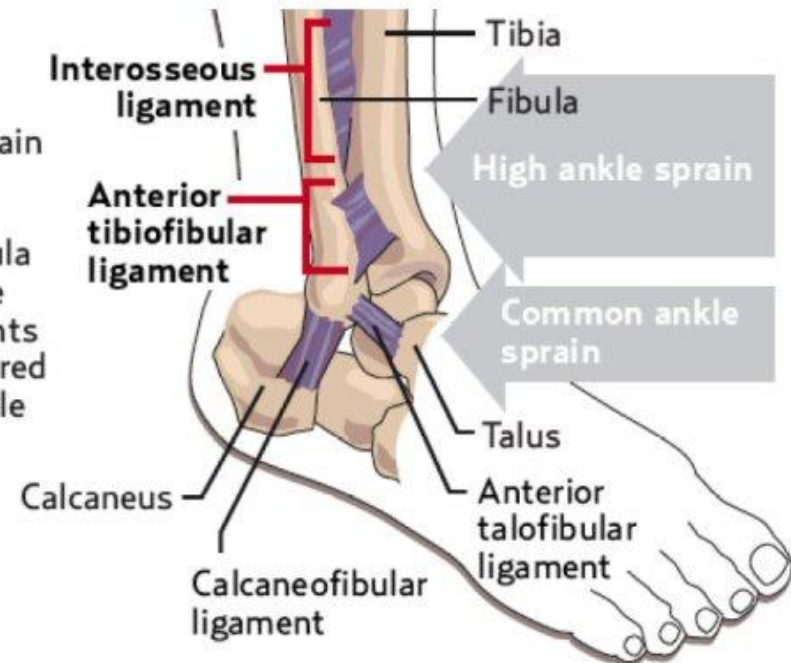
Injured ligaments



A sprained ankle occurs following a sudden sideways or twisting movement of the foot.

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.



Chronic ankle pain or instability

- Difficult problem
- May need operative RX

Functional rehabilitation

- Initial goals:
 - Prevent further loss of range of motion
 - Minimize atrophy
 - Maintain muscle memory
- Intermediate goal:
 - Facilitate healing
 - Restore ranges of motion
 - Increase strength
 - Reestablish motor control
 - Return to work

Ankle FX



Rehabilitation of Ankles fx

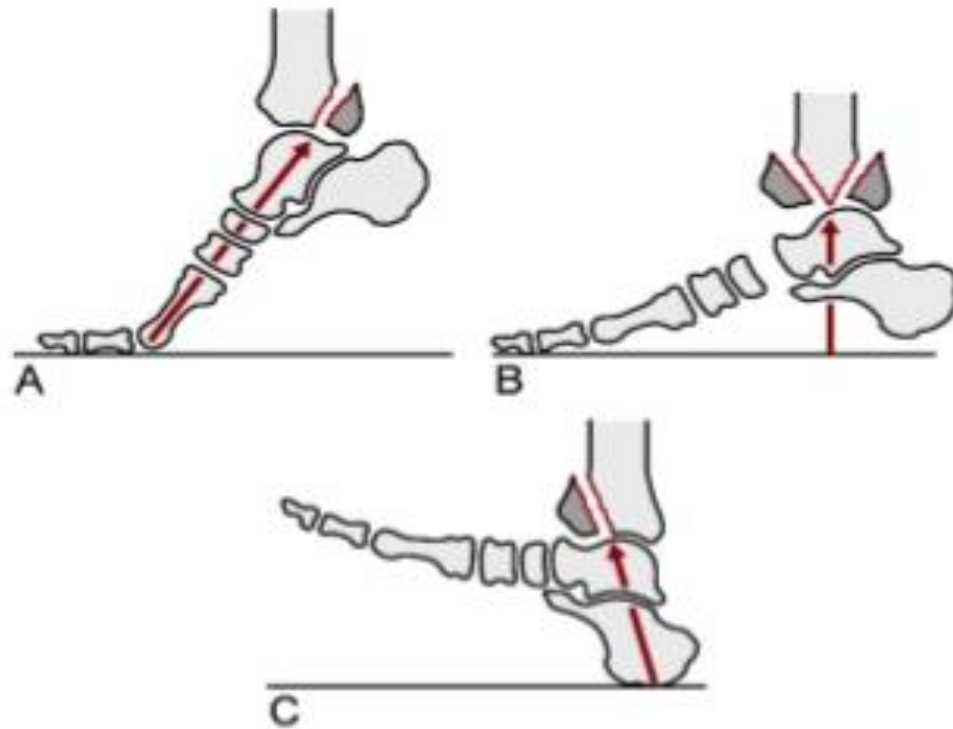
Post Op course: ankle fx

- Day 1
 - Foot is wrapped in a splint, ice, elevate, take pain medication.
 - Expect numbness in foot 12-24 hours, bloody drainage through bandage is expected.
- 10-14 days
 - First follow-up in the office, dressing changed, sutures are removed.
 - A removable boot or short leg is applied, start ankle motion out of the boot 3 times each day.
 - Showering without covering, keep incision dry, no submerging incision area

Post OP RX

- 6 weeks
 - Start stationary bike. No resistance / Start physical therapy to get back strength and movement.
 - Full walking in boot is permitted
 - Do not walk without the boot
 - Boot is needed for 3-6 more weeks
 - An ankle brace is used once the boot is discontinued.
- 9-12 weeks
 - Boot is discontinued and activity as tolerated is begun.
 - Continue with physical therapy as needed.

Pilon fx MOI



Post Op for Pilon FX (43 OTA/ AO C fx)

- Well-padded plaster splint with the foot in neutral position at the end of procedure.
- Pain should be controlled during the first 24 to 48 hours
- The wound is typically examined in the outpatient clinic area approximately 4 to 5 days postoperatively,
- Limb is subsequently splinted in a neutral position until the sutures are removed at 2 to 3 weeks
- **A supervised physical therapy program consisting of active, active-assisted, and passive range of motion of the ankle, subtalar, and metatarsophalangeal joints is then initiated**



Pilon Fx

- To avoid equinus contracture, a removable nighttime and resting splint is recommended
- Partial progressive weight bearing in a removable boot is initiated approximately 12 weeks after definitive surgery. The physical therapy focus at this point **consists of maximization of motion, strengthening, gait training, and the weaning of ambulatory devices such as crutches, canes, and external supports**
- Postoperatively, edema may be substantial and persist for several months following injury. In addition to patient education regarding this normal phenomenon
- An elastic stocking is provided to help decrease dependency-related swelling

Take home message

- PT after ankle sprains/ fx or pilon is critical for successful outcome
- PT should be fast/ cheap and effective to achieved desired outcomes