Foot and Ankle Hiking Injuries: How to Prevent and Treat Them

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Boulder Community Health

Boulder Centre for Orthopedics

About Me

Boulder Community Health

Education, Training & Affiliations

MedStar Union Memorial Hospital
Baltimore, MD
Orthopedic Foot and Ankle Surgery Fellowship

University of Louisville School of Medicine
Louisville, KY
Doctor of Medicine

University of Washington
Harborview Medical Center
Seattle, WA
Orthopedic Surgery Residency

The University of Texas at Austin
Austin, TX
Bachelor of Science

Specialties

- Achilles tendon reconstruction
- Ankle arthroscopy
- Arthritis care
- Bunion & hammertoe surgery
- Cartilage repair and restoration
- Flatfoot reconstruction
- Joint injections
- Minimally invasive surgery
- Surgical fracture care
- Total ankle replacement

About Me

Boulder Community Health

Overview

Boulder Community Health

- Anatomy of the Foot & Ankle
- Common Hiking-Related Conditions
- Nonsurgical Treatments
- Operative Treatments
- Preventative Care

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Anatomy of the Foot and Ankle

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- 30 bones (at least)
- Over 33 joints/articulations
- Over 100 muscles, tendons, ligaments, soft tissue connections
- Complex!

Overview

Boulder Community Health

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Common Hiking Injuries

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- Long distances
- Uneven surfaces
- Types of pathology
  - Overuse
  - Trauma

Tendinitis

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- What is tendinitis?
  - Inflammation of tendons resulting in pain, swelling
- Common locations:

Peroneal Tendinitis

Posterior Tibial Tendinitis

Achilles Tendinitis

Tendinitis

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- Overuse-related condition
- Activity-related pain
  - Often improves with rest
- Can be associated with swelling over affected tendon
- May have underlying partial tearing of tendon
- Often responds to anti-inflammatories

Plantar Fasciitis

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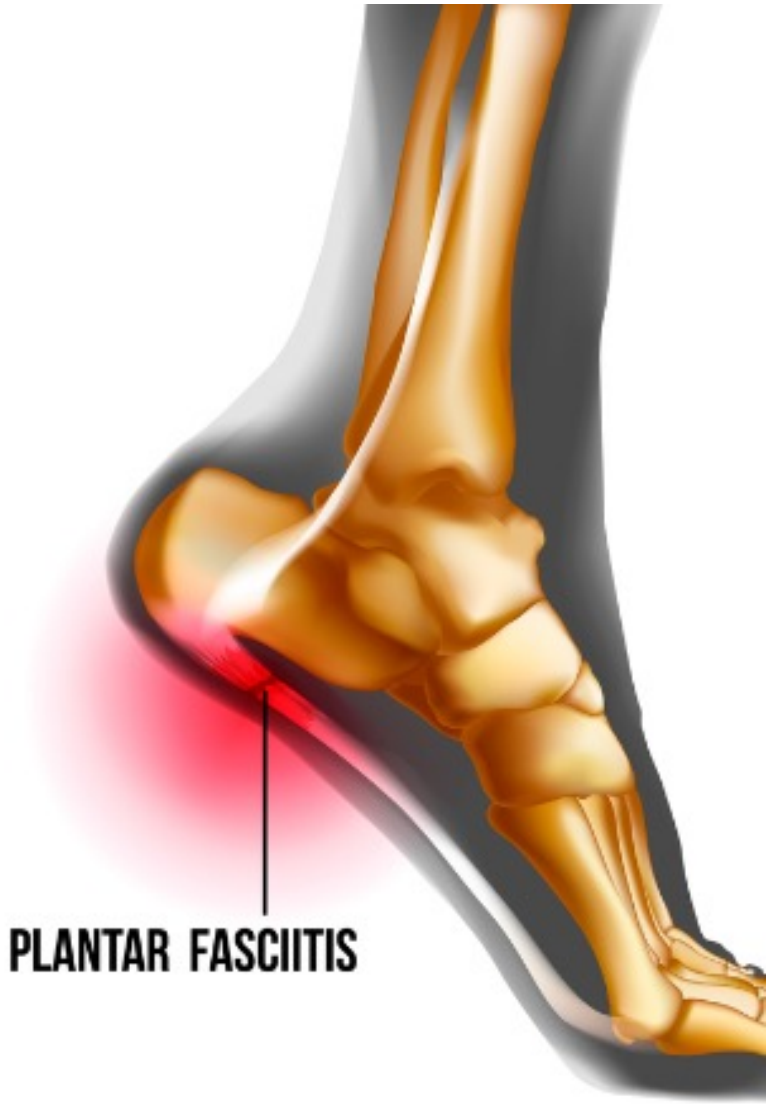
- Thick band of tissue supporting the arch of the foot
- Repetitive overuse can cause microtears resulting in inflammation
- Very common condition

Plantar Fasciitis

Boulder Community Health

- Pain usually in plantar heel
  - Can also be in arch of foot plantarly as well
- Often worst pain in the morning, after prolonged sitting
  - Prolonged ambulation
- Risk factors
  - Obesity
  - Calf tightness
  - Endurance activities (dancing, running)



Stress Fractures

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- Overuse-related fracture
  - Repetitive trauma results in development of fracture
- Can be anywhere in the foot
  - Metatarsals (toes)
  - Calcaneus (heel)
  - Fibula (ankle)
- Risk factors
  - Low Vitamin D
  - Poor nutrition
  - High impact activity

Stress Fractures

Boulder Community Health

- XRs are often normal
  - May show bone healing
- Painful
  - Usually able to localize worst pain to one spot
- Pain with activity or weightbearing
  - Better with rest
- Associated swelling

Ankle Sprains

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- Most common reason for missed athletic participation
- Typically from inversion injury
- Sprains on a spectrum
  - Mild -> Severe

Ankle Sprains

Boulder Community Health

- Bruising
- Swelling
- PAIN!
  - Often on lateral side of ankle
- May or may not be able to bear weight
- Symptoms can mimic a fracture
  - When in doubt, get an XRAY!

Fractures

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- Resulting from trauma
  - Sometimes with minimal energy
- Can involve any bone in the foot & ankle

Fractures

Boulder Community Health

- Severe swelling, bruising
- Pain
- Typically unable to bear weight
  - But bearing weight does not rule out fracture!
- Recommend urgent X-ray
- Treatment can be operative or non-operative

Achilles Rupture

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- Sudden dorsiflexion of ankle
- Typically with higher intensity of activity
  - Trail running
  - Sports
  - Technical hiking

Achilles Rupture

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- Swelling along Achilles tendon
- Palpable defect within tendon
- Still able to bear weight
  - Often not painful

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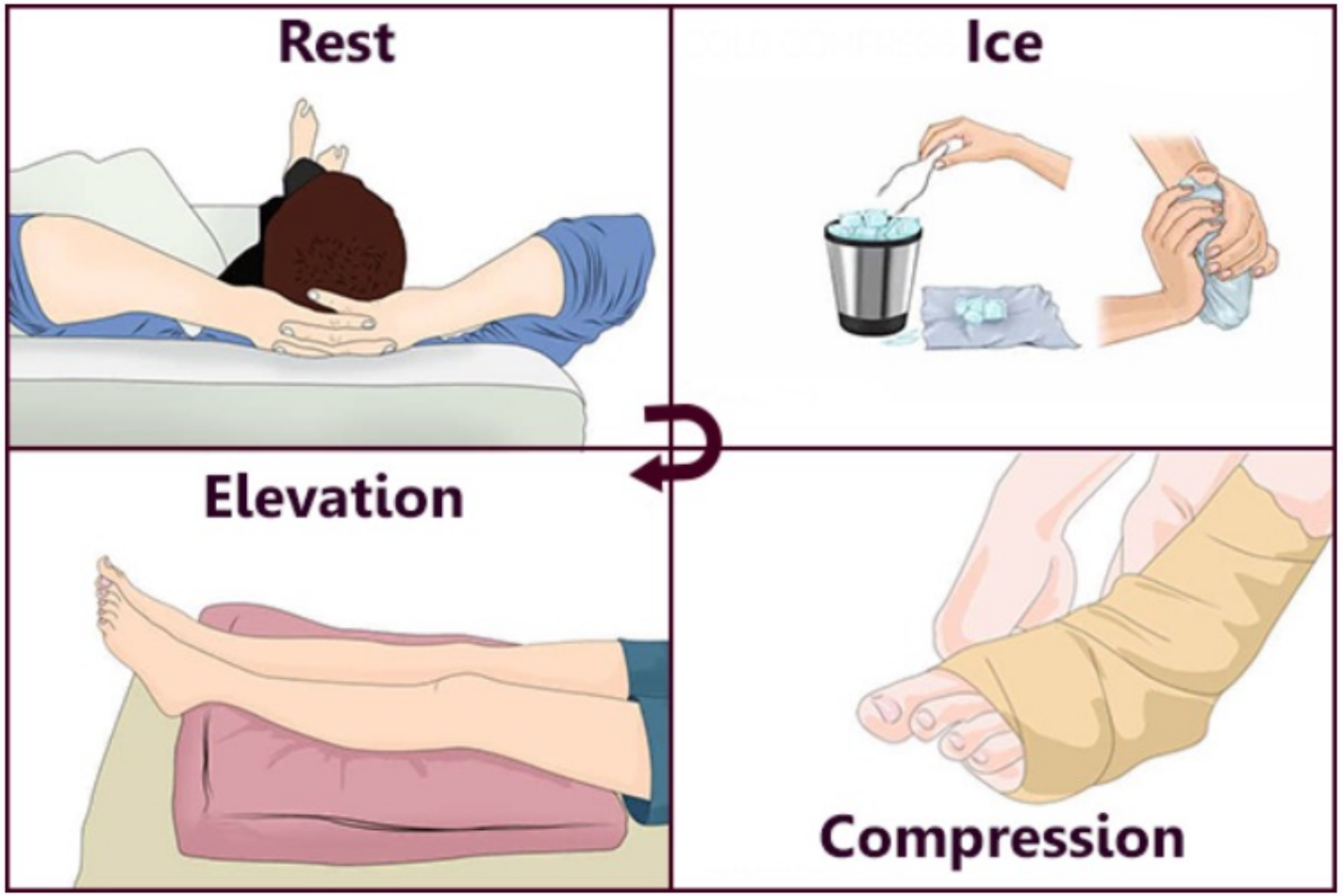
Nonsurgical Treatment

Boulder Community Health

- 1st line treatment for any condition
  - RICE!
- Rest
- Ice
- Compression
- Elevation



Nonsurgical Treatment

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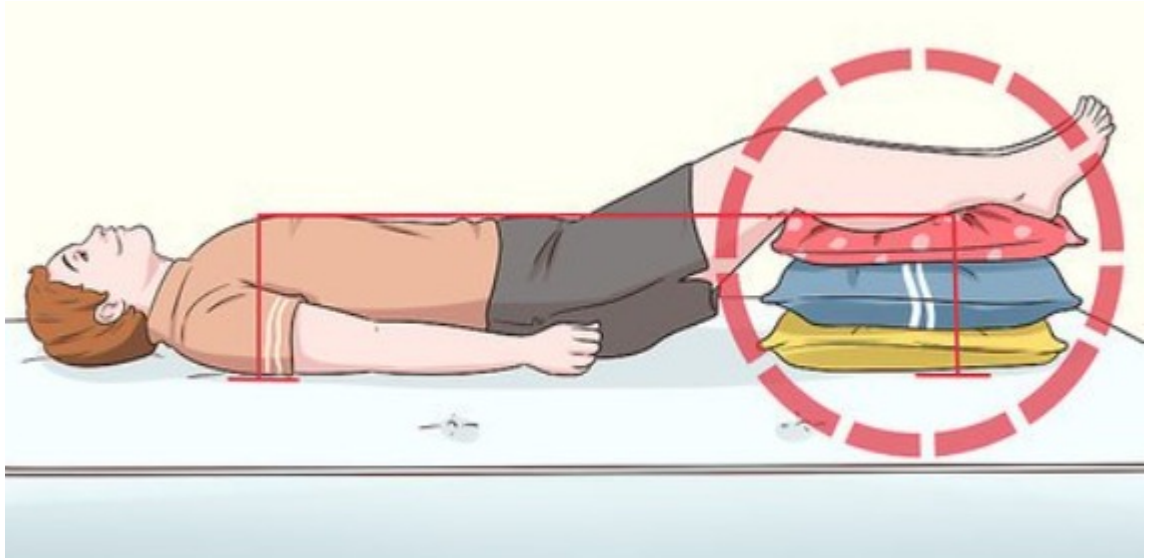
- Rest
  - Many conditions are from overuse
  - Important!
- Ice
  - Often more beneficial than heat in acute inflammatory phase
- Compression
  - Helps with swelling
- Elevation
  - Helps with swelling and pain
  - Above the level of the heart



Nonsurgical Treatment

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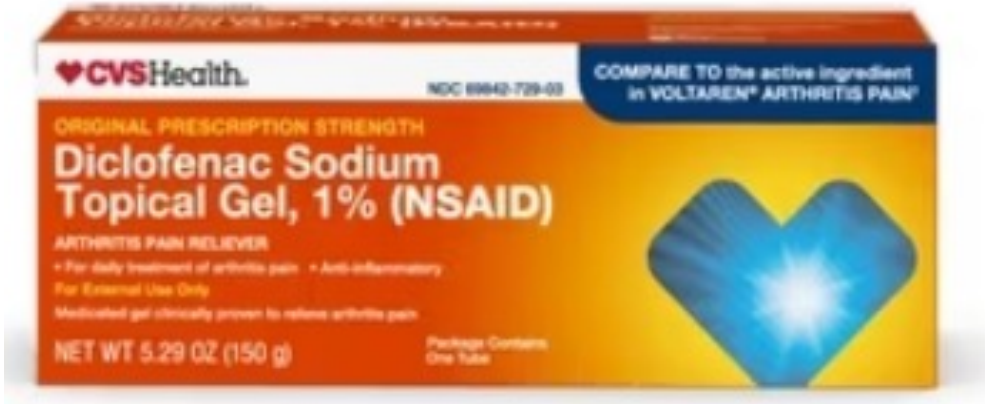
- Anti-inflammatories
  - Critical for pain relief and swelling aid
- NSAIDs
  - Non-Steroidal Anti-Inflammatory Drugs
  - Mainstay of treatment
  - i.e., ibuprofen (Advil), naproxen (Aleve)
  - Oral version may cause GI upset
    - Topical versions exist
  - Recommend 3 week continuous course for most conditions



Nonsurgical Treatment

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- Immobilization
  - Helpful in the initial stages of pathology
  - Particularly if symptoms are getting worse
  - Cast, boot, brace
- Theory is to stabilize foot & ankle and allow for healing to occur
  - Can result in stiffness (by design)
  - Often helps pain significantly

Nonsurgical Treatment

Boulder Community Health

- Type of immobilization depends on severity of condition
- In general, will transition from boot to a brace as condition improves
  - Often may start with a brace if symptoms not severe

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Operative Treatment

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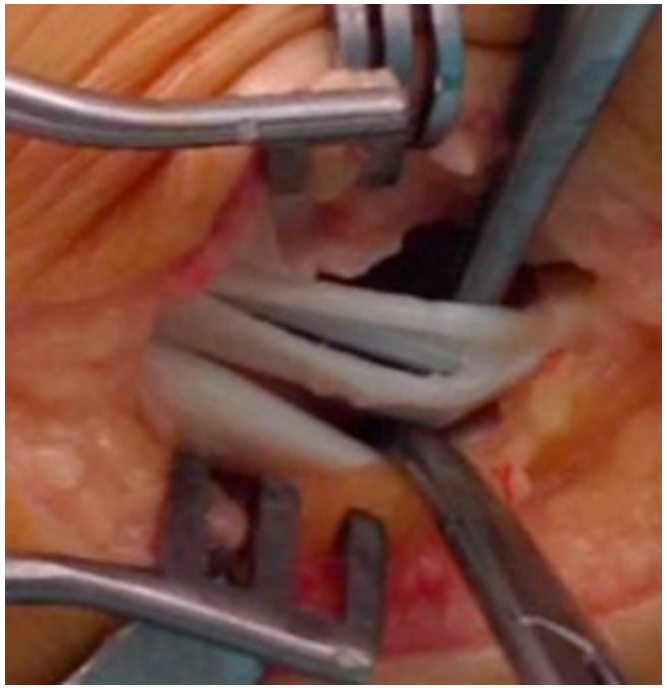
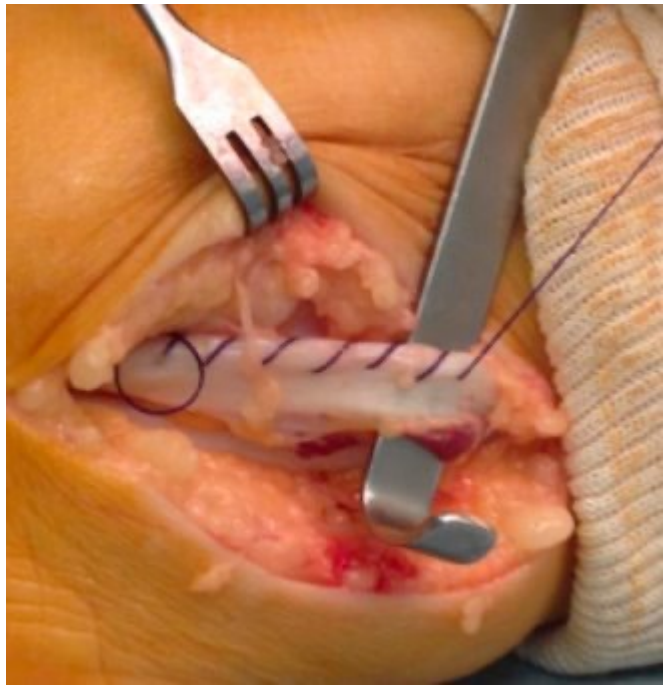
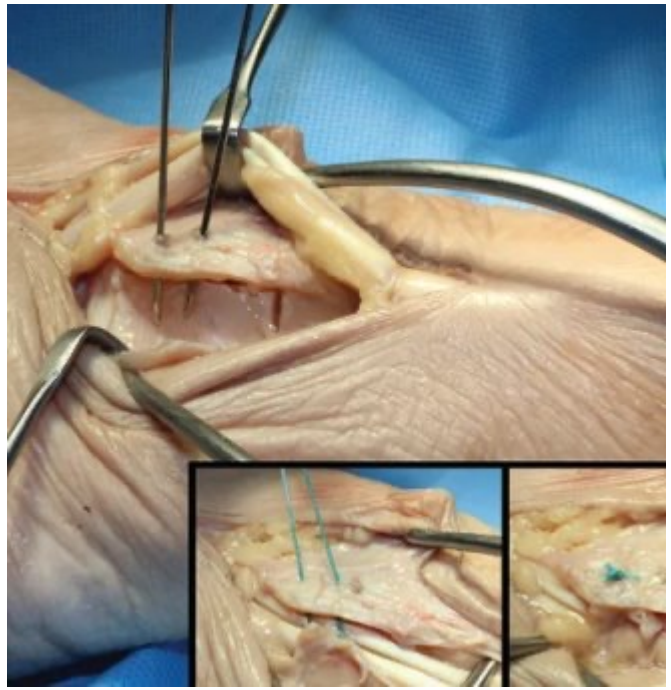
- Peroneal Tendinitis
  - Typically associated wth tears or instability (if progressing to operative)







Operative Treatment

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- Achilles Tendinitis and/or Rupture
  - Minimally invasive or open options

Operative Treatment

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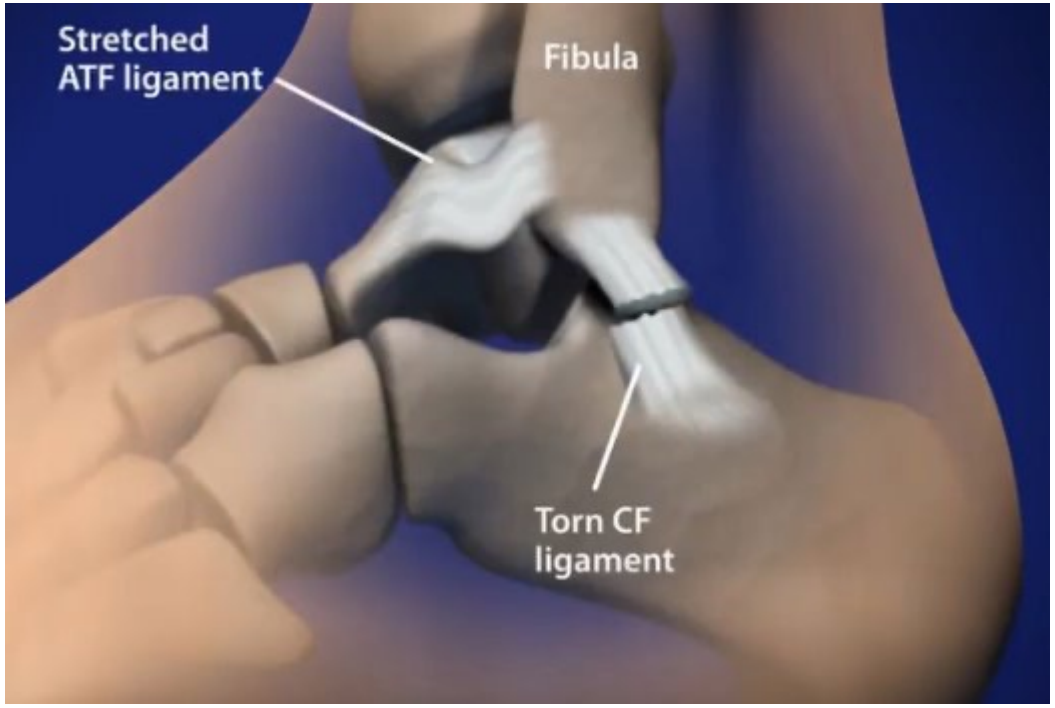
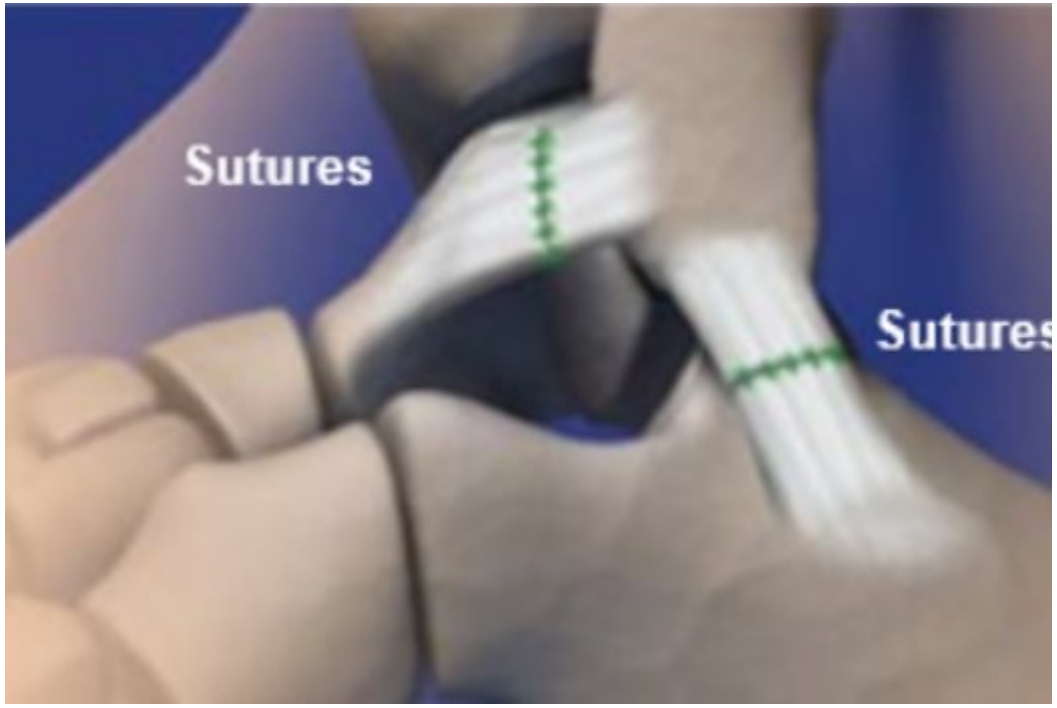
- Ankle Sprain Surgery
  - For those with recurrent instability





Operative Treatment

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- Fracture Surgery

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Preventative Care

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- Supportive shoes
  - Generally good for overall foot & ankle hygiene
- The thicker the sole, the more support given
  - Cushions the foot
- Less flexibility in the shoe/sole, the better
  - Offers less motion through the foot, thus less painful

Preventative Care

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- Orthotics
  - Over-the-counter versions work for most people
    - Unless have unique foot shape or severe pathology
  - Goal is to provide cushion and support
- Many different types exist
- Recommend trying several different styles and see what feels best!

Preventative Care

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- Ankle braces
  - Huge variety
  - Protect against rotation injury
- Taping

Preventative Care

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- Physical Therapy
  - Important part of preventing AND recovering from any condition!
  - Typically do not begin immediately, wait until after period of immobilization to decrease inflammation
  - Home Exercise Program
- Preventative Stretching
  - Recommend incorporating into daily routine
  - Particularly calf stretches

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Acute

- Focus: tissue protection during inflammatory phase

- Control pain and swelling
- Manual therapy
- Electrical stimulation
- Ice, elevation, compression
- Range of motion

Intermediate

- Focus: loading progression and functional tasks

- Full range of motion
- Gait
- Strength
- Balance

Advanced

- Focus: advancing towards return to previous function

- Plyometrics
- Running

Blood Flow Restriction

Summary

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- Wear appropriate shoe wear
  - Consider orthotics
- Daily stretching routine
  - PT
- Bracing to support ankle/foot
  - Particularly if any history of instability
- If injured, get an X-ray
- Most conditions improve with rest + time

Thank you!

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