

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

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Education, Training & Affiliations

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

University of Washington
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Orthopedic Surgery Residency

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

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

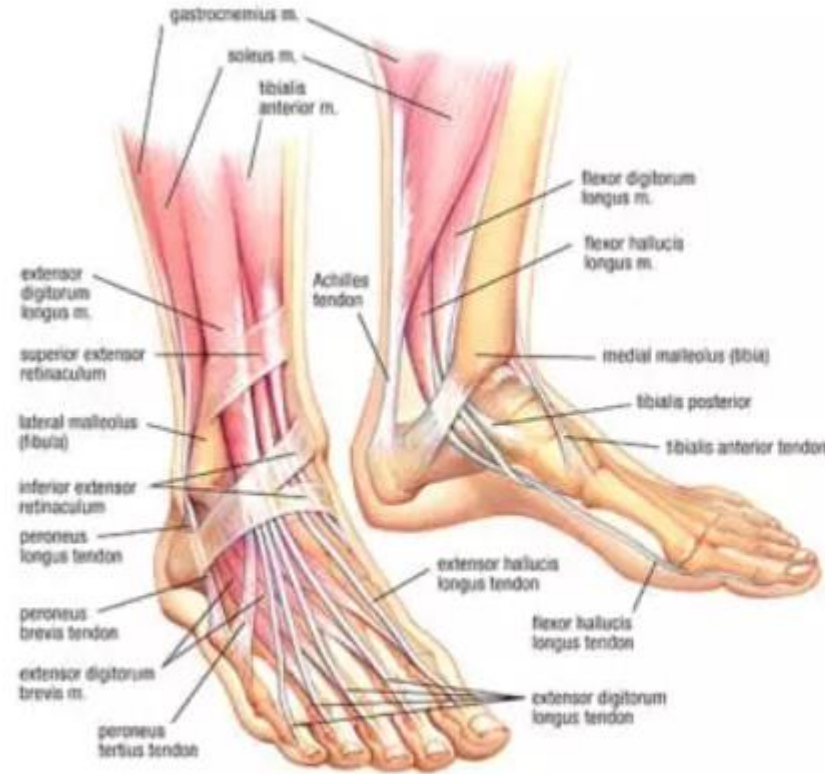


- Anatomy of the Foot & Ankle
- Common Hiking-Related Conditions
- Nonsurgical Treatments
- Operative Treatments
- Preventative Care

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Anatomy of the Foot and Ankle

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



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Common Hiking Injuries

- Long Distances
- Uneven surfaces
- Types of Pathology
 - Overuse
 - Trauma



Tendinitis

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



Peroneal Tendinitis



Posterior Tibial Tendinitis



Achilles Tendinitis

- 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



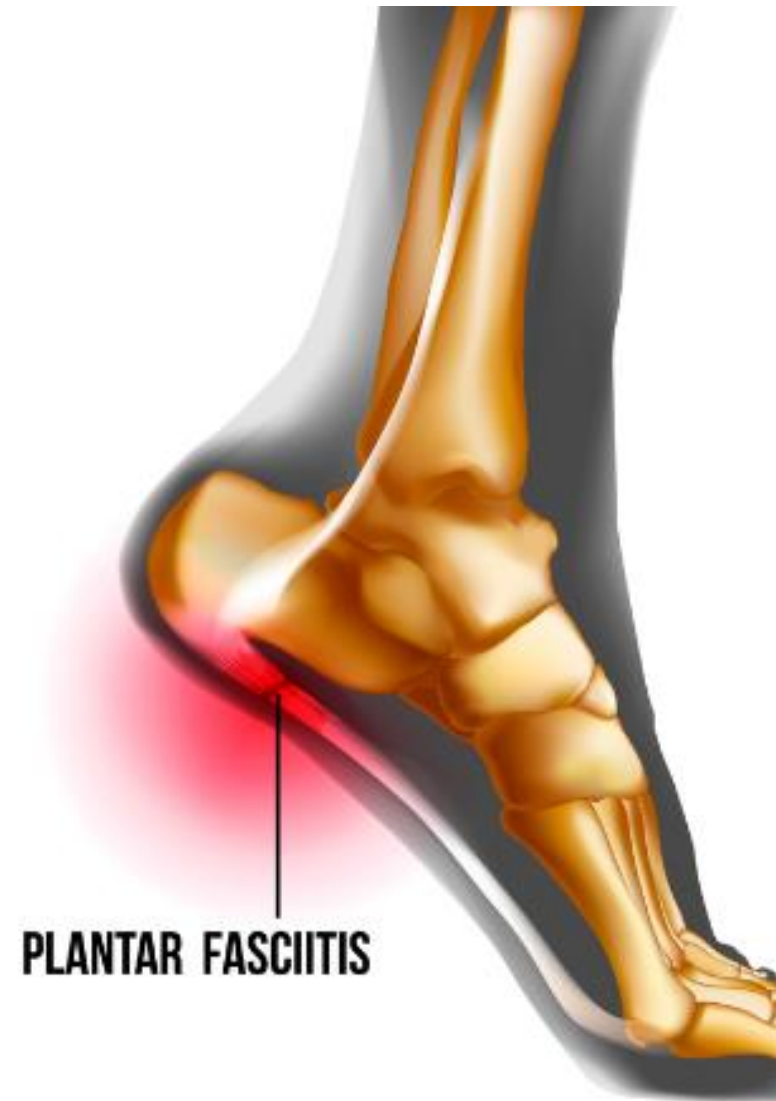
Plantar Fasciitis

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



Plantar Fasciitis

- 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)



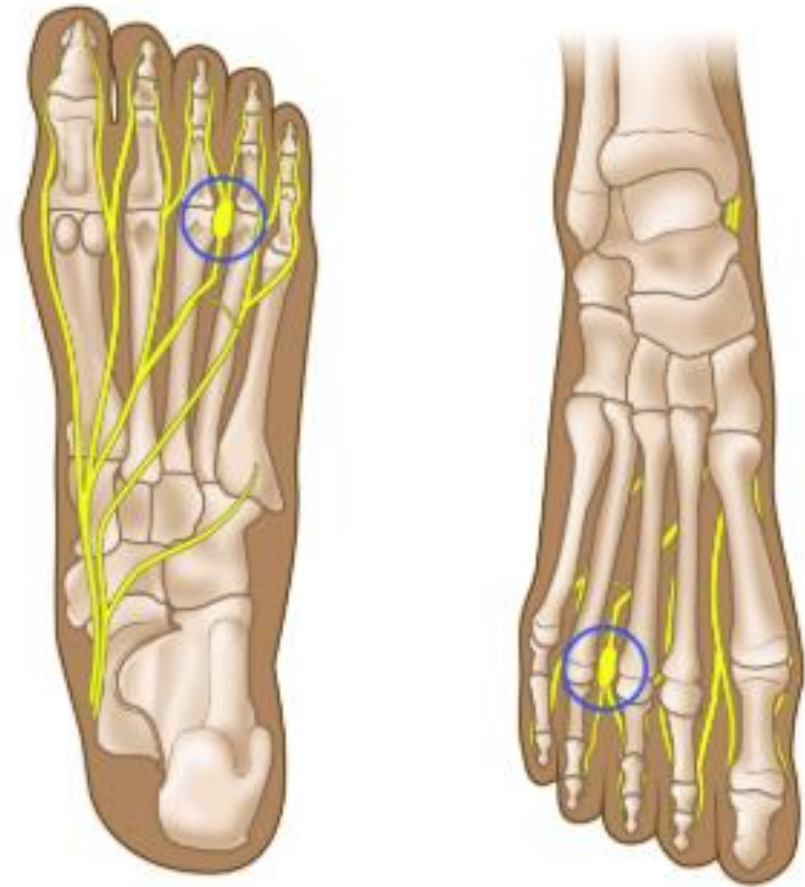
Metatarsalgia

- Pain on bottom of foot
 - Base of toe/ball of the foot
- Increased pressure on lesser metatarsals
- Feels like “pebble in my shoe” or “bunched up sock”
- Risk factors
 - Calf tightness
 - Overuse
 - Longer metatarsal



Morton's Neuroma

- Pain/numbness/tingling
 - Radiating into toes
- Most commonly 3rd and 4th toes
 - Sometimes 2nd and 3rd
- Sometimes associated with clicking
- Risk factors
 - Narrow shoes



Stress Fractures

- 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
 - Poor bone quality



Stress Fractures

- X-rays 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

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



Ankle Sprains

- 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 X-ray!



Fractures

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



- 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

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



Achilles Rupture

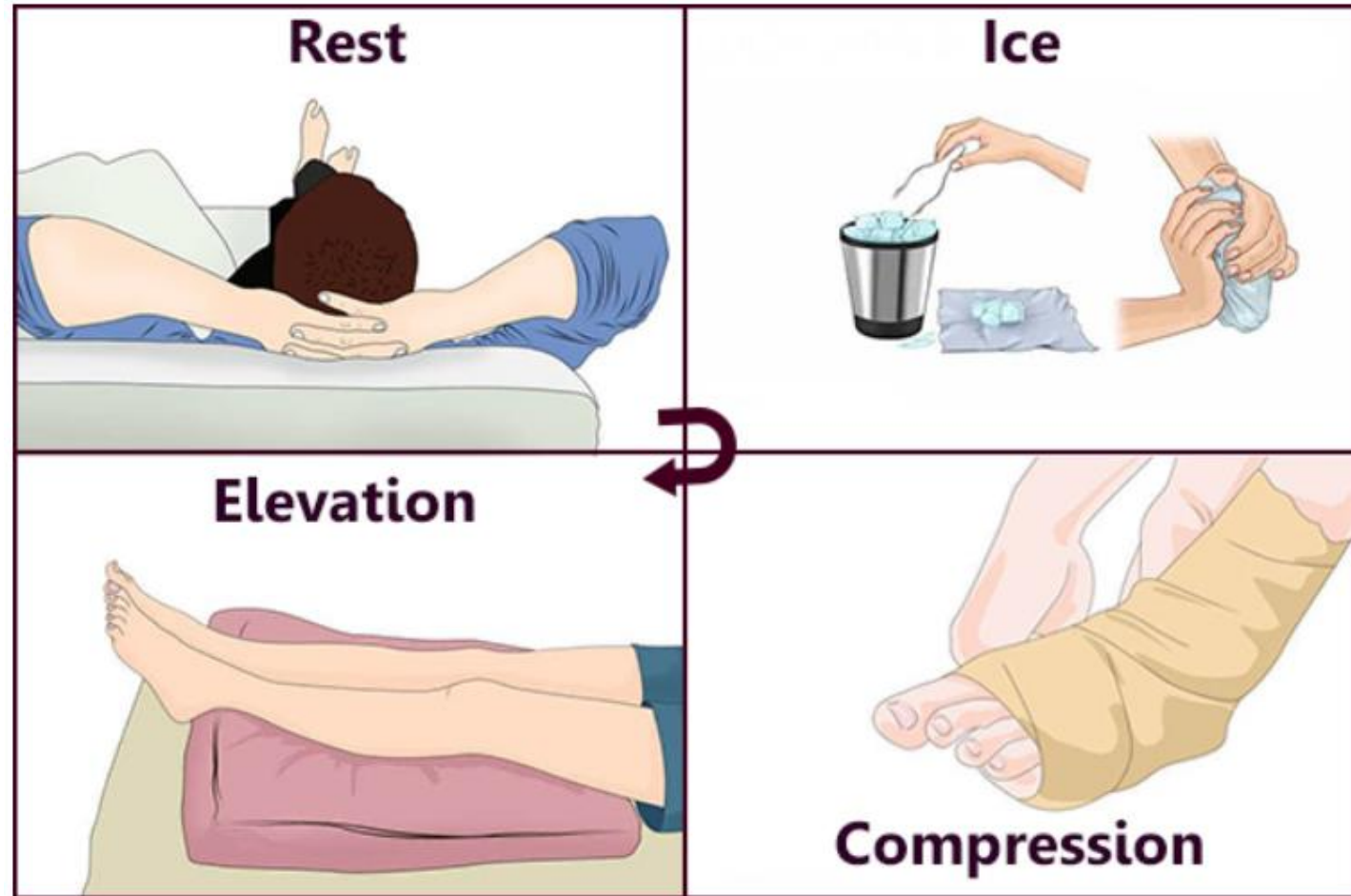
- Swelling along Achilles tendon
- Palpable defect within tendon
- Still able to bear weight
 - Often not painful



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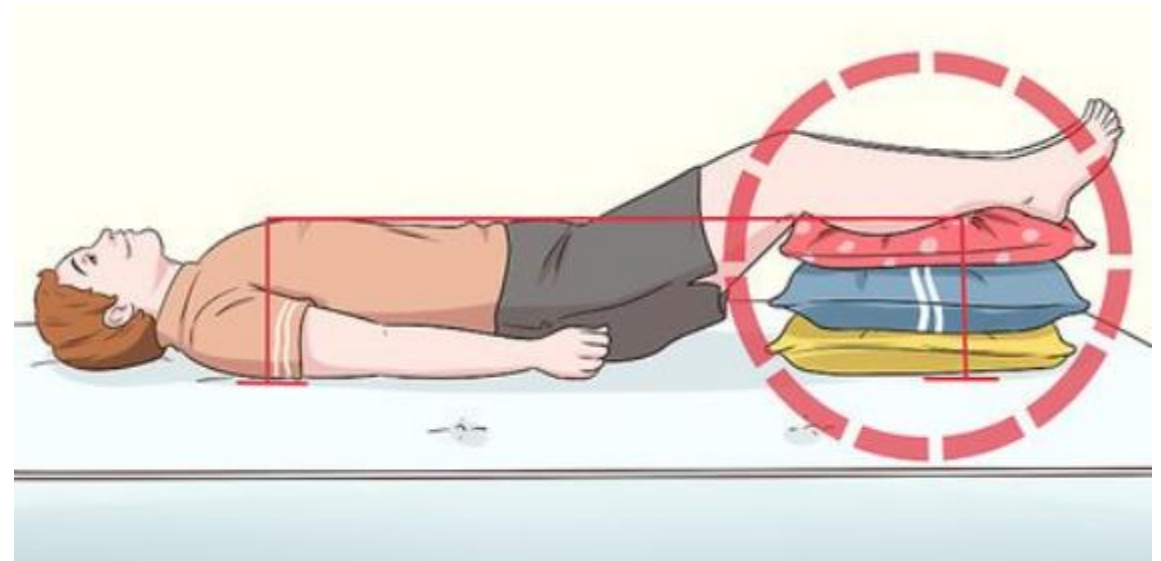
Nonsurgical Treatment

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



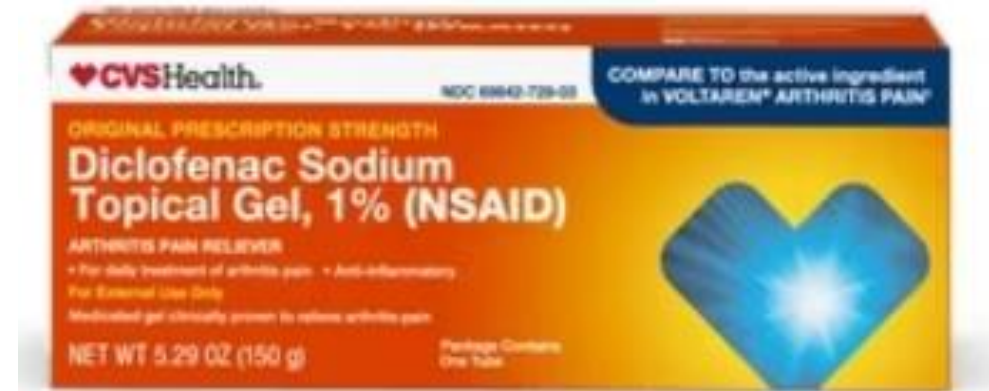
Nonsurgical Treatment

- 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

- 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 2-3 week continuous course for most conditions



Nonsurgical Treatment

- 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



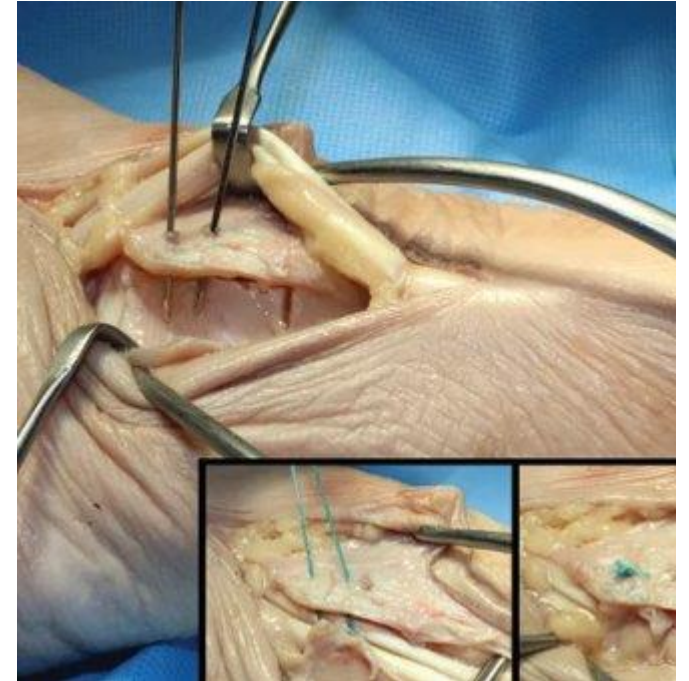
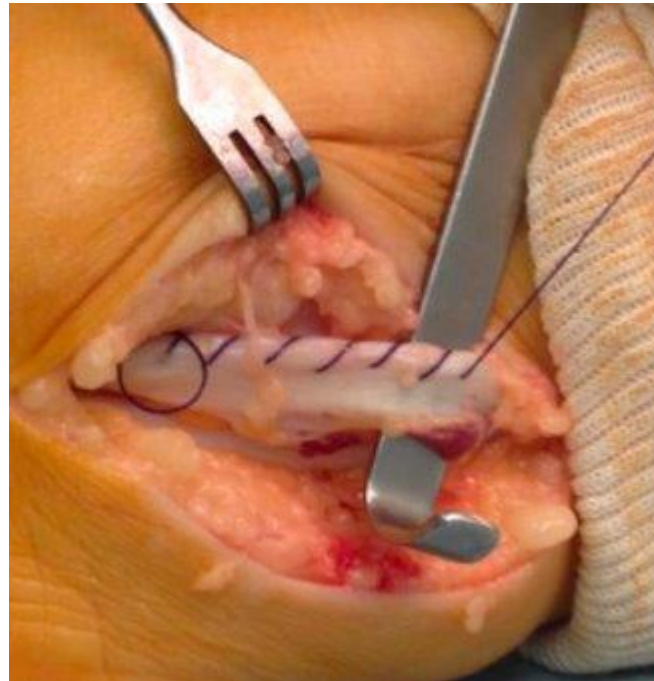
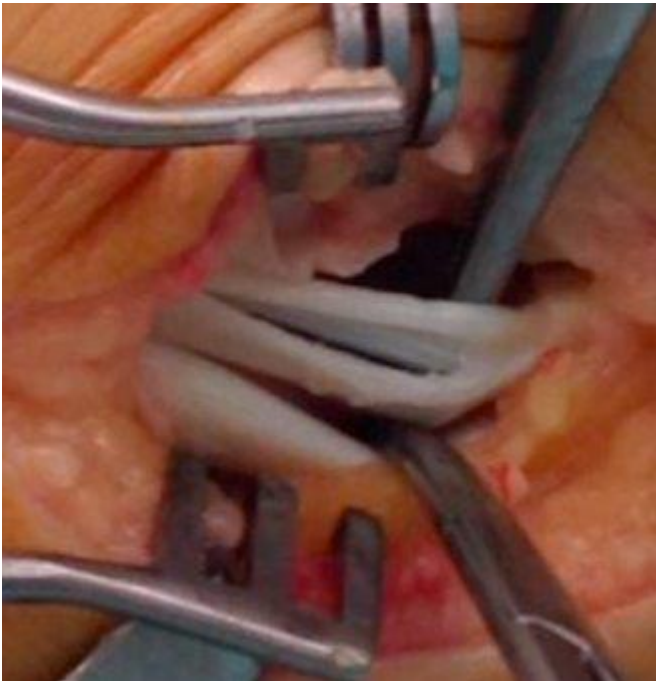
Nonsurgical Treatment

- 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



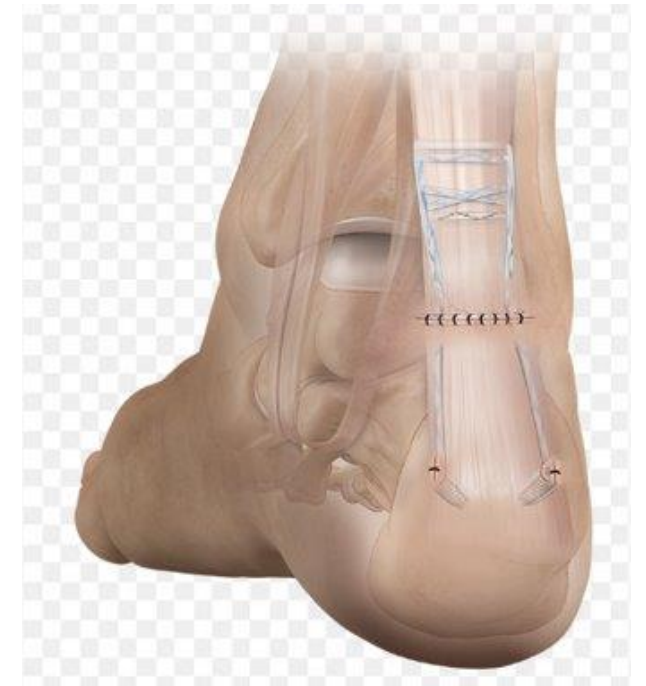
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- Peroneal Tendinitis
 - Typically associated w/ tears or instability (if progressing to operative)



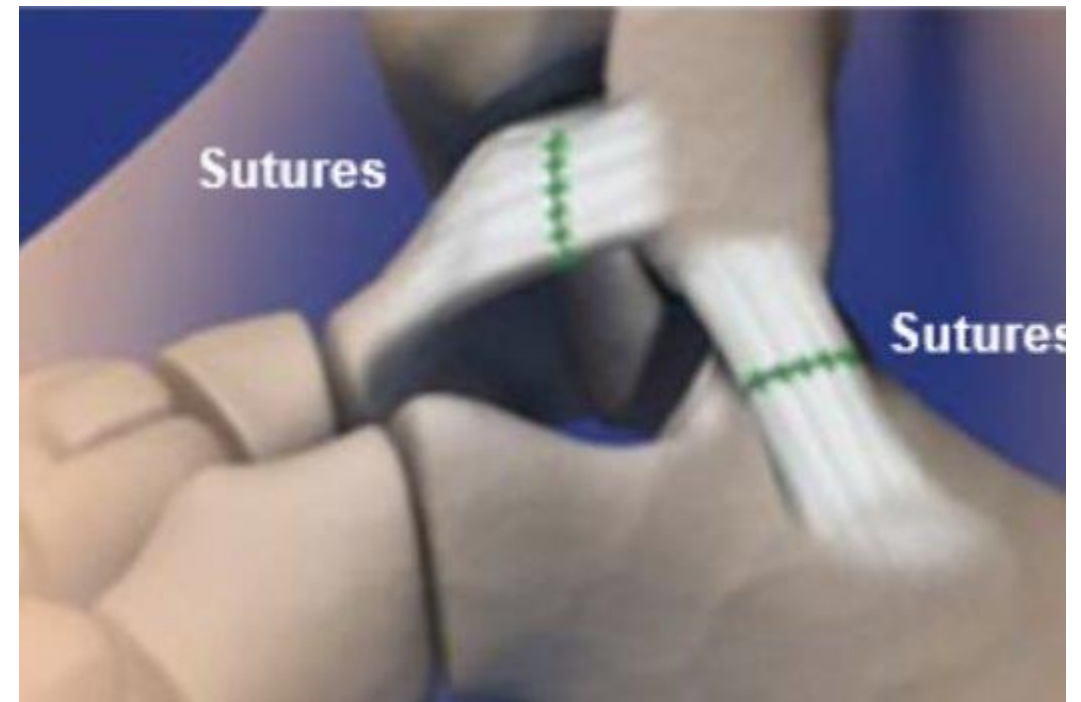
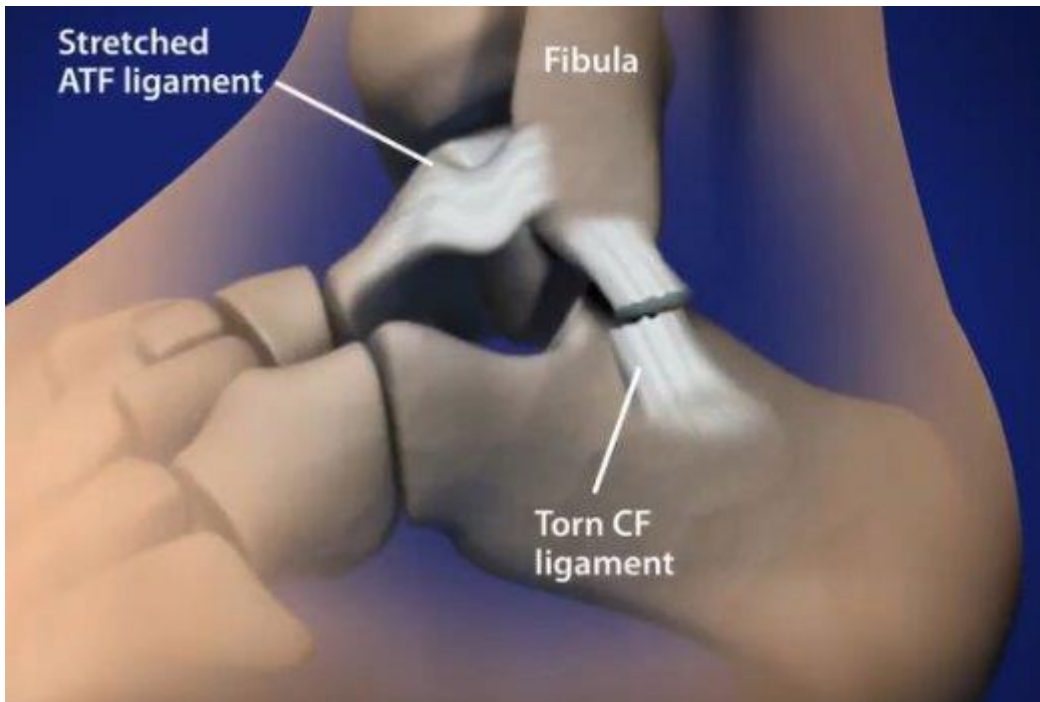
Operative Treatment

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



Operative Treatment

- Ankle Sprain Surgery
 - For those with recurrent instability



Operative Treatment

- Fracture Surgery



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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



- 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

- Metatarsal pads
 - Correct location is critical
- Can be built into orthotics
- Metatarsalgia
- Morton's neuroma



Preventative Care

- Ankle Braces
 - Huge Variety
 - Protect against rotation injury
- Taping



- 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



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

Summary

- 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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