

Advances in Treating Foot Pain: Diagnosis, Treatment, and Prevention

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About Me



Education, Training & Affiliations

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

University of Washington
Harborview Medical Center
Seattle, WA
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

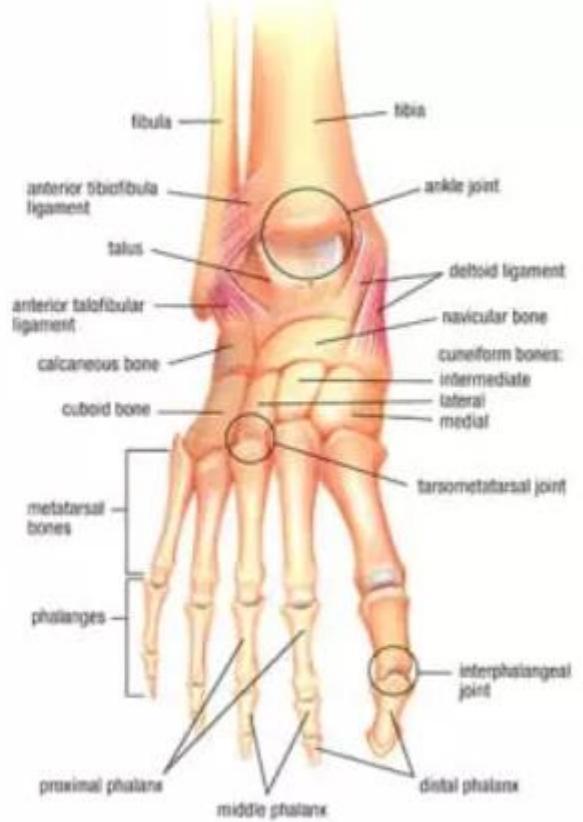


- Anatomy of the Foot & Ankle
- Common Foot & Ankle Conditions
- Nonsurgical Treatments
- Operative Treatments
- Preventative Care / Physical Therapy

- **Anatomy of the Foot & Ankle**
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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!



- Anatomy of the Foot & Ankle
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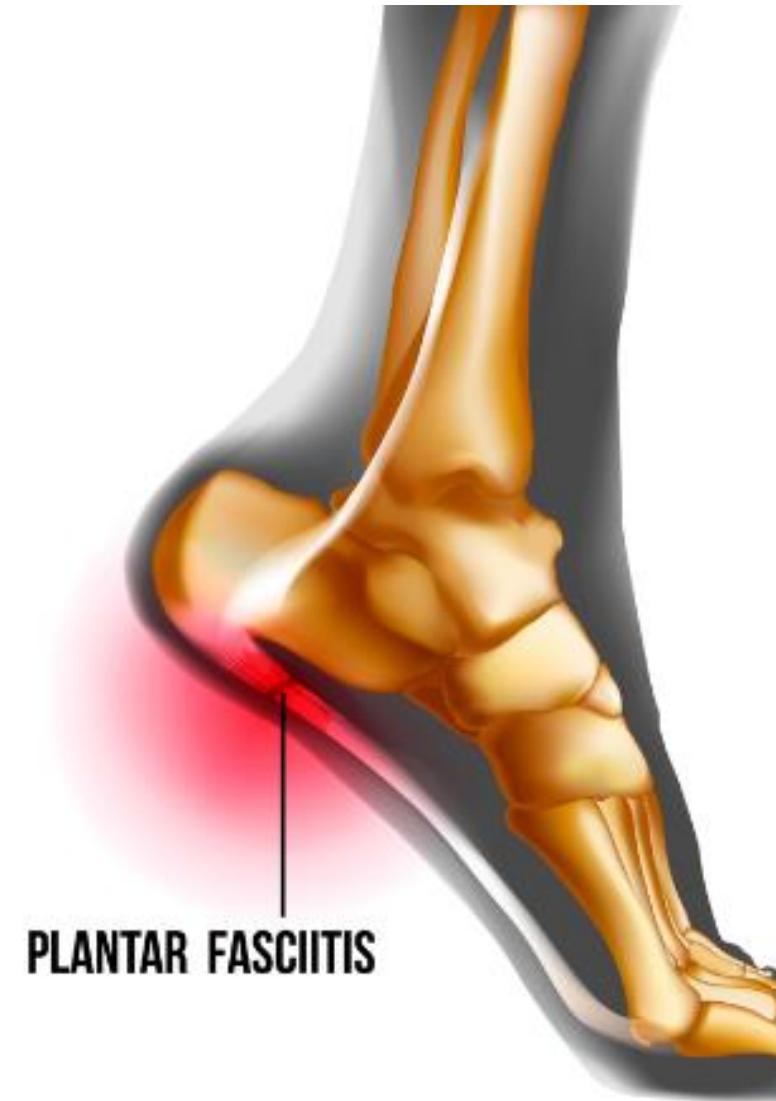
Plantar Fasciitis

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



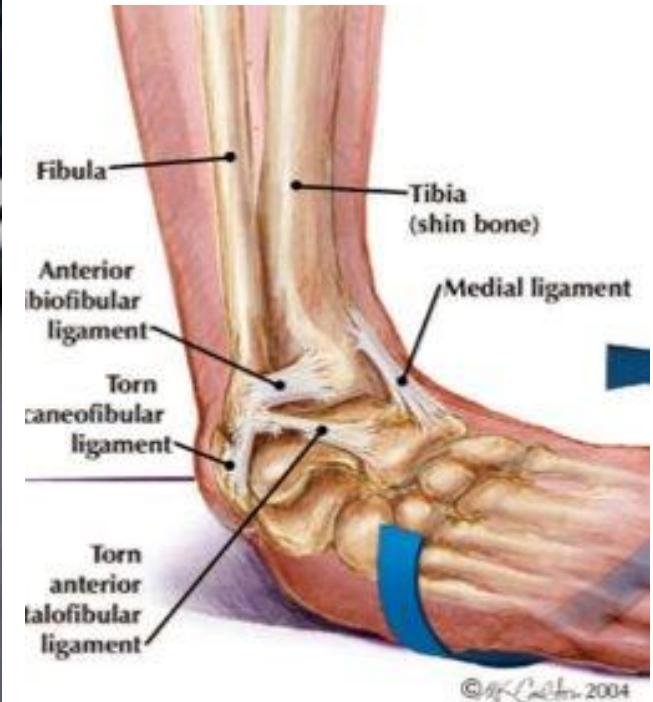
Plantar Fasciitis

- 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)



Ankle Sprains

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



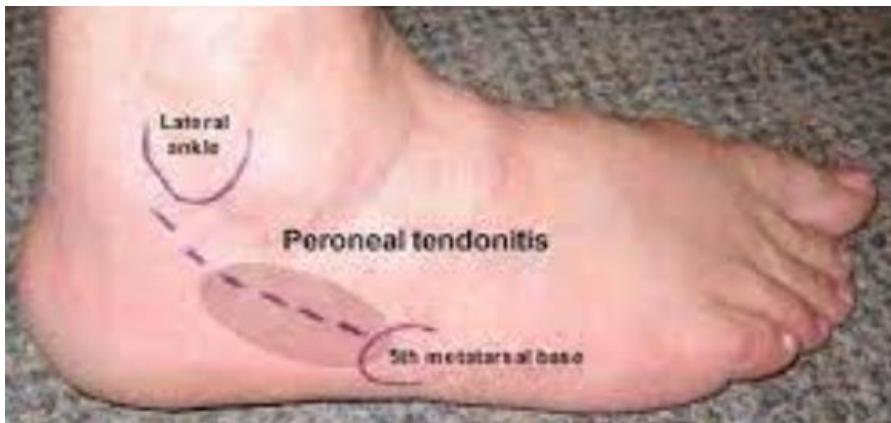
Ankle Sprains

- 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!



Tendinitis

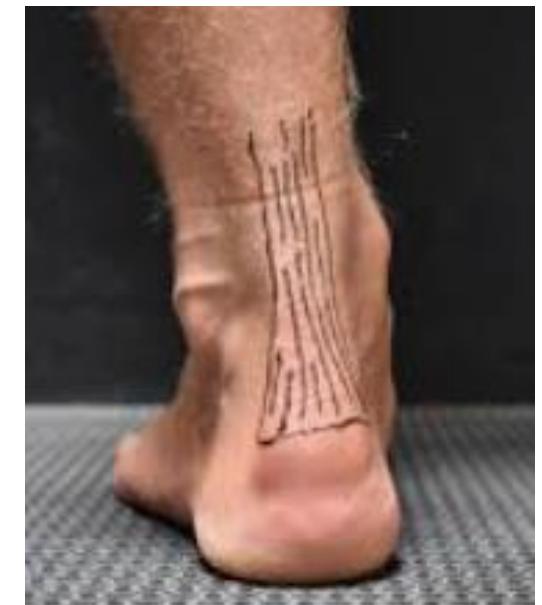
- What is tendinitis?
 - Inflammation of tendons resulting in pain, swelling
- Common locations:



Peroneal Tendinitis



Posterior Tibial Tendinitis



Achilles Tendinitis

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



- Cartilage loss over time
 - Traumatic
 - Degenerative
 - Infectious/Inflammatory
- Results in pain, swelling, dysfunction
- Common condition
 - Will eventually happen to all of us



Arthritis

- Common Locations
 - Great toe
 - Ankle
 - Midfoot
- Pain
 - With activity
 - Startup pain
 - Can last days/weeks



Fractures

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



Fractures

- 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



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



Bunions (Hallux Valgus)

- Lateral deviation of the great toe w/ medial prominence
- Causes
 - Narrow shoewear
 - Genetics
 - Trauma
- Pain w/ narrow shoes
 - Often improves when barefoot



Bunions (Hallux Valgus)

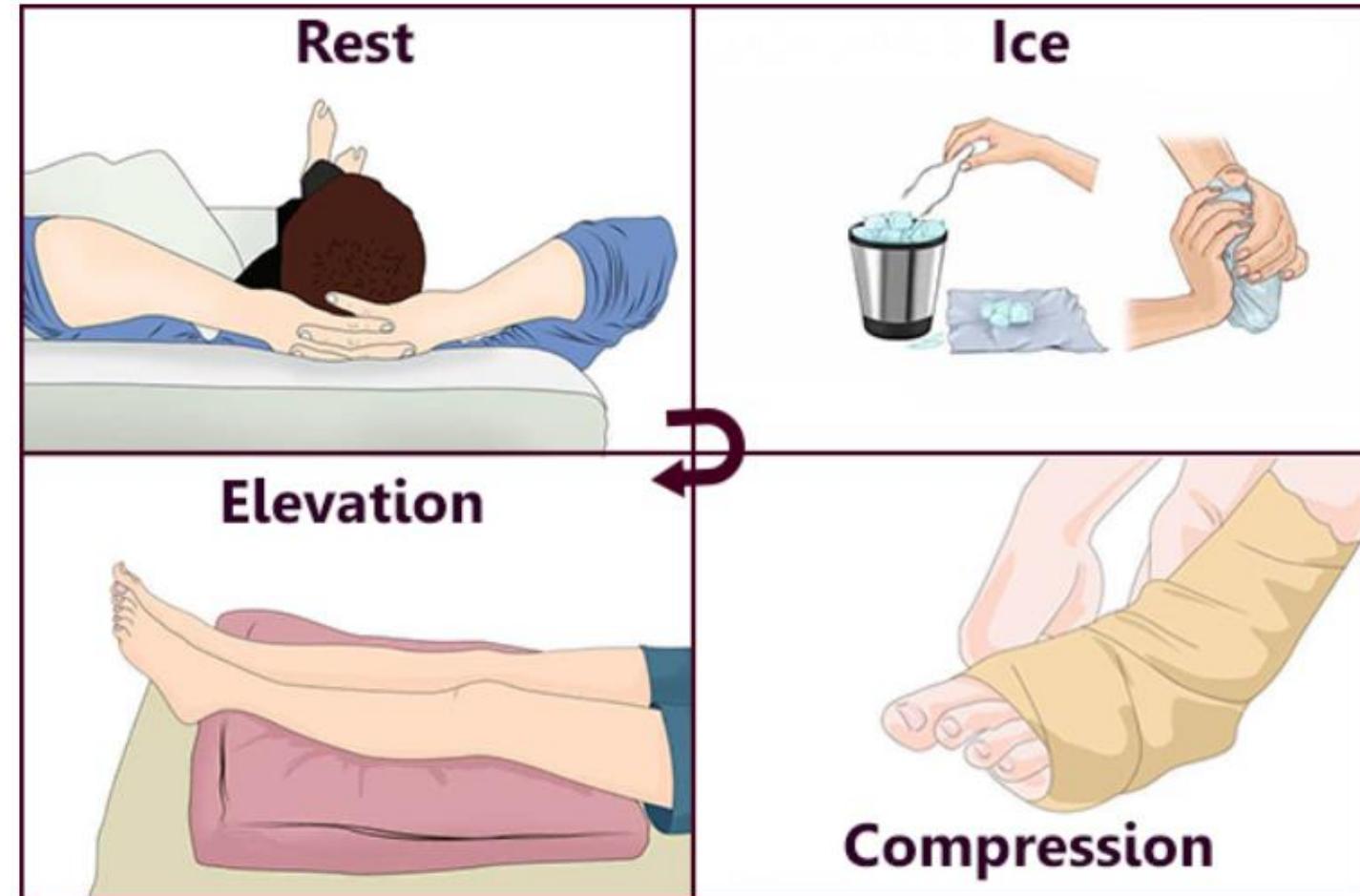
- Spectrum of disease
 - Significant range in severity
- Can result in:
 - Hammertoes
 - Cross-over toes
 - Great toe arthritis



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- **Nonsurgical Treatments**
- Operative Treatments
- Preventative Care / Physical Therapy

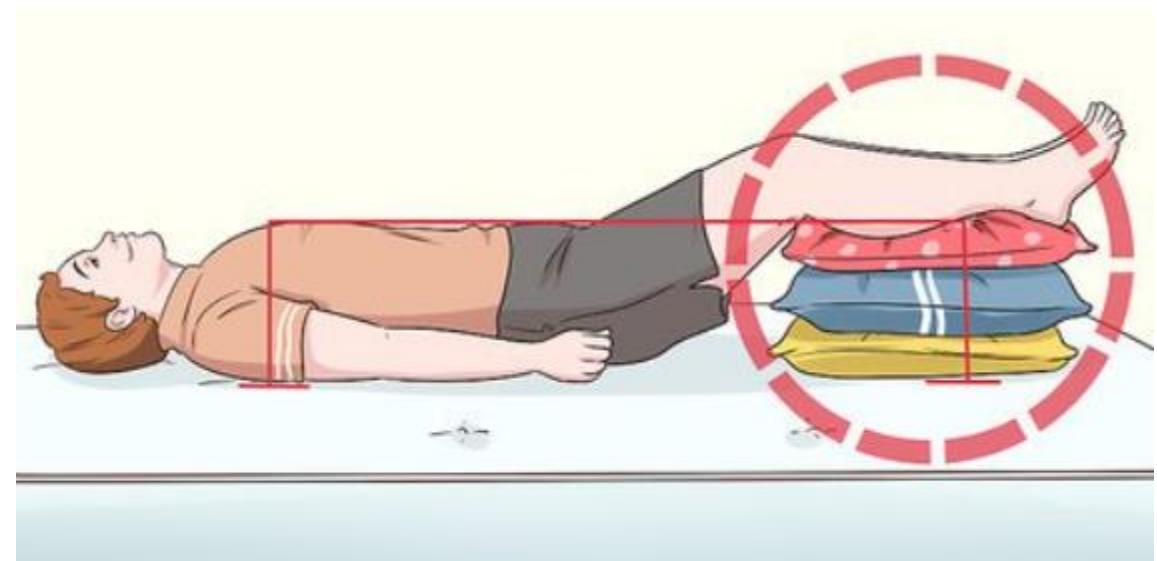
Nonsurgical Treatment

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



Nonsurgical Treatment

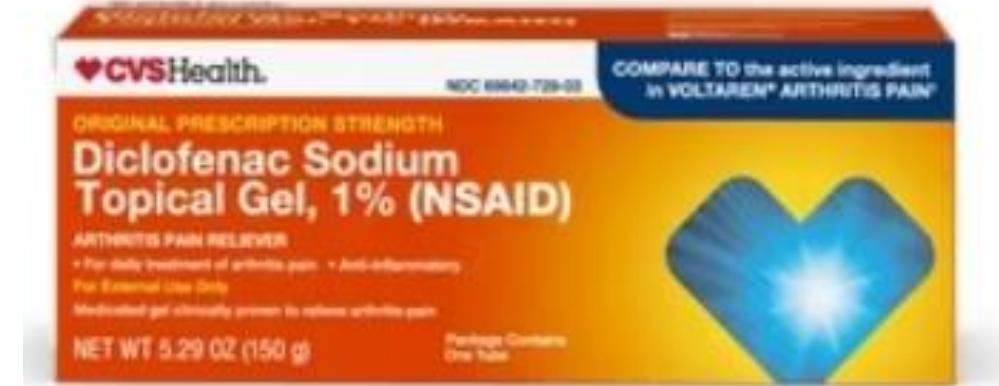
- Rest
 - Many conditions are from overuse
 - Important!
- Ice
 - Often more beneficial than heat in acute inflammatory phase
- Compression
 - Helps with swelling
- Elevation
 - Helps with swelling and pain
 - Above the level of the heart



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

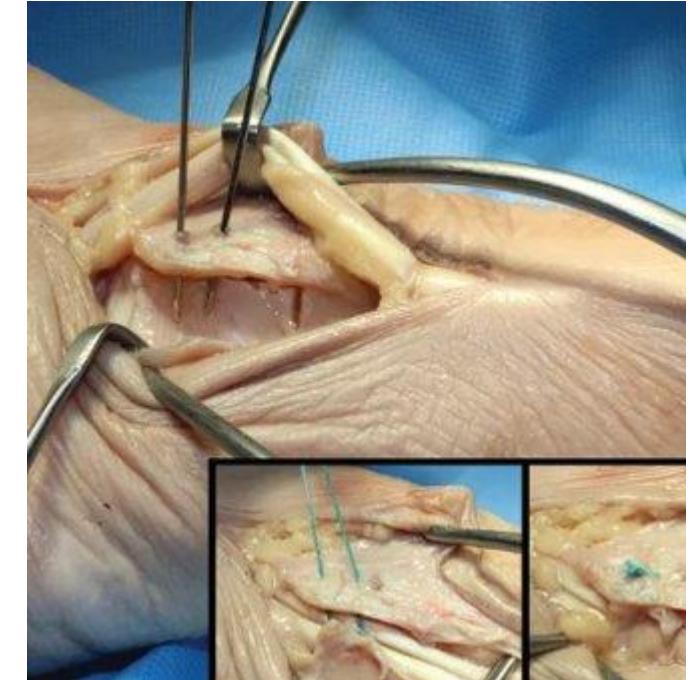
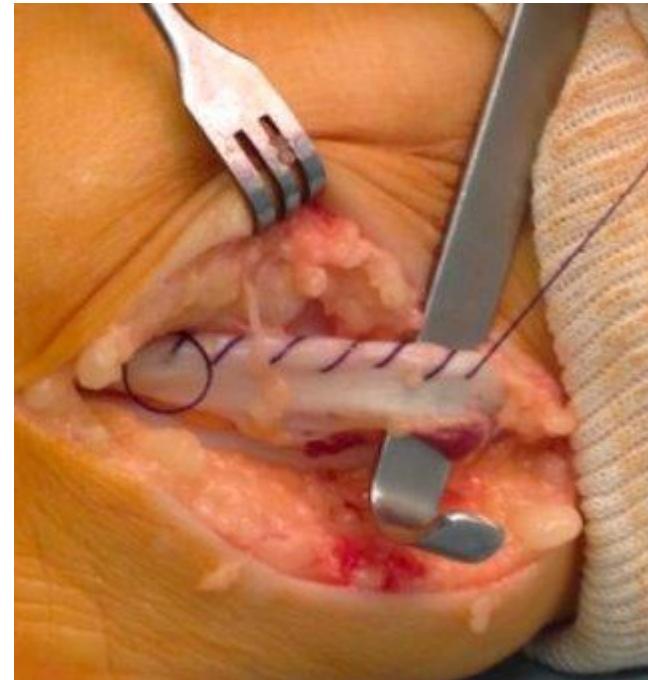
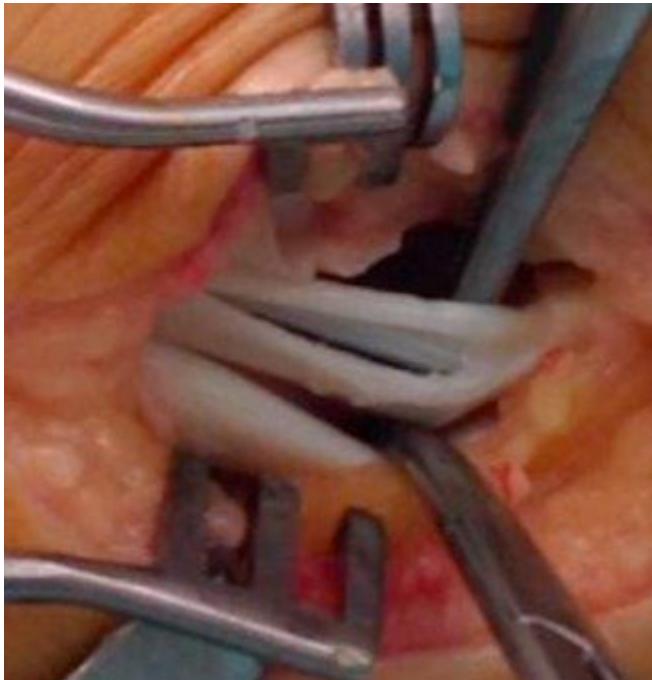
- Type of immobilization depends on severity of condition
- In general, will transition from boot to a brace as condition improves
 - Often may start with a brace if symptoms not severe



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- Preventative Care / Physical Therapy

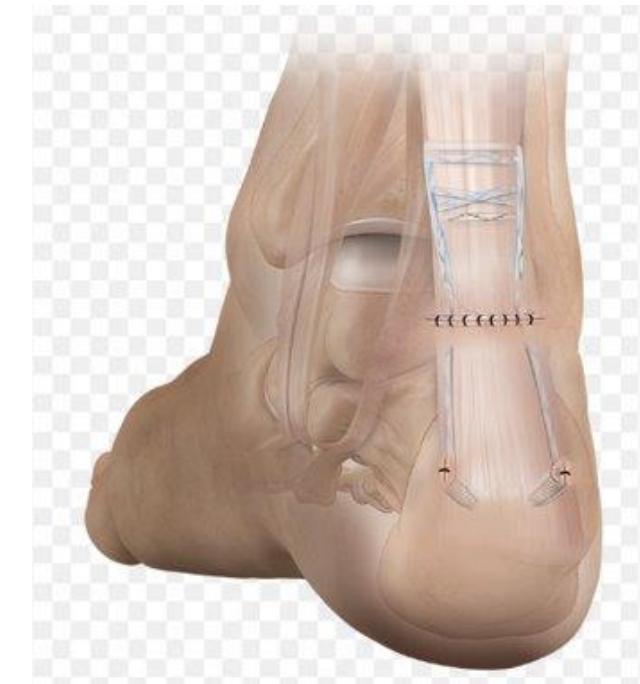
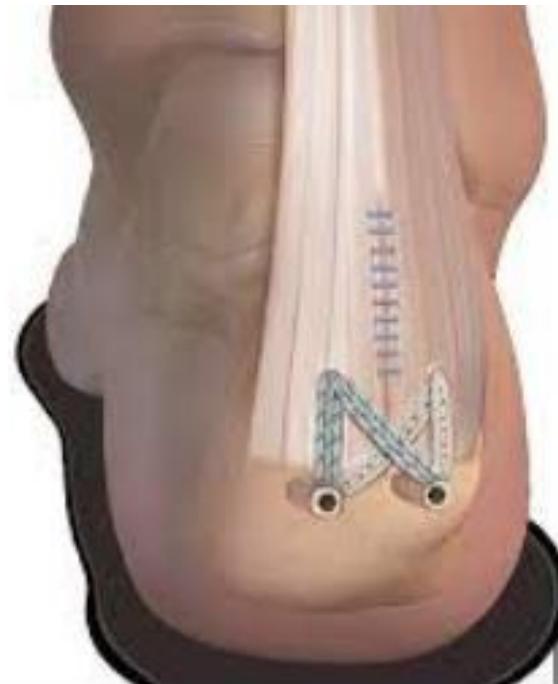
Operative Treatment

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



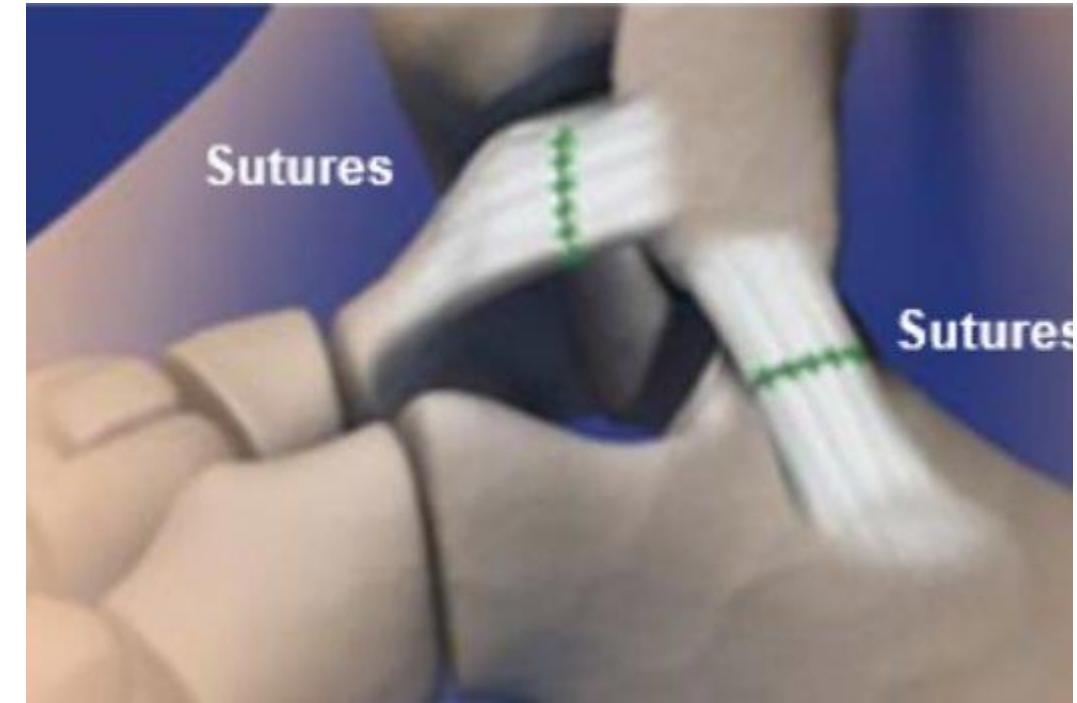
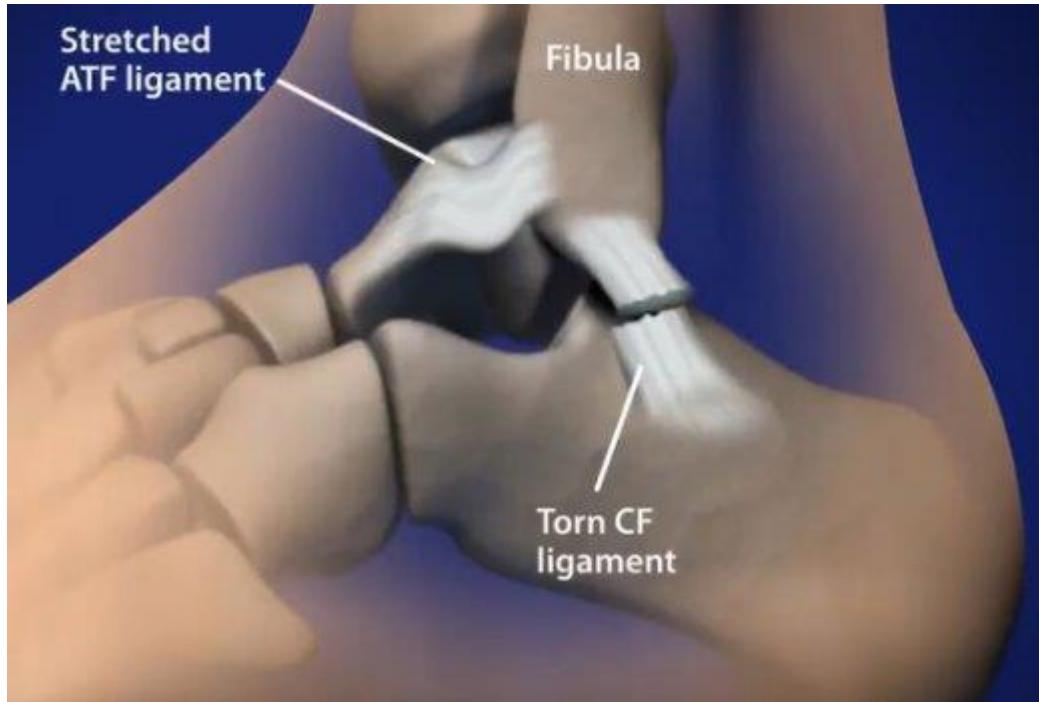
Operative Treatment

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



Operative Treatment

- Ankle Sprain Surgery
 - For those with recurrent instability



Operative Treatment

- Bunion Surgery



Operative Treatment

- Fracture Surgery



Operative Treatment

- Arthritis Surgery



- Anatomy of the Foot & Ankle
- Common Foot & Ankle Conditions
- Nonsurgical Treatments
- Operative Treatments
- **Preventative Care / Physical Therapy**

Preventative Care



- 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

- 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



Preventative Care

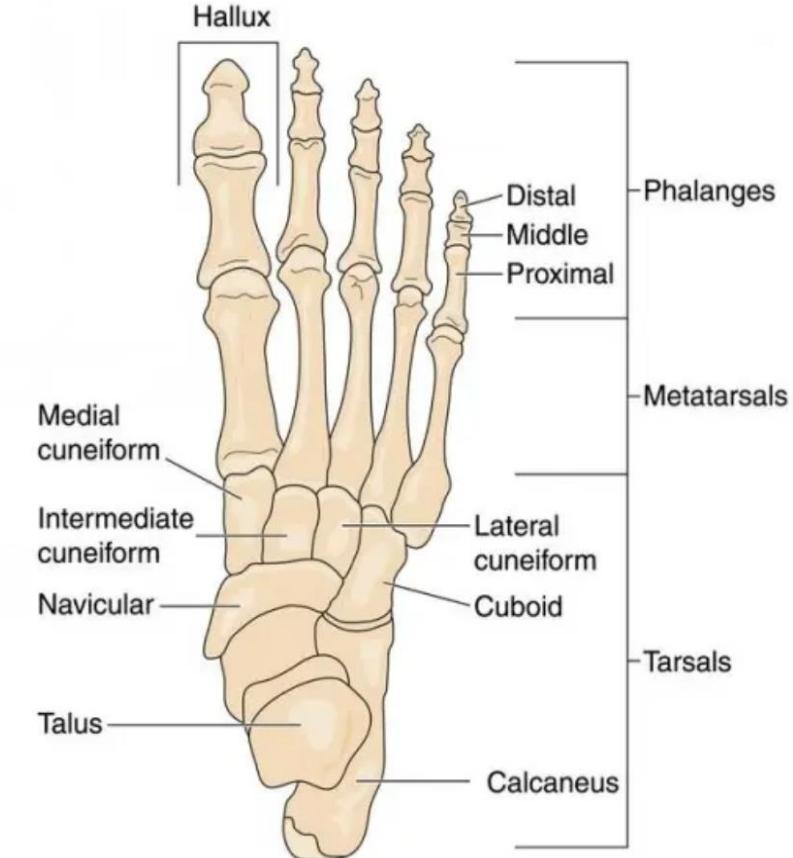
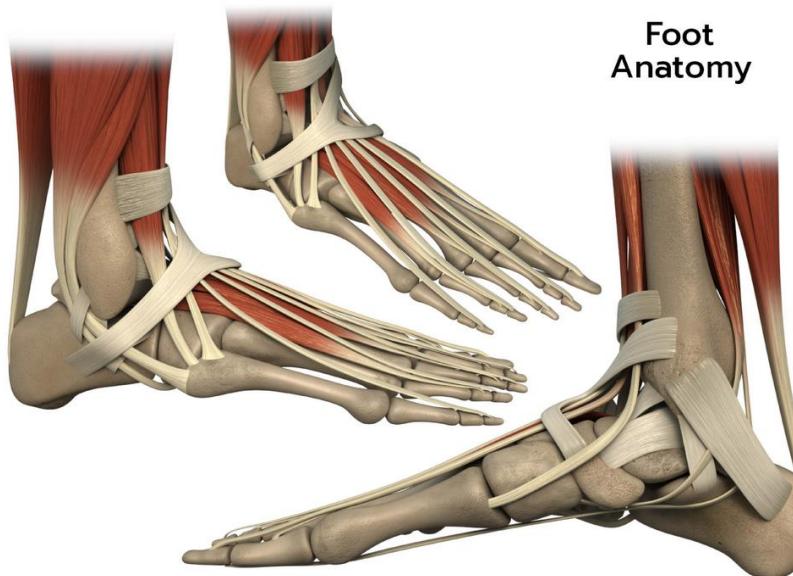
- Physical Therapy
 - Important part of preventing AND recovering from any condition!
 - Typically, do not begin immediately, wait until after period of immobilization to decrease inflammation
 - Home Exercise Program
- Preventative Stretching
 - Recommend incorporating into daily routine
 - Particularly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



- Anatomy of the Foot & Ankle
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- Nonsurgical Treatments
- Operative Treatments
- **Physical Therapy**

Anatomical Overview

- 26 bones
- 33 joints
- 19 intrinsic muscles
- 10 extrinsic muscles



- Acute:
 - Sprain (twisted ankle)
 - Strain
 - Muscle
 - Tendon
 - Fracture
- Chronic:
 - Arthritis
 - Tendinopathy
 - Bunions
 - Plantar Fasciitis
 - Morton's Neuroma

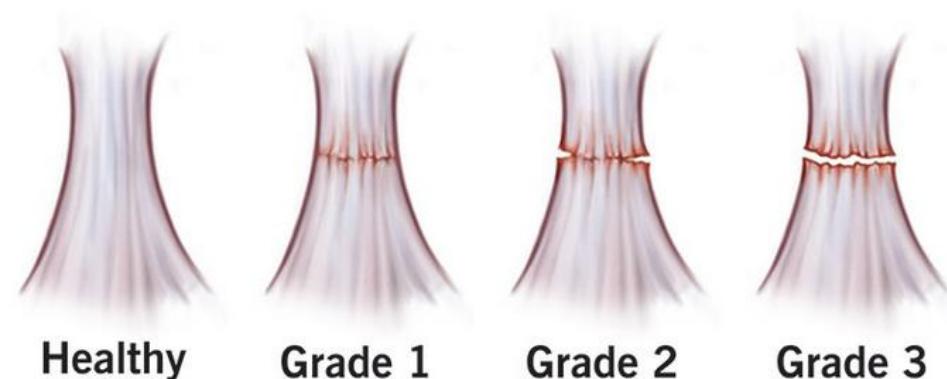
Sprains & Recovery Time

- Grade 1
 - 1-2 weeks
- Grade 2
 - 3-6 weeks
- Grade 3
 - Up to 3 months
- Potential need for surgical intervention

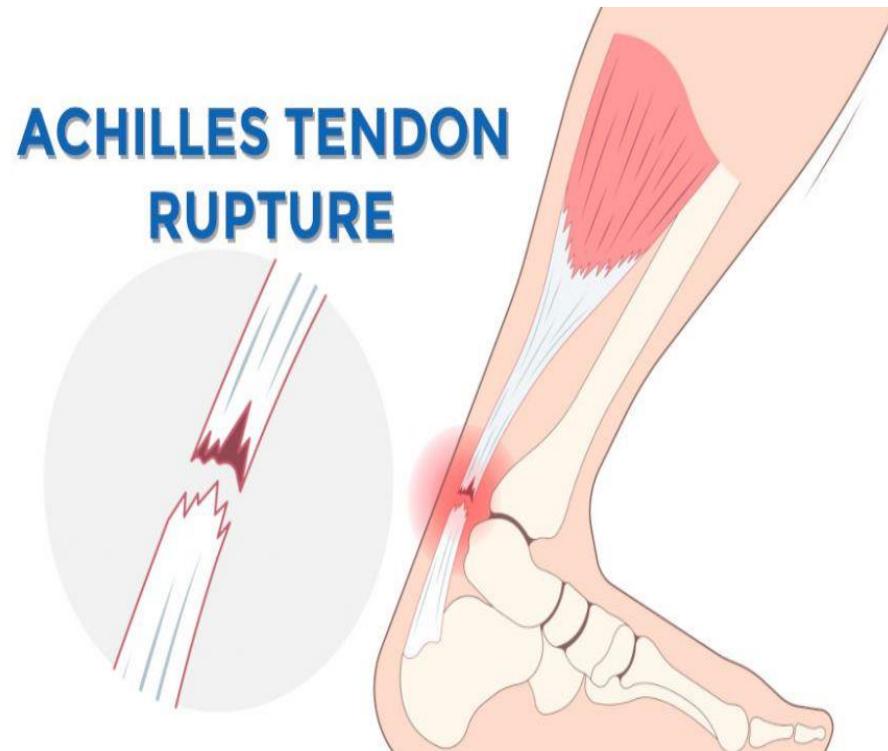


Strains: Muscles & Tendon

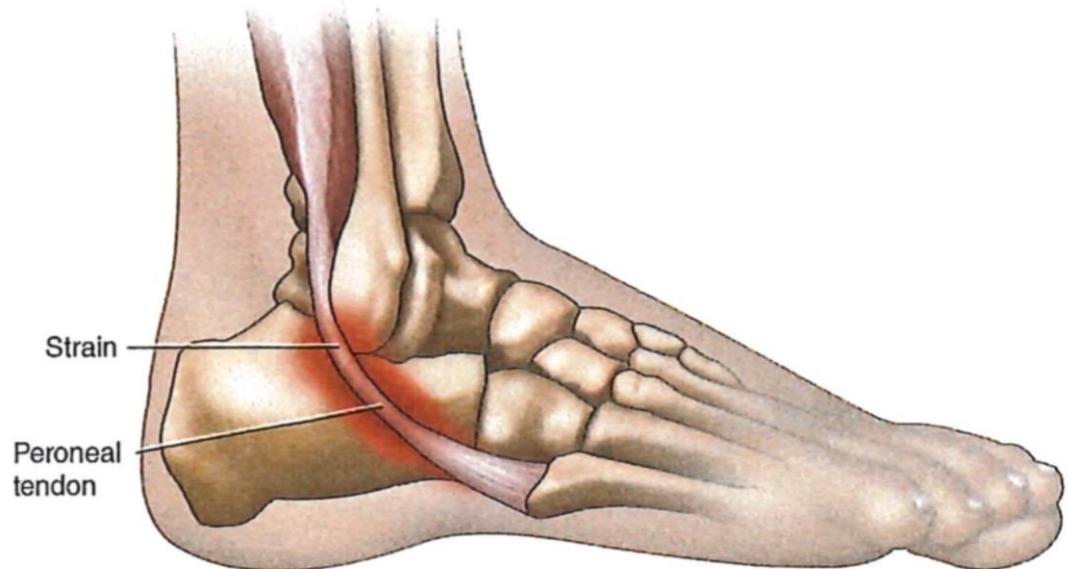
- Grade 1 (mild)
 - Still typically have normal range of motion and strength
- Grade 2 (moderate)
 - Acute and significant pain
 - Swelling and mild decrease in strength
- Grade 3 (Severe)
 - A complete rupture with significant pain, swelling, and loss of function



Strains & Ruptures

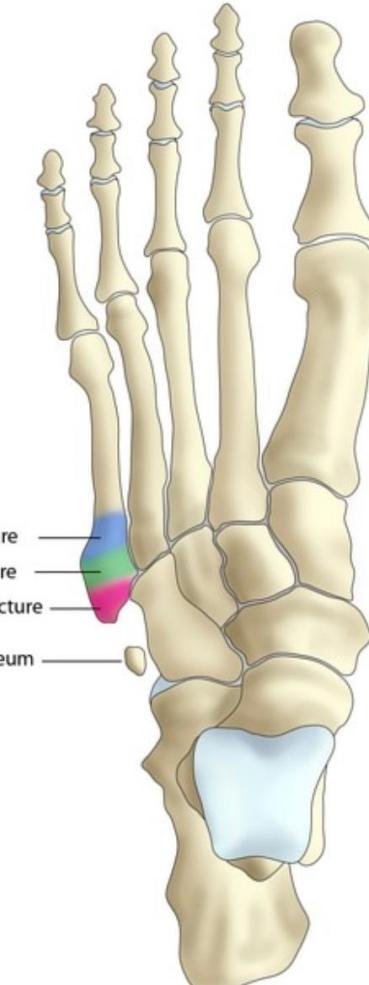


PERONEAL TENDON STRAIN



Fractures

- Trauma
 - Severity will determine if surgery is necessary
 - Bracing or casting
 - Reloading, balance, gait
- Stress Fracture
 - Activity modification
 - Treat impairments
 - Reloading

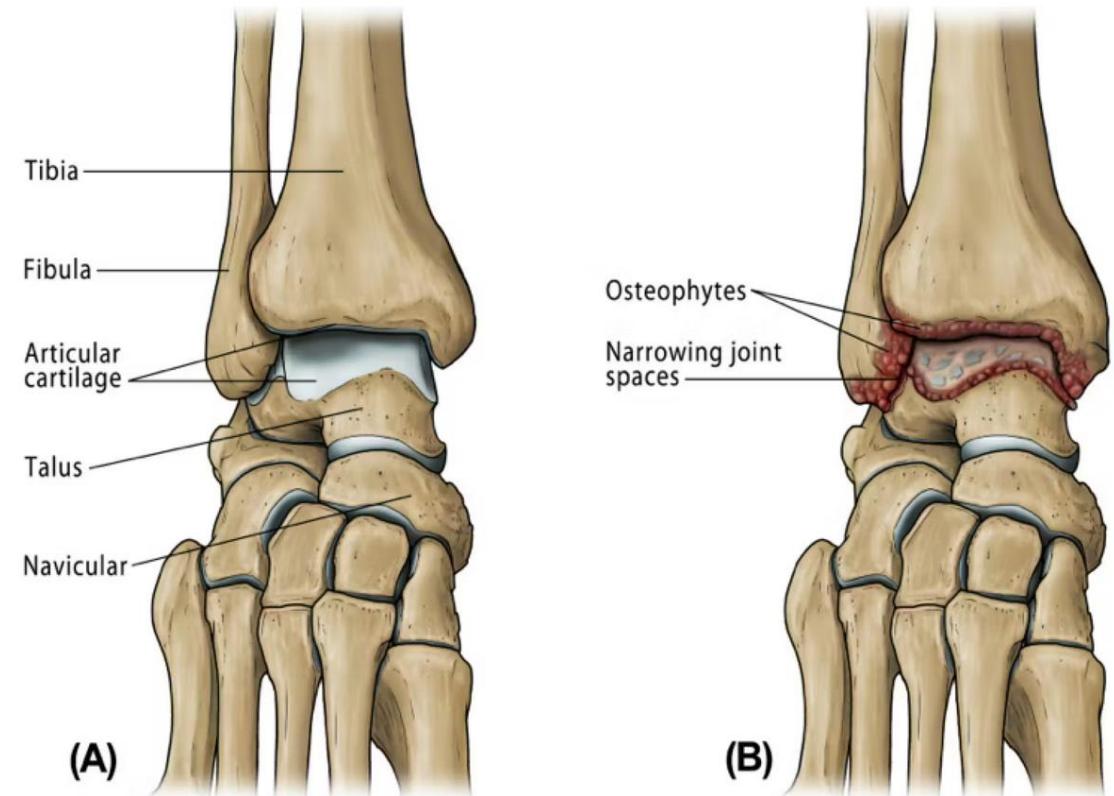


*F Gaillard
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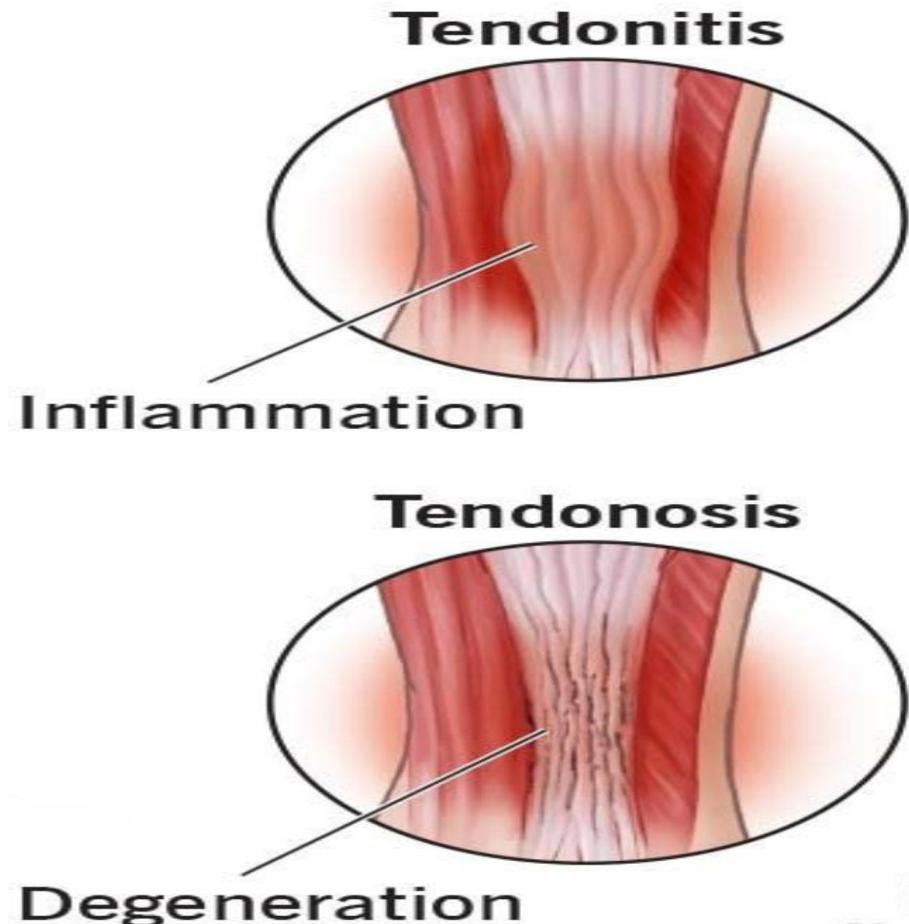
Arthritis

- Pain, stiffness, and/or swelling
- Treatment:
 - Activity modification
 - Mobility and strength
 - Bracing and shoewear
 - Weight management



Tendinopathy

- Includes:
 - Achilles
 - Posterior tibialis
 - Peroneal
- Acute
 - Rest
 - Isometrics
- Chronic
 - Reloading and remodeling



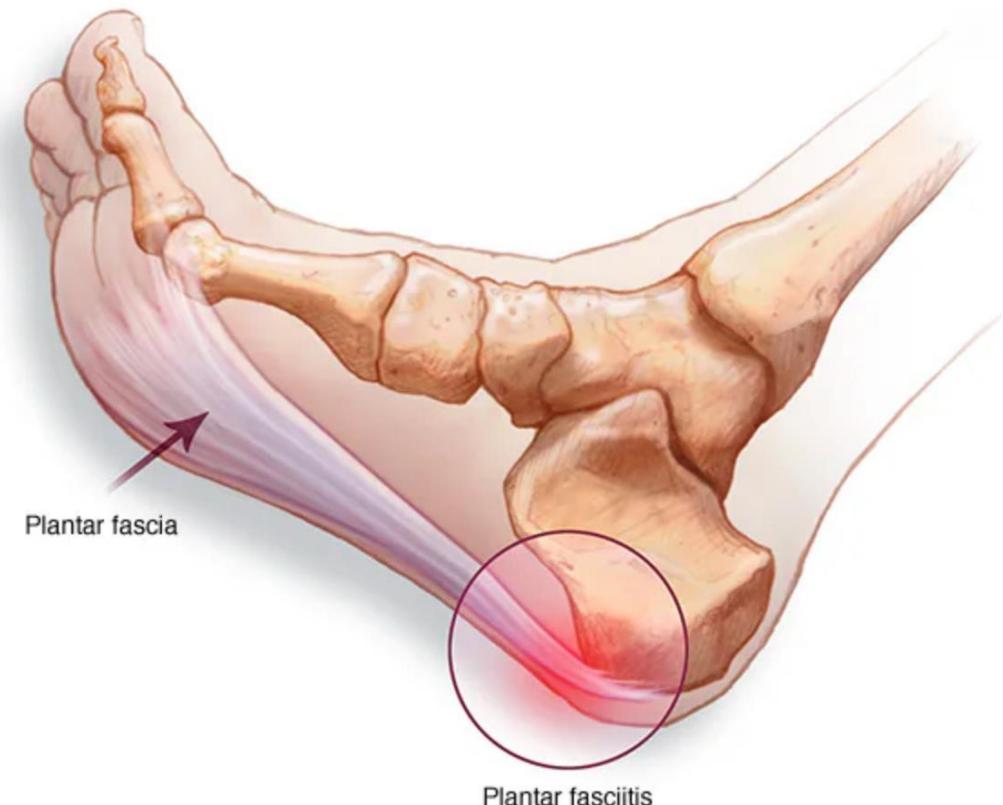
Bunions

- Protrusion or bump on the outside of the big toe
- Contributing causes
 - Narrow shoes
 - Time on feet
 - Foot mechanics
- Treatment
 - Spacers or taping
 - Strengthen intrinsics
 - Mobility/Flexibility



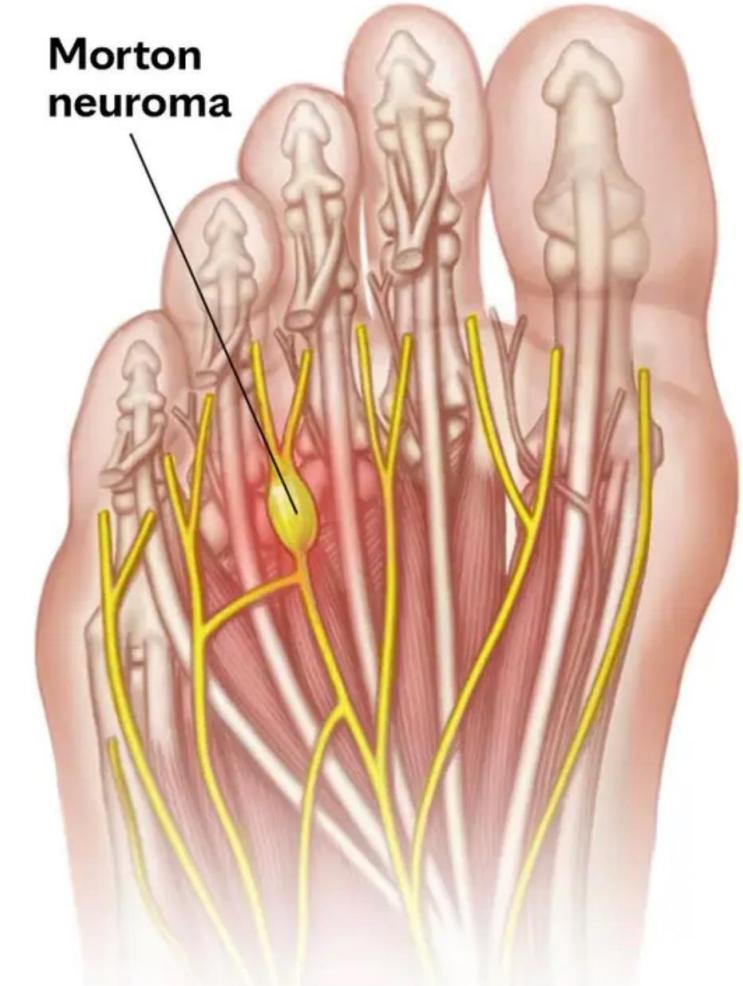
Plantar Faciïtis

- Pain at the heel in the morning or after sitting
- Risk Factors:
 - High arch
 - Change of activity levels
- Treatment:
 - Stretching
 - Remodeling of tissues
 - Shoewear



Morton's Neuroma

- Tingling, burning, or pain in the forefoot
- Feeling of a stone under the ball of the foot
- Contributing Factors
 - Narrow shoes
 - Activities
 - Foot mechanics
- Treatment
 - Improve foot mechanics
 - Shoewear



Conservative Treatment



- Treat contributing factors
 - Mobility
 - Strength
 - Balance
- Shoewear
- Braces, Orthotics, Spacers
- Modify activities

Thank you!

Questions?



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