



# Treating the Challenging Foot and Ankle

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SELECT PHYSICAL THERAPY-MULTI-SITE MANAGER

# Overview

- ▶ Differential diagnosis-when it isn't the common...
  - ▶ Ankle sprain vs. impingement or cuboid syndrome
  - ▶ “Over-pronation” case vs. fracture, TTS
  - ▶ Plantar fasciitis vs. medial calcaneal neuritis
  - ▶ Achilles Tendinitis vs Os Trigonum

# Overview-lab

- ▶ Exercises
- ▶ Mobilizataions/Manipulations
- ▶ Footwear adaptations

# Ankle Sprains-Typical Case

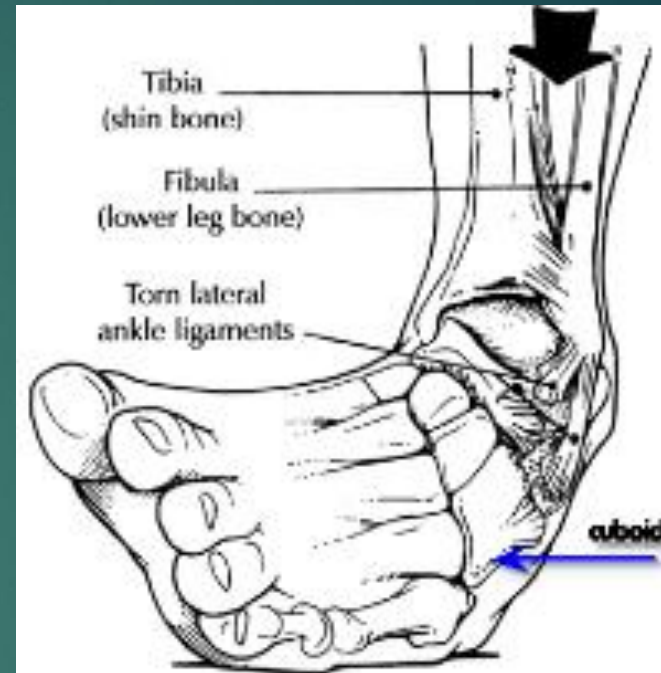
- ▶ Initially very swollen, bruised, painful
- ▶ Point tender to ATFL
- ▶ Typically mostly better in 2ish weeks
- ▶ Return to sport in 3ish weeks
- ▶ Swelling and bruising will subside, WB improves, AROM, functional strength improve

# Ankle Sprains-things that make you go hmm.....

- ▶ Pain (even significant) located in same area but not swollen or bruised- subfibular impingement-usually increased pronation
- ▶ Very little eversion strength or even ROM after several weeks-peroneal tendon
- ▶ Pain at night-fracture (talar dome, avulsion), but also peroneal tendon
- ▶ Painful WB but otherwise normal-fixed talocrural or subtalar joint
- ▶ Lateral midfoot pain vs ankle pain-cuboid syndrome

# Cuboid syndrome

- ▶ Sharp pain in lateral midfoot
- ▶ Point tender just proximal to 4<sup>th</sup> MT
- ▶ Sudden onset
- ▶ Often after trauma- ex: ankle inversion injury
  
- ▶ Treatment
  - ▶ Cuboid whip
  - ▶ Taping
  - ▶ MWM
  - ▶ Anti-inflammatory
  - ▶ IASTM



[Cuboid Lock Strapping for Cuboid Syndrome - YouTube](#)

# “Over-pronation”-common

- ▶ Gradual onset
- ▶ Obvious over-pronatory pattern
- ▶ Usually running athletes, especially distance
- ▶ Pain located medial foot, ankle and/or tibia
  
- ▶ Treatment
  - ▶ Gluteal, inversion strengthening
  - ▶ 1<sup>st</sup> ray PF mobs with intrinsic training
  - ▶ Arch taping

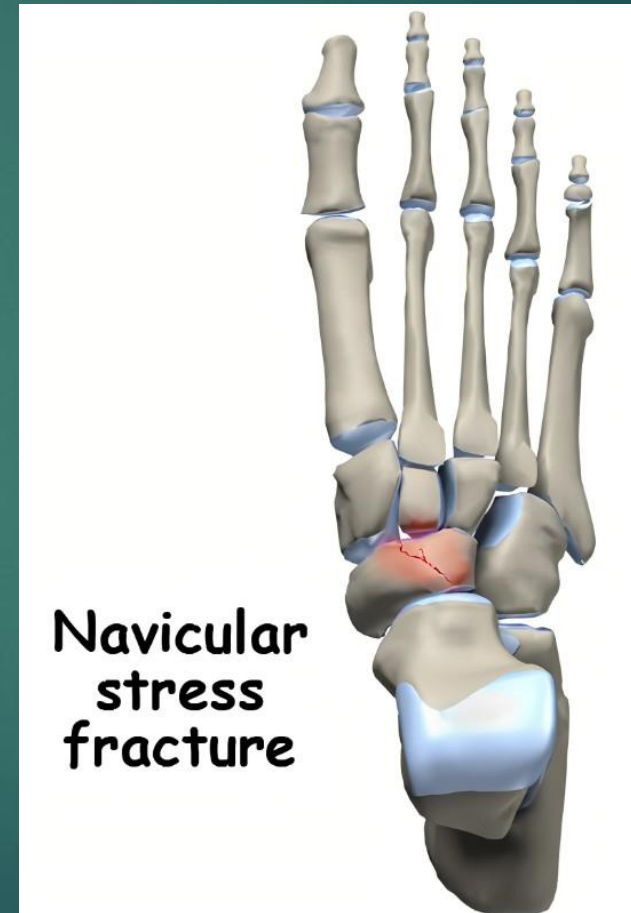
# “Over-pronation”-things that make you go hmmm....

- ▶ Over-pronatory pattern, but...
  - ▶ Pain located lateral ankle
    - ▶ Subfibular/anterolateral impingement (track athlete-L ankle)
      - ▶ Treatment-mobs, strengthening, arch taping, IASTM, medial calc posting
  - ▶ Night pain or pain while driving/riding in car
    - ▶ navicular fx
    - ▶ tarsal tunnel-common in softball/baseball catchers
    - ▶ Tibial stress fx



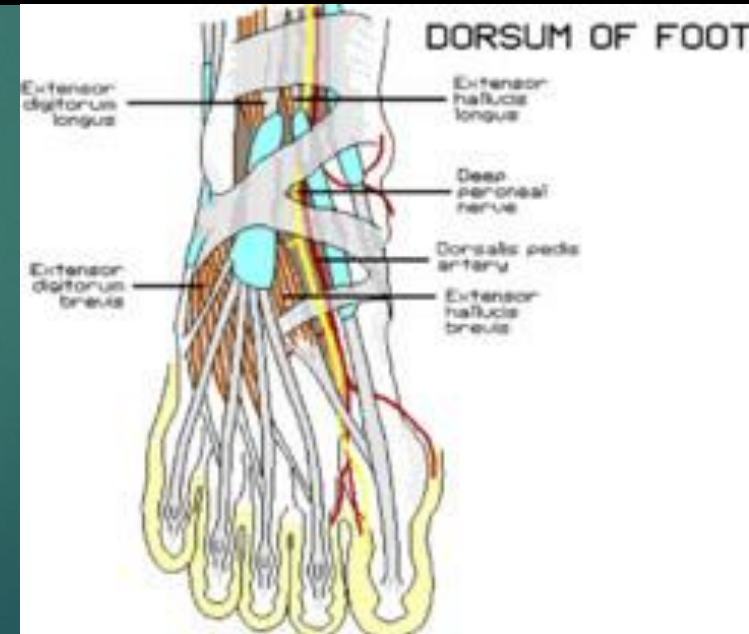
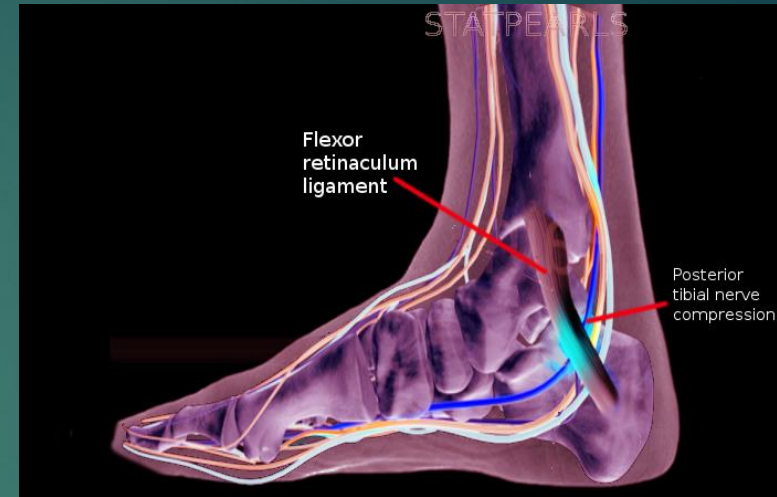
# Fractures

- ▶ Navicular Fx
  - ▶ Jumping or distance athletes- basketball, gymnastics, runners
  - ▶ Change in running surface
  - ▶ Improper footwear
  - ▶ Vague pain in midfoot
  - ▶ Poor landing mechanics
  - ▶ Females>males-especially absence of menstrual cycle



# Tarsal Tunnel Syndrome

- ▶ Tarsal Tunnel Syndrome
  - ▶ Pain with DF
  - ▶ Nerve pain (deep ache, paresthesia, night pain)
  - ▶ Positive Tinel's
  - ▶ Positive neural tension
- ▶ Anterior Tarsal Tunnel
  - ▶ Traction-dancers, soccer athletes
  - ▶ Tendinopathy-EHB
  - ▶ Tight shoes-lacing techniques
    - ▶ Positive neural tension



# Plantar Fasciitis-Common

- ▶ Pain immediately upon standing, especially after prolonged rest
- ▶ Point specific pain at plantar calcaneus

# Treating Over-pronation and Plantar Fasciitis

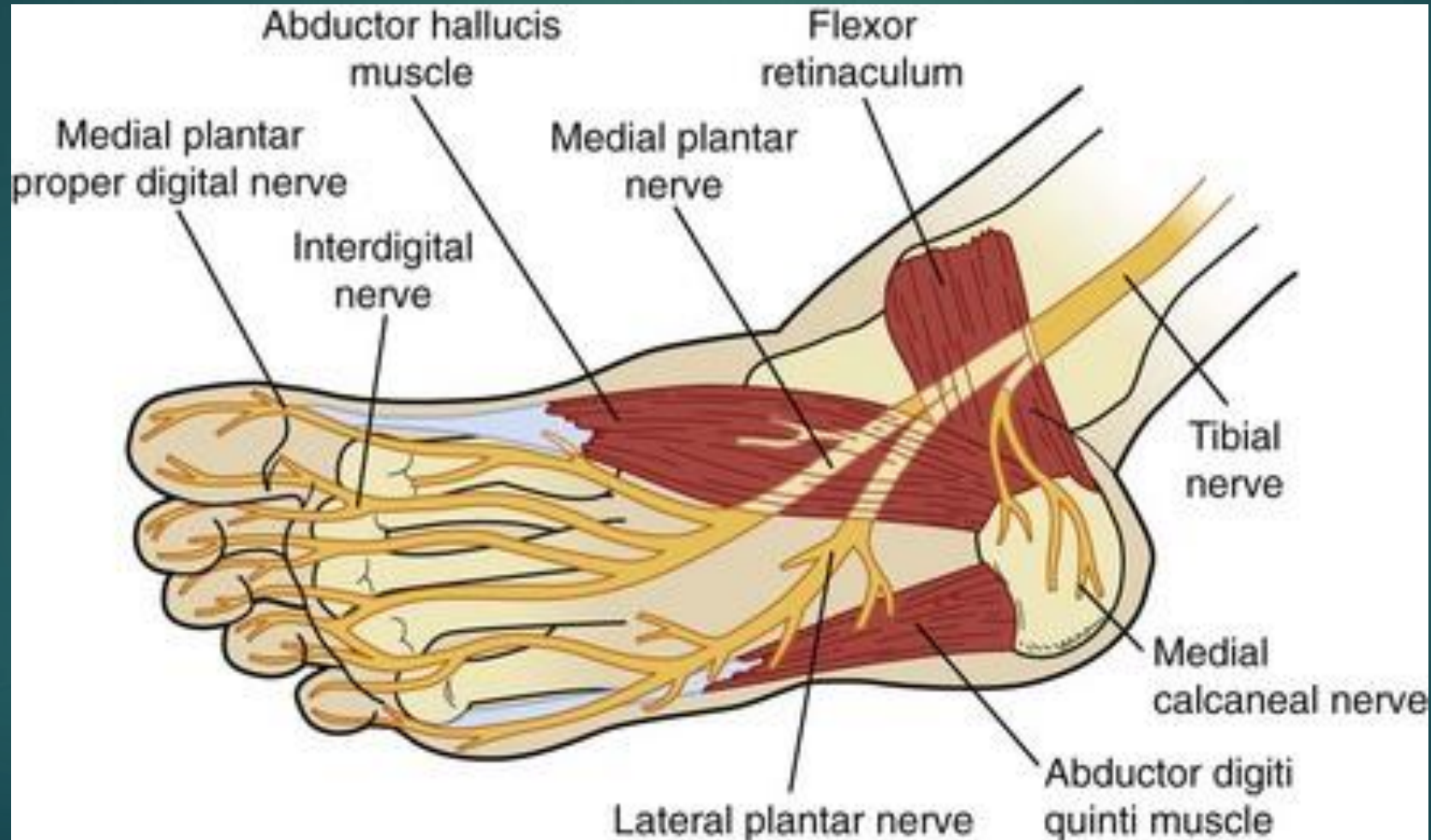
- ▶ 1<sup>st</sup> Ray mobs
- ▶ 1<sup>st</sup> MTP mobs
- ▶ IASTM
- ▶ Intrinsic muscle activation
- ▶ Subtalar mobs/manipulation
- ▶ Gluteal strengthening

# Plantar Fasciitis- things that make you go hmmm...

- ▶ Neuritis-Medial Plantar N
  - ▶ Pain at night
  - ▶ Pain in NWB
  - ▶ Pain in car or while driving
- ▶ Treatment
  - ▶ Find source of Neural compression
    - ▶ Lumbar spine, sciatic, tarsal tunnel
    - ▶ Nerve glides
    - ▶ Tone reduction



# Medial Calcaneal Nerve



# Achilles tendinopathies- Common

- ▶ Pain with stretch of Achilles tendon
- ▶ Initially mildly painful, slightly weak resisted plantar flexion
- ▶ More sore after rest
- ▶ Usually improves with warm up

# Achilles...or not

## Os Trigonum

Painful plantar flexion,  
especially end range

Usually soccer athlete or  
dancer

Very common but identified  
more in these athletes

## Treatment

Taping to reduce PF

Injections/surgery





# Let's Get Poppin'

- ▶ Talocrural Mobilization/Manipulation
- ▶ Subtalar Mobilization/Manipulation
- ▶ 1<sup>st</sup> Ray Mobilizations
- ▶ 1<sup>st</sup> MTP Mobilizations

# Exercises

- ▶ Standing clams
- ▶ 1<sup>st</sup> ray PF
- ▶ 1<sup>st</sup> ray PF iso hold

# Footwear

- ▶ Posting
- ▶ Pressure relief
- ▶ Lacing techniques

# Resources

- ▶ Jacobson KE, Liu SH. Anterolateral impingement of the ankle. *J Med Assoc Ga.* 1992 Jun;81(6):297-9. PMID: 1607843.
- ▶ Helgeson K. Examination and intervention for sinus tarsi syndrome. *N Am J Sports Phys Ther.* 2009;4(1):29-37.
- ▶ Nault, ML, Kocher, MS, Micheli, LJ. Os Trigonum Syndrome, Review Article. *Am Acad of Ortho Surg.* 2014; 22(9) 545-553.
- ▶ [Disorders of the Foot and Ankle | Musculoskeletal Key-medial nerves image](#)
- ▶ [Endoscopic Excision of Symptomatic Os Trigonum in Professional Dancers - The Journal of Foot and Ankle Surgery \(jfas.org\)- Os Trigonum image](#)
- ▶ [What Is Navicular Stress Fracture? | New Health Advisor](#)
- ▶ <https://3.bp.blogspot.com/-RO1e9MecevU/UnAHY51-IwI/AAAAAAAAA0I/I7CVnVL7GDQ/s1600/Cuboid-Syndrome.png>
- ▶ [Cuboid Lock Strapping for Cuboid Syndrome - YouTube](#)
- ▶ <http://www.physioadvisor.com.au/health/taping-techniques-lower-body/posterior-ankle-impingement/>
- ▶ <https://www.statpearls.com/articlelibrary/viewarticle/29876/>
- ▶ Dreyer MA, Gibboney MD. Anterior Tarsal Tunnel Syndrome. [Updated 2022 Jan 9]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK538488/>