“Hey, Doc, can I ask you one more thing?”

The top 10 foot and ankle problems
(and how to effectively address each in 3 minutes or less)

#10

Neuropathy

Sensory

Autonomic

Motor

Sensory Neuropathy

- Tingling
- Burning
- Numbness
- Paroxysmal lancinating pain
- “Skin feels stiff”
- “Feels like my feet are wrapped in cotton”
- “Ice pick into my feet all night”

Causes of neuropathy

Diabetes

Autoimmune diseases; Sjogrens, lupus, RA, Guillain-Barre, demyelinating polyneuropa
vasculitis

Infections: Lyme disease, shingles, Epstein-Barr, Hep B&C, leprosy, diphtheria, HIV

Inherited disorders: Charcot-Marie-Tooth

Tumors: paraneoplastic syndrome.

Bone marrow disorders: monoclonal gammopathies, myeloma, lymphoma, amyloidosis

Hypothyroidism, Kidney disease, liver disease

Alcoholism

Exposure to iindustrial chemicals and heavy metals

Chemotherapeutics

Nerve injury

Vitamin deficiencies.

Quick fixes

Sorry. None.

Manage underlying causes.

When to add medication

When cannot get a good night’s sleep or otherwise driving them crazy

- gabapentin (Neurontin).
  - Titrate up to max dose of 3600mg/day div
  - Consider larger qhs dose
- pregabalin (Lyrica)
  - Start w/ 75mg bid
  - Titrate up to 300-450mg/day
- Cymbalta, nortriptyline, amitriptyline

Anything else?

Topical counterirritants

CBD

Peripheral Nerve Stimulators

Peripheral Nerve Stimulators

New

Very encouraging results

Peripheral Nerve Stimulators

1. Lidocaine 1mL test block at appropriate leg/ankle nerve
    a. If >60% improvement in pain. . .
2. Trial stimulator
    a. Electrode placed along peripheral nerve through stab incision under U/S guidance.
    b. 7-day trial.
    c. If >60% relief from symptoms. . .
3. Permanent device placed
    a. External battery
    b. Easy to dial in appropriate setting to control pain.

How to address it in under 3 minutes:

Validate: “that stinks”

Verify: you’re optimally addressing the possible underlying causes

Inform: can’t fix numb, but can (sorta) quell pain

Determine: pain interfering with sleep?

Prescribe: if no contraindications

Failing pharmacological treatment? Is PNS an option?

#9

Painful Adult-Acquired Flatfoot

Posterior Tibial Tendinitis/Tendon Dysfunction

Early Common Complaints:

- Posteromedial ankle pain with exertion (often mistaken for ankle pain)
- Swelling along posteromedial ankle and hindfoot

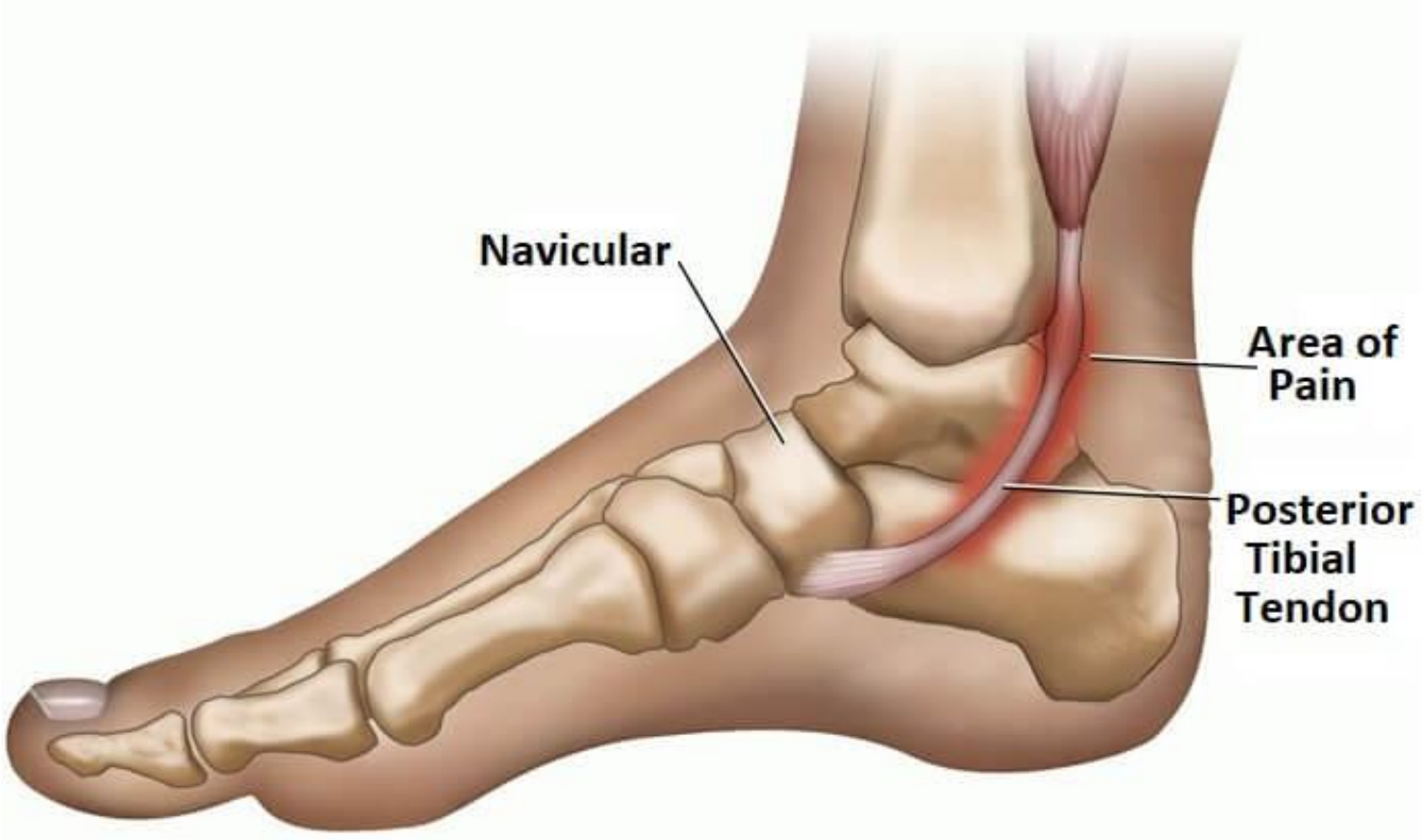
Later Complaints:

- Shoe suddenly too small or foot got longer
- No spring in step
- Medial bulge
- Lateral hindfoot pain

Informational Time-Out

Pronation & Supination

Painful Adult-Acquired Flatfoot



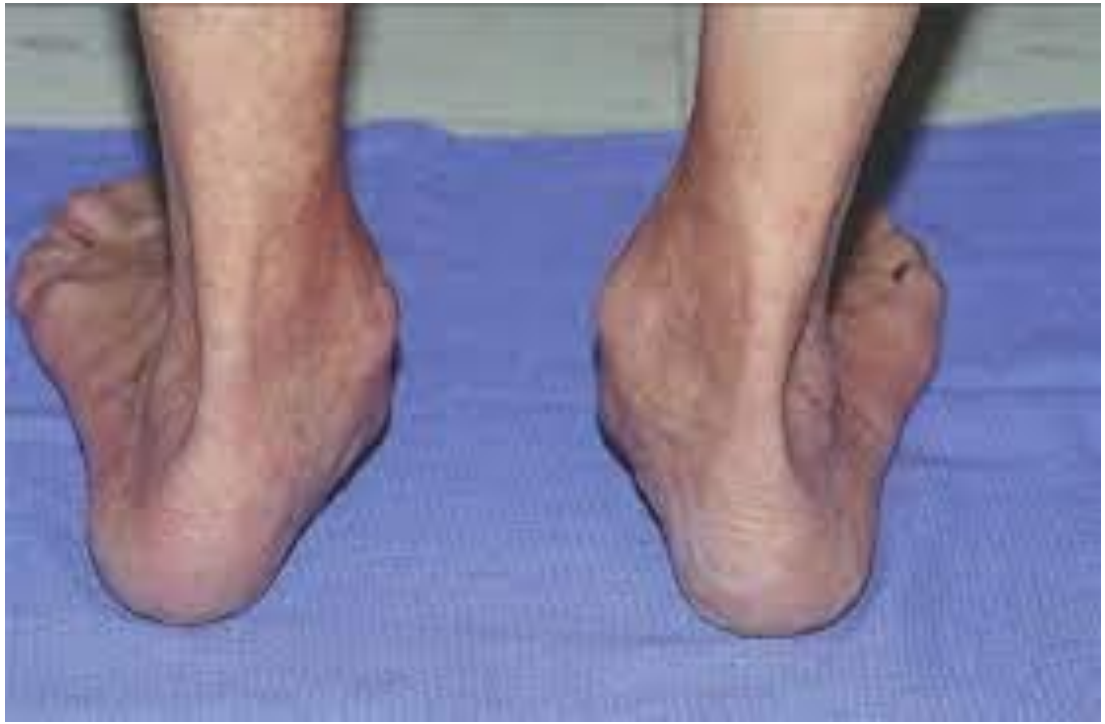
Painful Adult-Acquired Flatfoot

Progression

- Tendon thickens, weakens, splits, tears.
- Foot remains hyperpronated
- Hindfoot arthrosis begins

Foot becomes more and more stiff, more and more painful

Late stage: ankle arthrosis



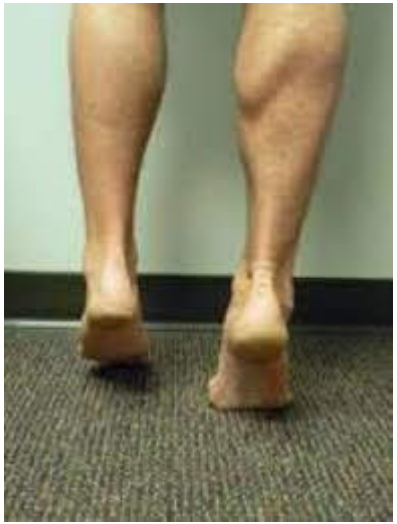
Painful Adult-Acquired Flatfoot

Treatment:

- Stage 1 (tendinitis only)
  - RICE, better shoe gear, arch support, CAM boot, NSAIDs
- Stage 2 (tendonosis, flexible foot deformity)
  - NWB in boot/cast, hinged AFO, joint sparing reconstructive surgery
- Stage 3 (rigid deformity, DJD of hindfoot)
  - Reconstructive surgery through selective hindfoot/midfoot arthrodeses

How to address it in under 3 minutes:

- Distinguish PTT from ankle pathology
  - TTP along posterior border of medial malleolus to the navicular tuberosity
  - Single leg heel raise
    - Successful, but painful=tendinitis
    - Unable=tendon dysfunction
- Based on severity, time, impact:
  - Begin RICE
  - OTC inserts/better shoes
  - Refer to your favorite lower extremity specialist



Informational Time-Out

What makes for a good shoe?

–VS–

–VS–

#8

Diabetic Foot Ulcer (DFU)

Every 30 seconds a limb is lost due to diabetes

25% of diabetics will develop an ulcer during their lifetime

Key Risk factor: DPN, PAD, foot deformity, history of ulcer or amputation

Diabetic Ulcers

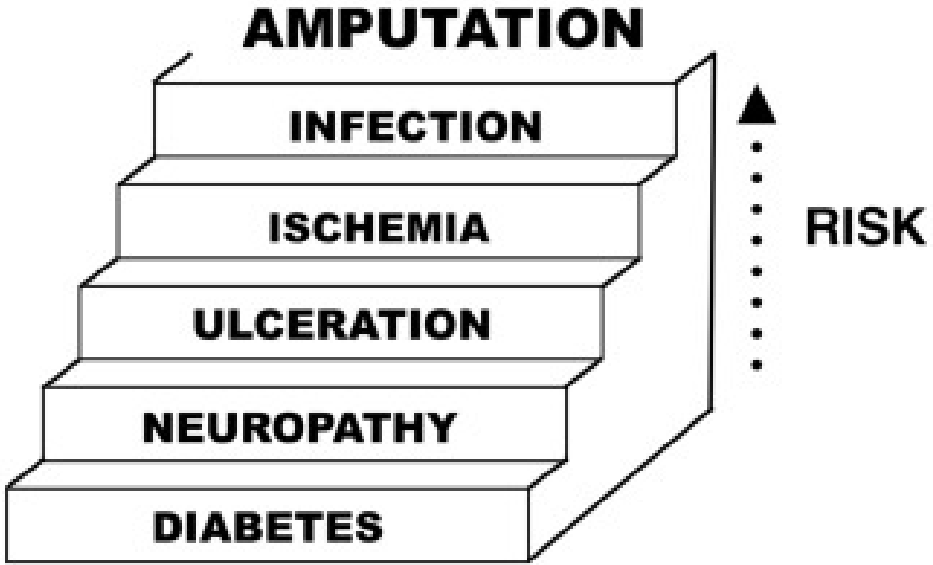
How do ulcerations start?

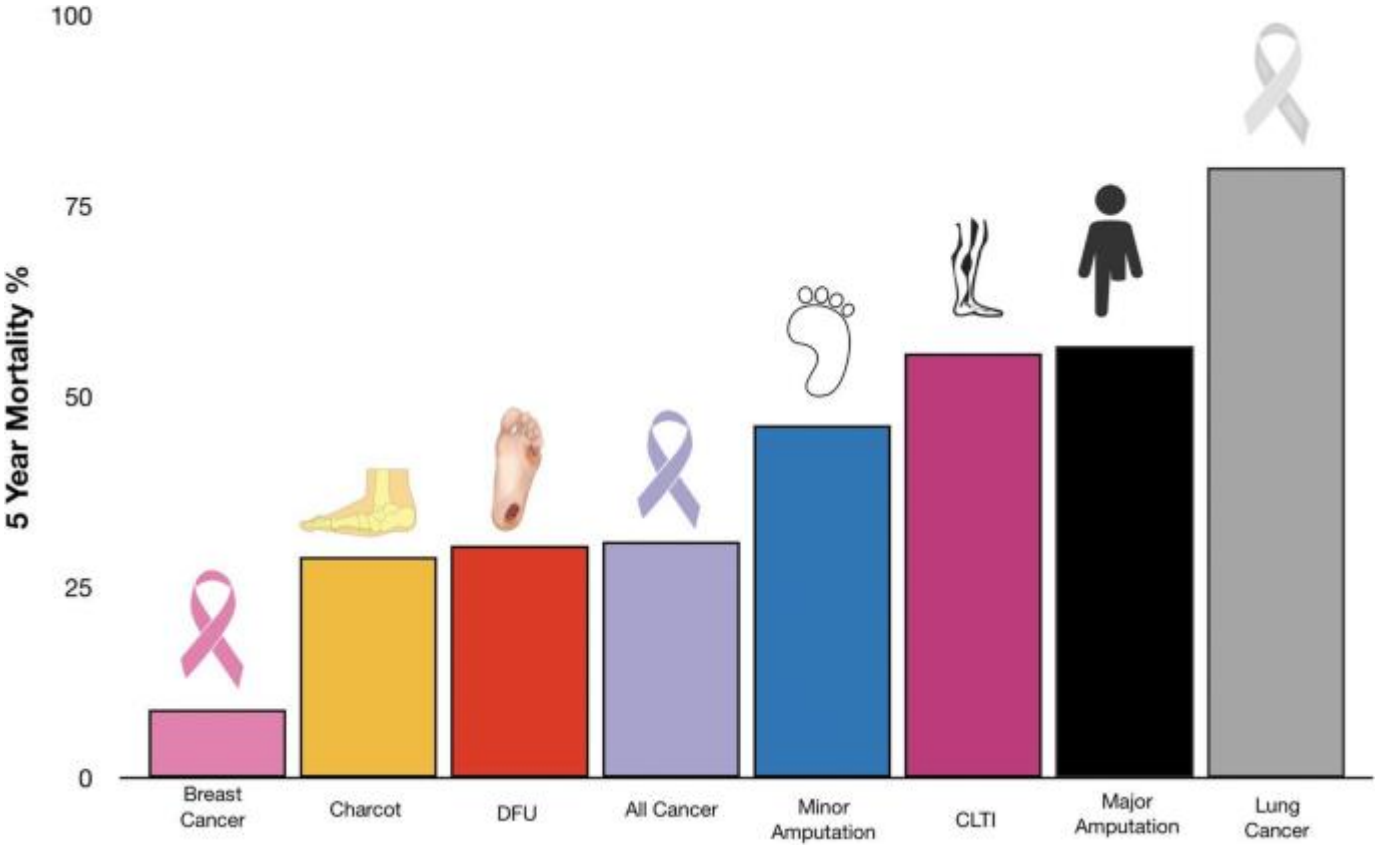
Clinical triad

1. Neuropathy
2. Deformity
3. Trauma

Diabetic Foot Ulcer

Stairway to Amputation




5 Year Mortality %
100
75
50
25
0
Breast Cancer
Charcot
DFU
All Cancer
Minor Amputation
CLTI
Major Amputation
Lung Cancer

DFU

What are the costs of the diabetic foot?

- In 2007 $174 Billion was spent on diabetes ($116B in direct costs)
- One third of those costs were due to lower extremity complications

The Costs of the Diabetic Foot. Diver VR JVS 2010

DFU

Recurrence:

After healing a DFU, 50% of patients reulcerate within 12 months

DFU

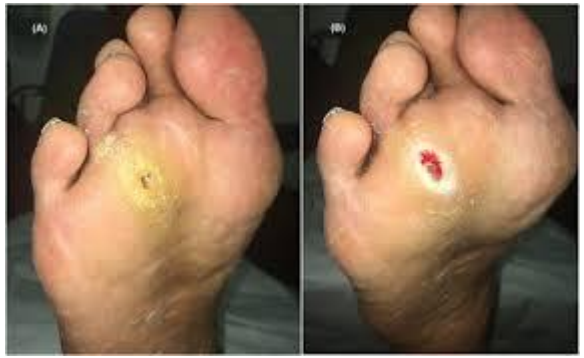
Amputation VS Salvage

“The rationale for primary amputation (BKA/AKA) assumes that patients will ambulate successfully with a prosthesis.”

In reality barely 1/3 of patients (47% BKA and 15% AKA) are successfully fitted for a prosthesis, and thus many are not able to walk.

How to address it in under 3 minutes:

- Infected vs non-infected?
- Non-infected
  - It's NOT what you put ON, but what you take OFF a DFU that most impacts healing.
- Get them off it
- Refer out
- Keep it covered with abx ointment/clean dressing



Informational Time-Out

Wound cultures.

Please DO NOT do a superficial swab of a wound.

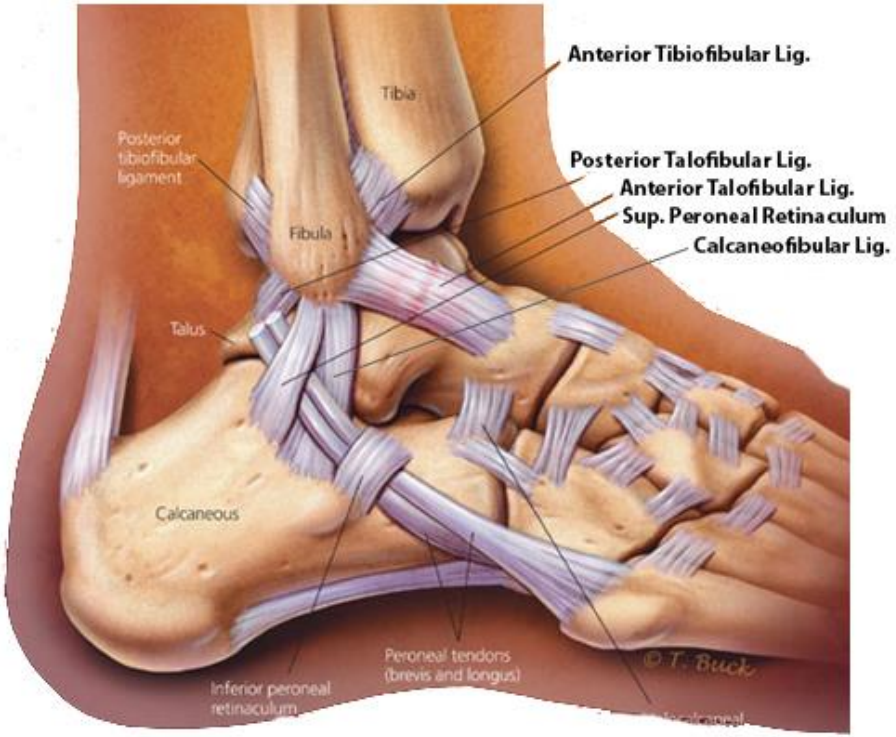
Please DO a debridement, cleanse the wound and send a piece of deep tissue.

#7

Ankle Instability

- Patient reports frequent, multiple, or increasing lateral ankle sprains
- Feels like ankle “gives out” or is “weak”
- Persistent, generally lateral ankle pain

Ankle Instability



Ankle Instability

Ankle Instability

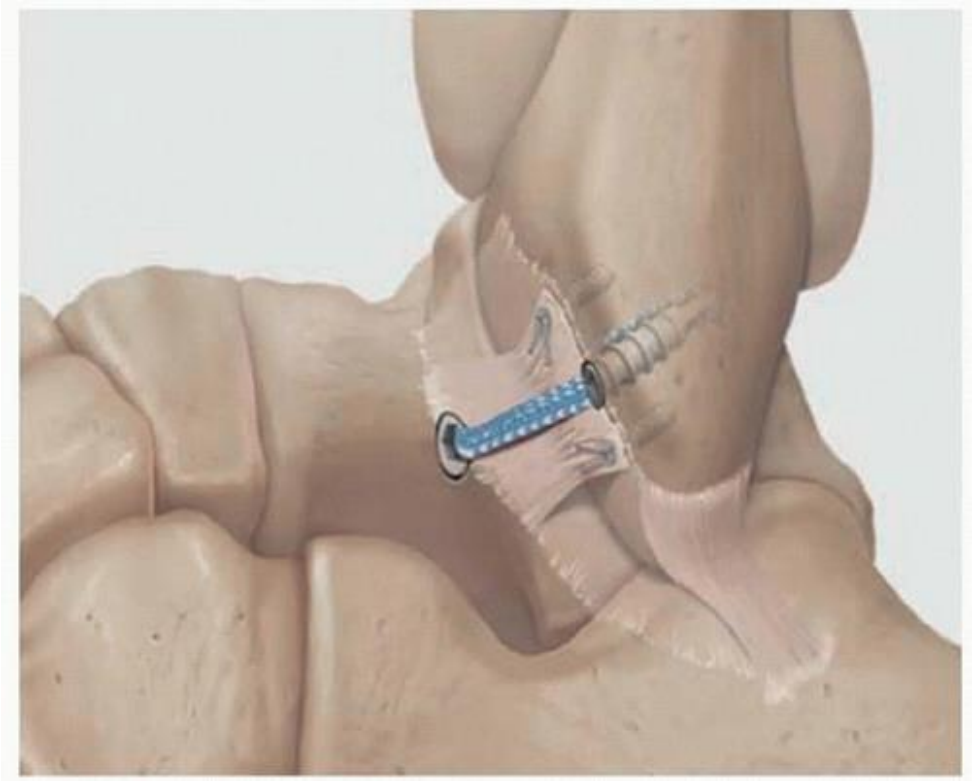
Treatment

1. Acute–RICE, lace-up ankle brace, CAM boot, crutches

Ankle Instability

2. Chronic–

a. PT, bracing
b. Lateral collateral ligament reconstruction



How to address it in under 3 minutes:

Determine: frequency, impact of sprains on ADLs

Palpate: ttp at ATFL/CFL?

Stress it: anterior drawer test, talar tilt.

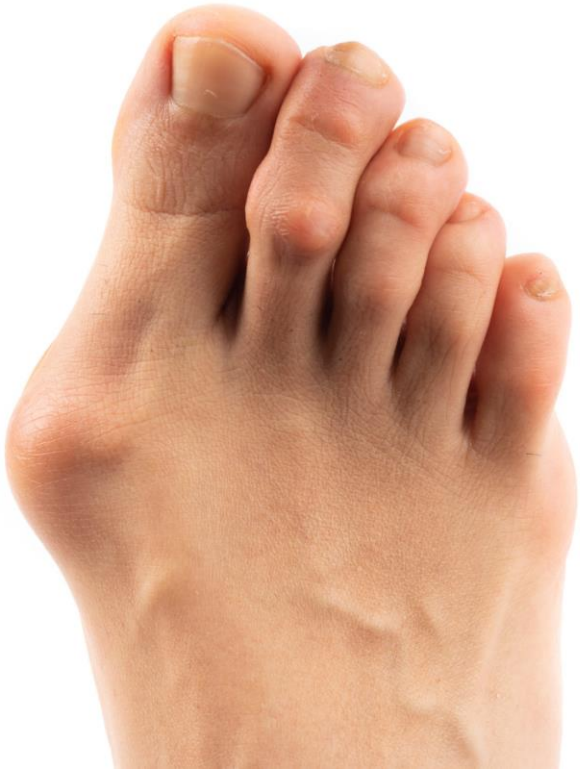
Refer: either to PT or surgeon

#6

Bunions

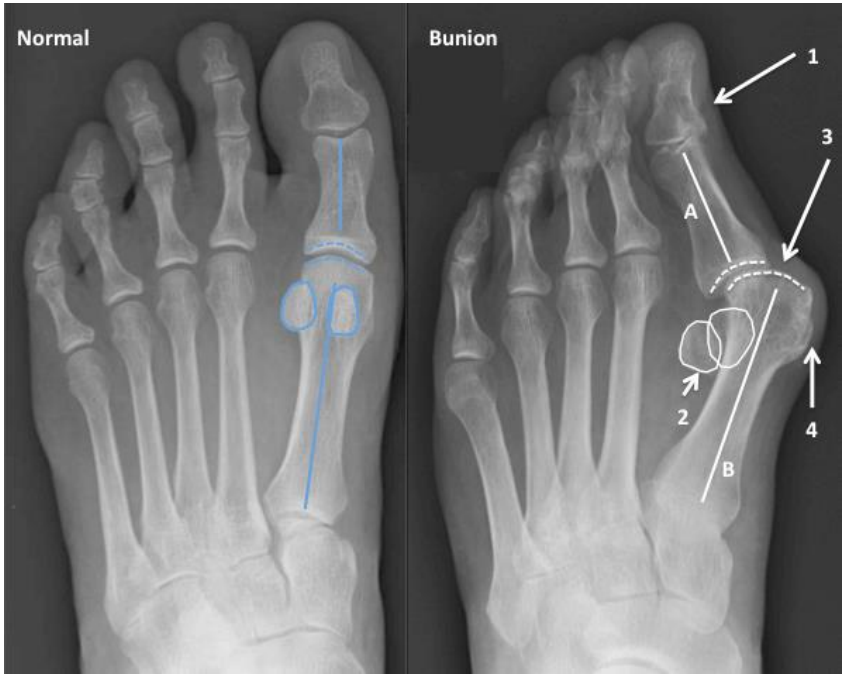
Hallux Abductovalgus (HAV)

- Medial eminence at the head of the 1st metatarsal



Bunions

1. Bump pain–burning, sharp, especially in shoes
    a. Shoe gear pressure
    b. Bursitis
    c. Nerve entrapment
2. Joint pain–deep ache, regardless of shoes
    a. Deviation of 1st MTPJ creates DJD
    b. Progression of DJD leads to further stiffness/osteophytosis



Bunions

Treatment:

Bump pain

- Wider, softer shoe
- NSAIDs
- Surgical correction of deformity

Bunions

Joint pain

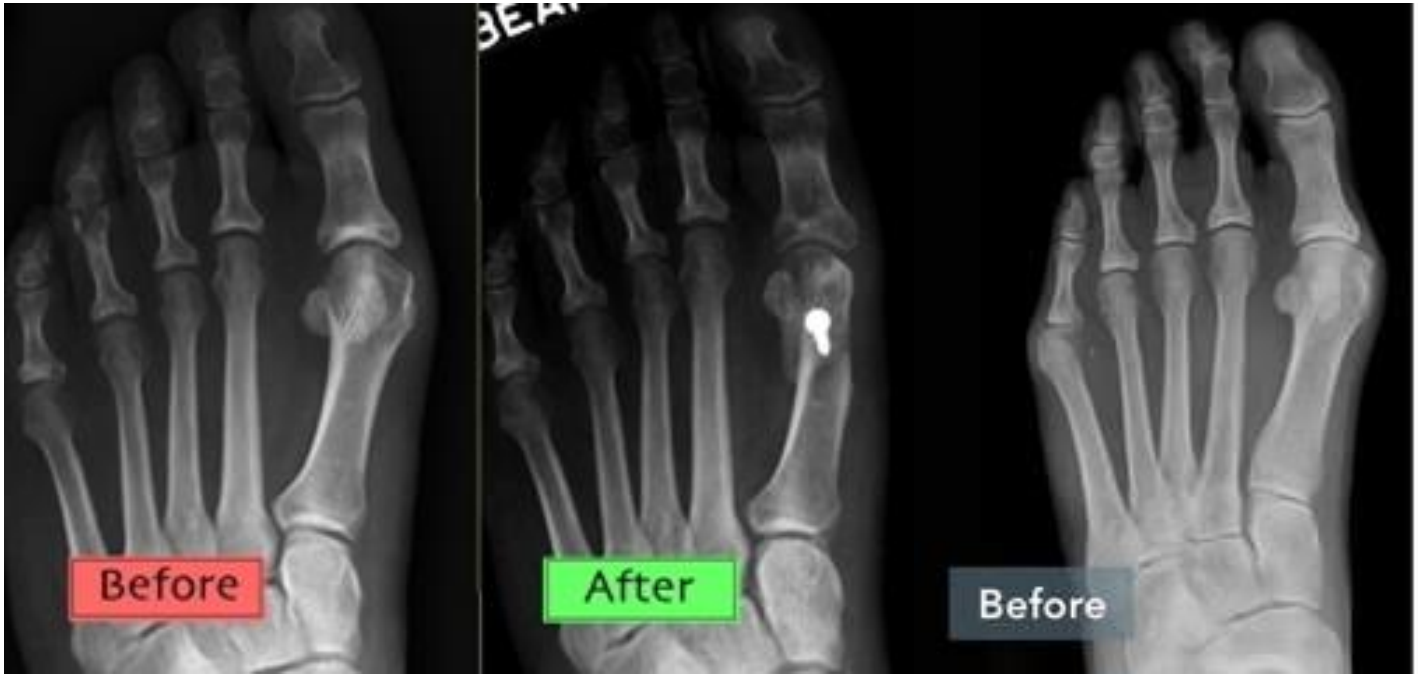
- Orthotics
- Better shoes
- Surgical correction of the deformity

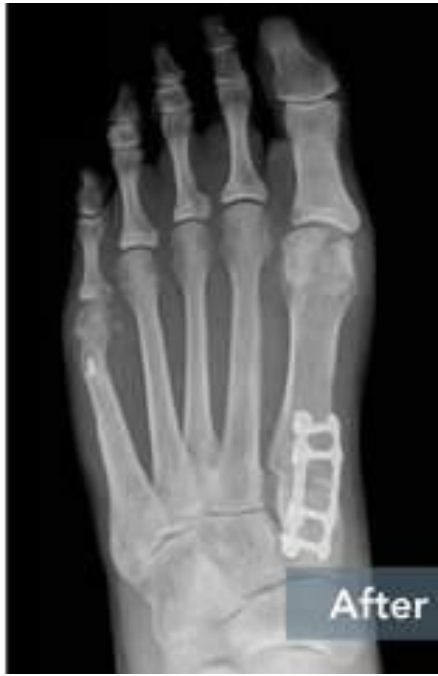
Bunions

Surgical correction:

- Revolves around reducing the relative intermetatarsal angle and removing the medial eminence at the met head.
- Recurrence rate higher if excess pronation not addressed with correction

Bunions





How to address it in under 3 minutes:

Determine: Is it bump or joint pain

If bump: suggest wider/softer shoes and short course of NSAIDs

If joint: suggest better shoe and short course NSAIDs

If no relief after 2-4 wks or pain is altering ADLs: Refer for possible surgery

#5

Tendinitis

- Generally from overuse
- Painful in same spot
- Worse w/ initiation of activity then warms up (as opposed to stress fracture)
- Functional anatomy is key

Tendinitis

Anterior compartment:

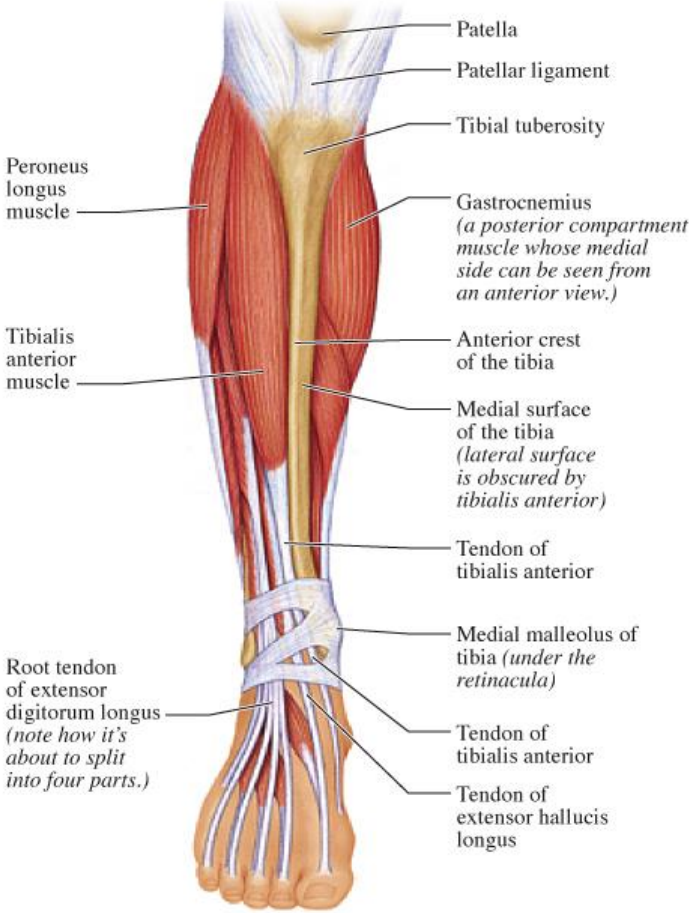
1. Tibialis anterior
2. Extensor hallucis longus
3. Extensor digitorum longus

Function:

1. Dorsiflex the foot in swing phase of gait
2. Decelerate the foot with heel strike.

Common Causes:

1. Increased activity in tight shoes
2. Tibialis anterior rupture



Tendinitis

Lateral Compartment:

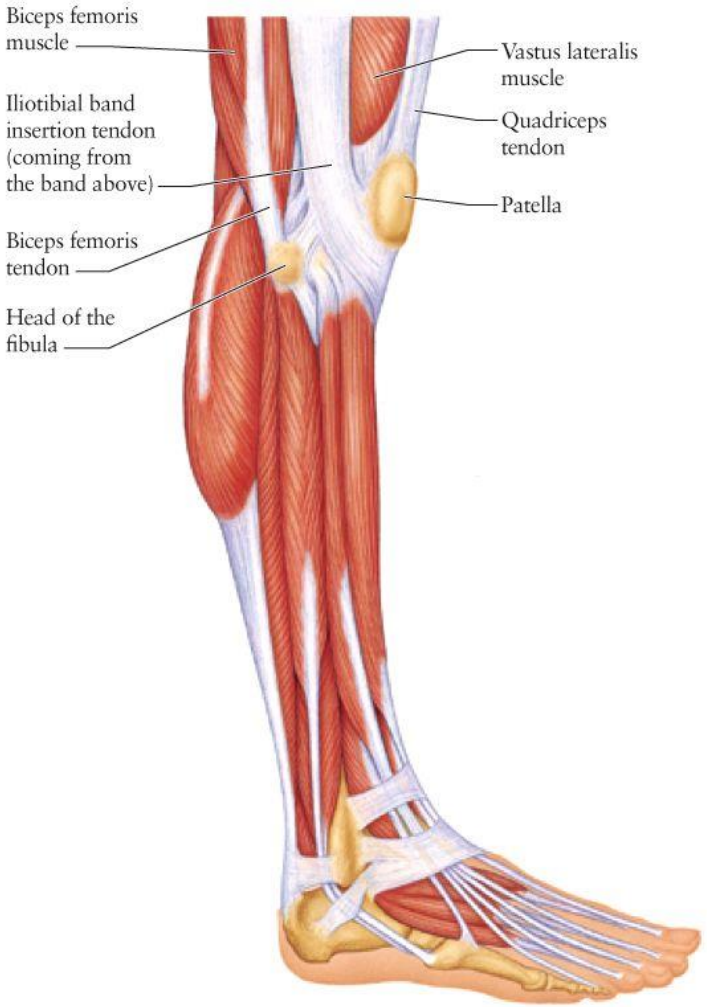
1. Peroneus longus
2. Peroneus brevis

Function:

1. Longus–plantarflex 1st ray
2. Brevis–evert foot

Common Causes:

1. Inversion ankle sprains
2. Split tears of peroneals



Tendinitis

Posterior Compartment:

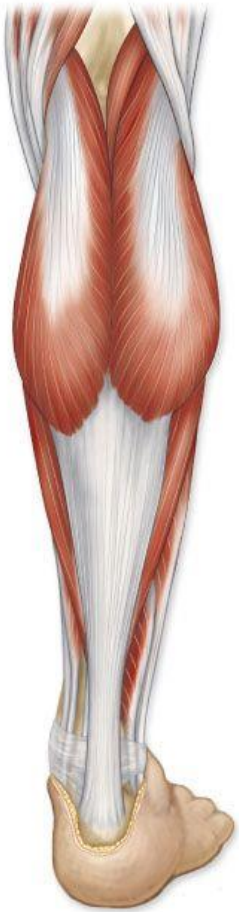
1. Achilles (gastrocnemius and soleus)
2. Posterior tibialis
3. Flexor digitorum longus
4. Flexor hallucis longus

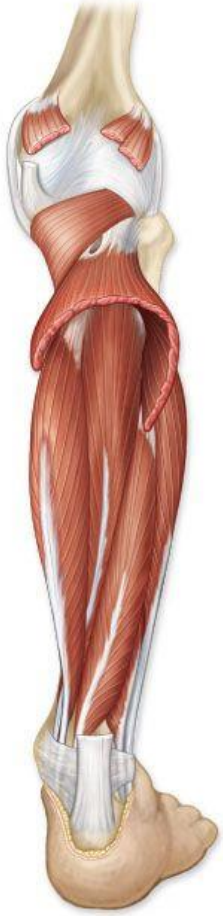
Function:

1. Plantarflex toes and foot

Common Issues

1. Achilles insertional calcific tendinosis
2. PTTD





Tendinitis

Treatment:

- Rest, Rest, Rest, Rest, Rest
- Anything to get to painfree steps = rest
- Bracing: (CAM boot, splint, ankle brace, SLC)
- NSAIDs

Failing conservative treatment:

- MRI to eval tendonopathy for surgical planning
- Refer to surgeon (repair of ruptures and split tears, debridement of tendon)

How to address it in under 3 minutes:

Identify: Which tendon is painful via palpation and MMT

Determine: Best method of immobilizing/resting that tendon and prescribe

Consider: oral NSAID, RICE

Not responding or don’t have DME available right away: Refer out

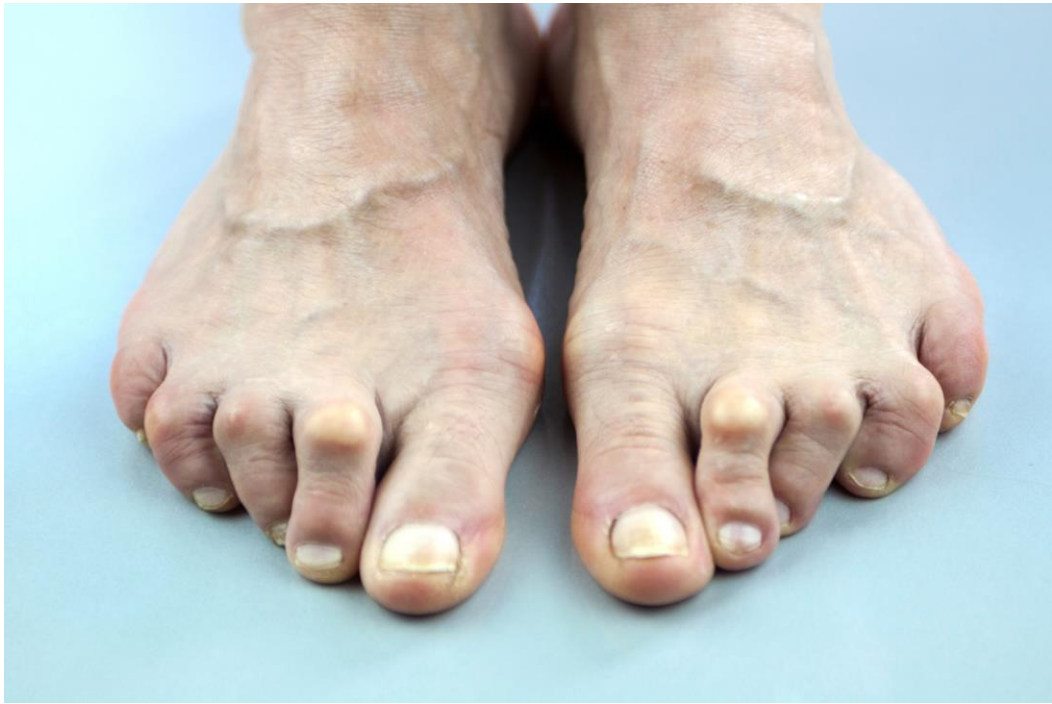
#4

Hammertoes

Abnormal contracture of the lesser digits

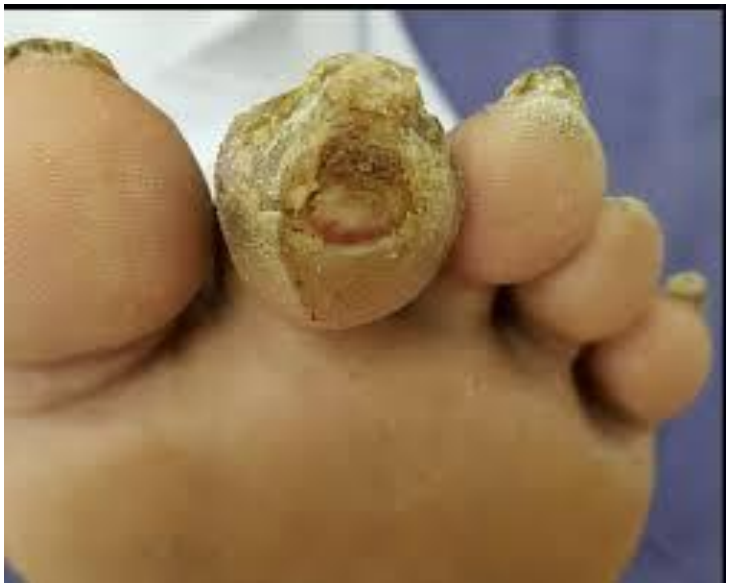
Causes: imbalance in pull of extensors and flexors overpowers ability of Interosseii and Lumbricales to stabilize the MTPJs in stance.

(Well, you asked)



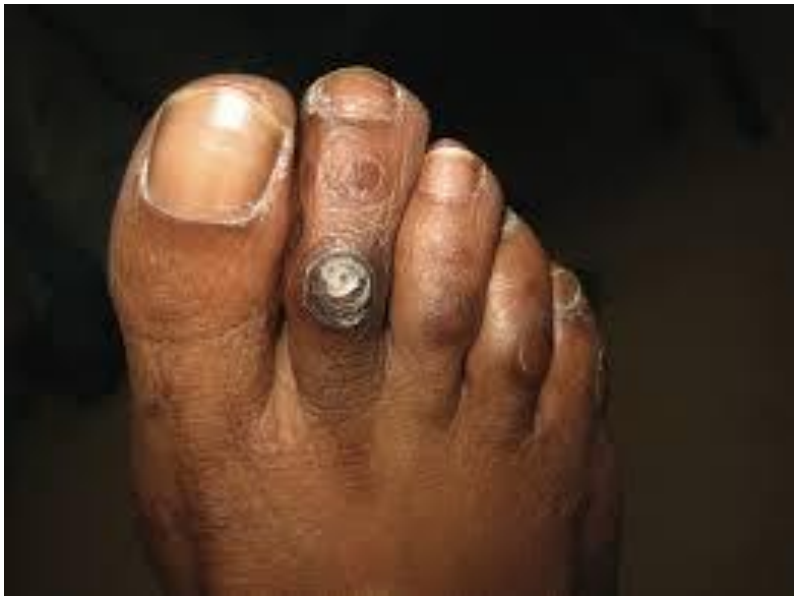
Hammertoes

1. Distal toe pain:
    a. Bony tip of toe in contact with ground
    b. Distal calluses thicken and become painful



Hammertoes

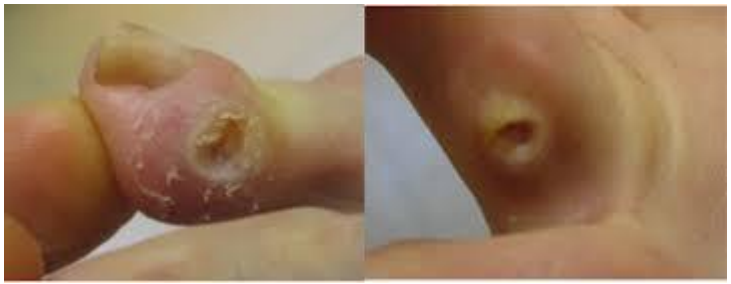
2. Dorsal toe pain
    a. Shoe gear rubs on prominent PIPJs



Hammertoes

3. Interspace toe pain:

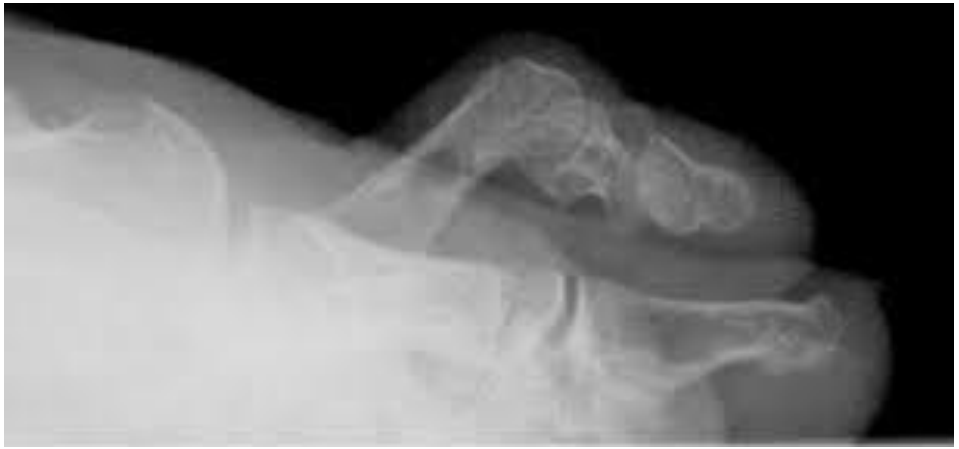
    a. Abnormal toe position creates increased pressure on epicondyles of phalanges
    b. Painful calluses form
    c. In neuropaths can create ulcers



Hammertoes

4. Interphalangeal joint pain

   a. Flexible deformities become increasingly rigid
   b. Rigid deformity leads to erosion of joint space



Hammertoes

Conservative Treatment:

1. Dorsal pain: shoe w/ deeper toe box
2. Distal pain: soft insert into shoe, silicone toe caps/pads, splints
3. Interspace pain: gel pad, spacers, wider shoe

Hammertoe Gel Pads - Claw ...
amazon.com · In stock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walmart.com · In stock


Welnove Hammer Toe Crests ...
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footpower.com · In stock


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myfootshop.com · In stock


Gel Crest Pad Triple Toe - ...
drjillsfootpads.com


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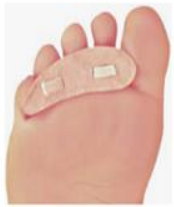
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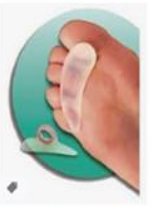
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myfootshop.com


Hammer Toe Pads/Splints - Fo...
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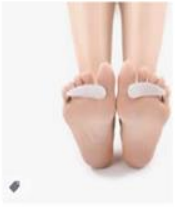
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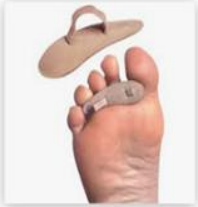
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Metatarsal Pads, Gel Toe...
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Hammer Toe Crests Buttress Pads ...
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Hammertoes

Downsides to shoving more stuff in a shoe:

1. Caps and spacers: may increase pressure and take up space
2. Splints: require elastic material stretched over a toe; can cause blisters/wounds

–Be careful with anything that wraps around a toe

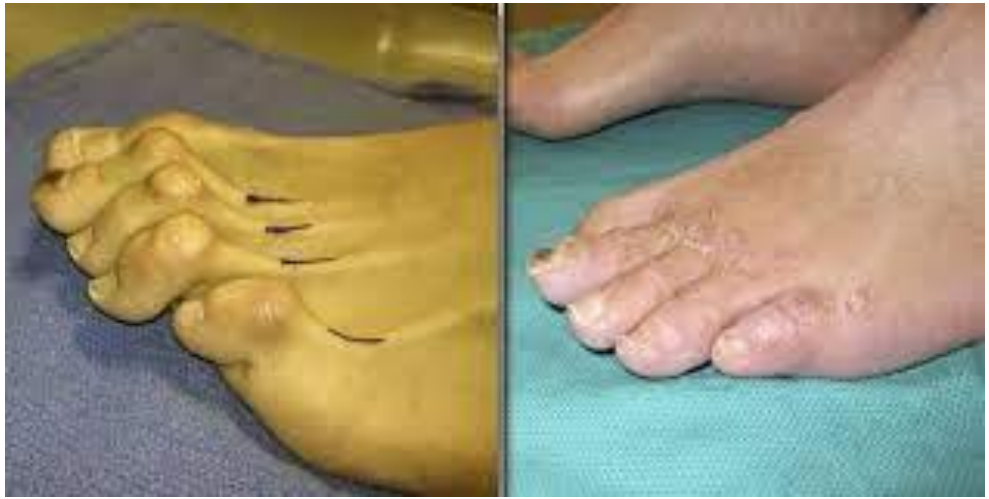
–BE DOUBLY CAUTIOUS WITH NEUROPATHS

Hammertoes

When conservative treatment is ineffective:

- Surgical correction of deformity through IPJ fusion and musculotendinous rebalancing

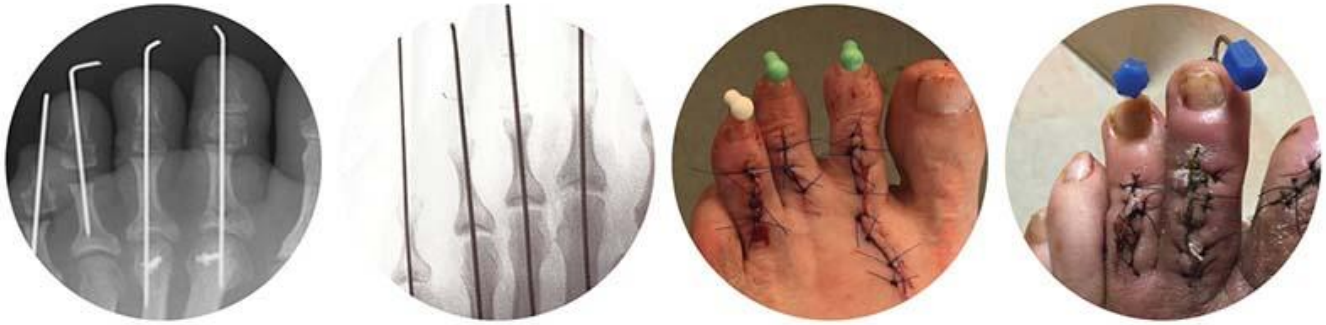
Hammertoes



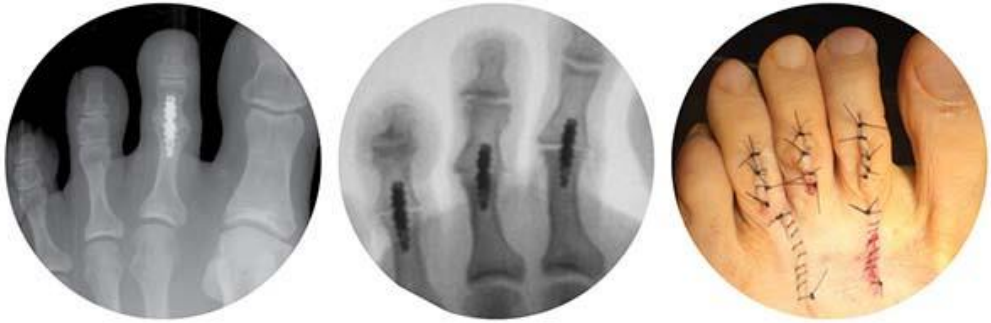
Standard K-Wire Hammertoe Procedure

Left: X-Ray of K-Wires (Pins) immediately following surgery

Right: After surgery, K-Wires (Pins) remain exposed for approximately 6 weeks during recovery



Anika ToeMate Hammertoe Procedure (No pins exposed during recovery)



How to address it in under 3 minutes:

Validate: “Wow, those do look painful!”

Assure: “Don’t worry, you can still be a foot model. . .you can be the ‘before’ picture!”

Suggest: Spacers, splints, pads and shoes

Refer: to your favorite foot specialist.

#3

Neuromas

Patients report numbness, tingling or burning into 3rd and 4th toes

Feeling of “wadded-up sock” or lump in the forefoot under the met heads

Often worse in shoes

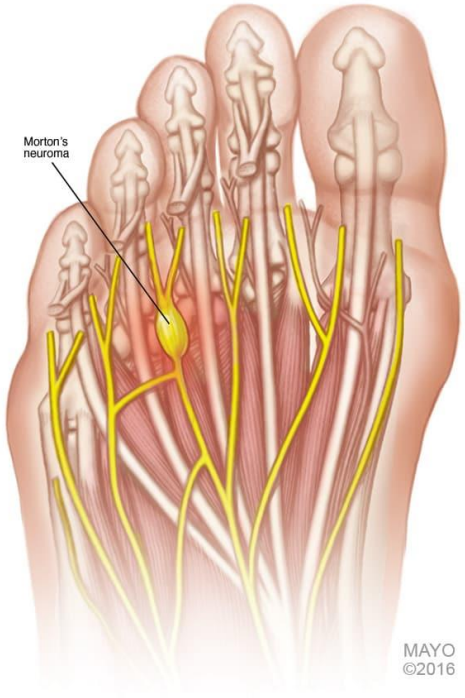
Relieved by removing the shoe and massaging the foot

Common in cyclists with narrow, clip-in shoe. Creates “hot-spot”

Can be bilateral, but often only unilateral

Neuroma

- Benign perineural thickening



Neuroma

Physical Exam:

- + Mulder’s click; produces symptoms
- Rarely edema
- No ttp at metatarsal heads
- No pain w/ MTPJ ROM

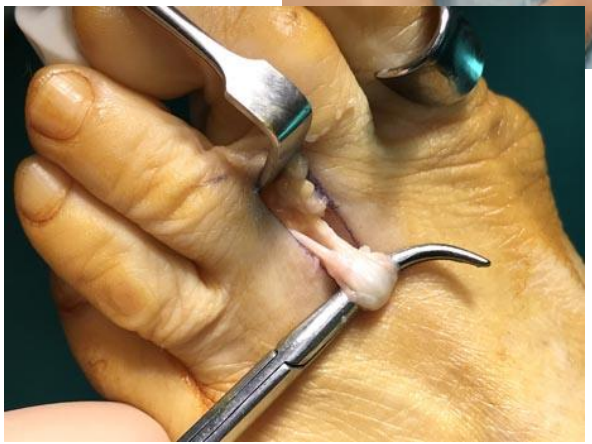
Radiographs:

- Normal mtpj space
- No stress fractures

Neuroma

Treatment:

1. Wide shoes, metatarsal pads
2. Custom orthoses
3. Corticosteroid injections
    a. Ensure not injecting into plantar fat pad
4. Alcohol sclerosing injections
5. Nerve decompression surgery
6. Radiofrequency ablation
7. Neurectomy



How to address it in under 3 minutes:

Verify: unilateral pain, numbness, burning, tingling into adjacent toes

Rule out: bilateral neuropathic signs/symptoms (i.e all the toes)

Palpate: Go on, give it a squeeze! (Mulder’s Click).

Educate: recommend proper footwear

Consider: corticosteroid injection or refer to favorite foot specialist.

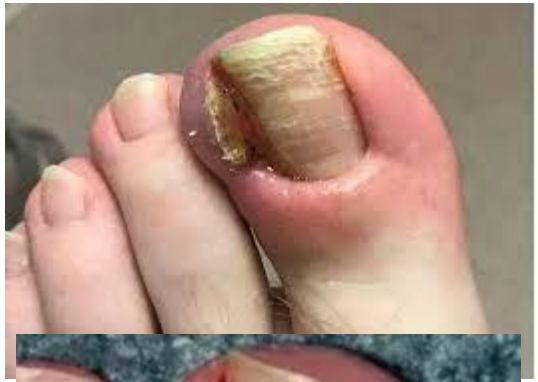
#2

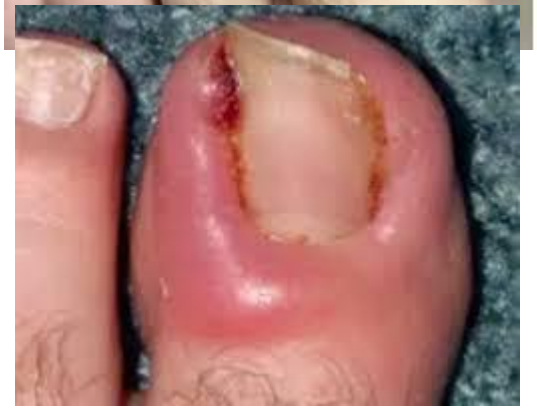
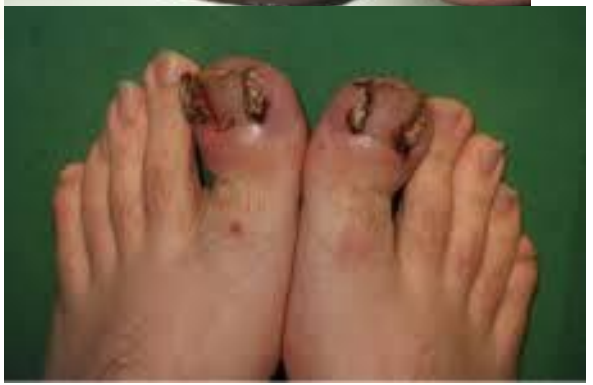
Ingrown Toenails

Onychocryptosis

- Symptoms
  - Pain, redness, swelling and/or localized purulence along the border of the toenail (paronychia)
  - Chronic irritation of the nail fold creates granuloma
  - Most often on the great toe/hallux
- Causes
  - Wide flat nail trimmed improperly
  - Incurvation of nail plate
  - Fleshy/pulpy tuft of toe
  - Trauma

Ingrown Toenails

Ingrown Toenails

Treatment:

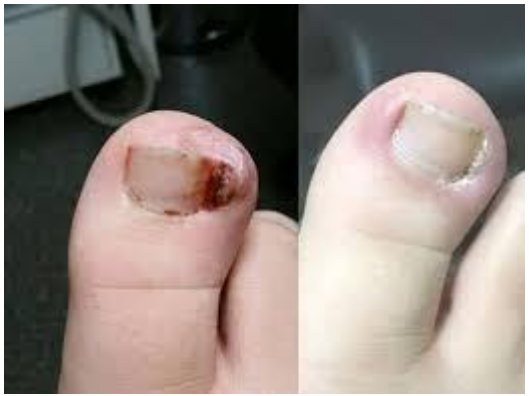
- Warm soak, may help loosen tissue enabling expression of local purulence
- Cotton under nail edge
- Bathroom surgery
- Oral antibiotics
- Partial nail removal (avulsion)
  - Pros–quick recovery (~1-2 weeks)
  - Cons–high incidence of recurrence as nail begins to regrow
- Partial matrixectomy (permanent removal of ingrown border)
  - Pros–low recurrence rate
  - Cons–longer recovery (~4 weeks)
- Total matrixectomy (permanent removal of entire nail)

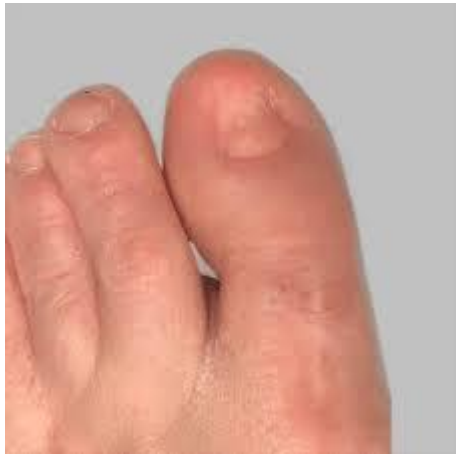
Ingrown Toenails

Matrixectomy

- Done in office
- Local block
    - 3mL 1% lidocaine/0.5% marcaine mix
    - Ring block at base of digit after topical cold spray–NOT INTO TIP OF TOE!
  - Tourniquet toe
  - Remove nail plate
  - Curette nail matrix
  - Apply cauterant
    - Phenol 89%, NaOH 10%

Ingrown Toenails





How to address it in under 3 minutes:

- Double check ingrown vs other pathology
- Inform of options
- Consider oral antibiotic (keflex, TMP/SMX, doxycycline) for paronychia
- Refer out to favorite foot specialist

#1

Plantar Fasciitis

Symptoms:

- plantar/plantar medial heel pain
- Worse in am and upon initiation of weight bearing after periods of rest
- Deep ache to sharp stabbing
- Early on will get better after “a few steps”; progresses to constant pain
- Worse when barefooted

Plantar Fasciitis

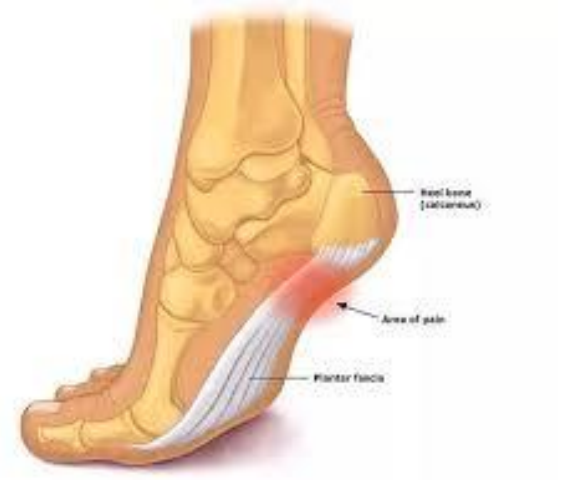
Causes:

- Trauma
- Chronic overuse
  - One-time activity
  - Sharp increase in activity
- Inappropriate shoe gear for activity
  - Wrong shoe all together
  - Right shoe, but worn out
- Enthesitis (seronegative arthropathies, etc)

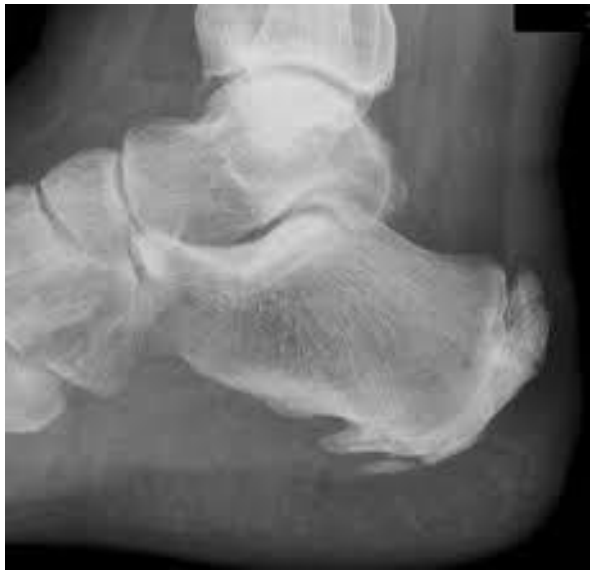
Plantar fasciitis

Physical Exam:

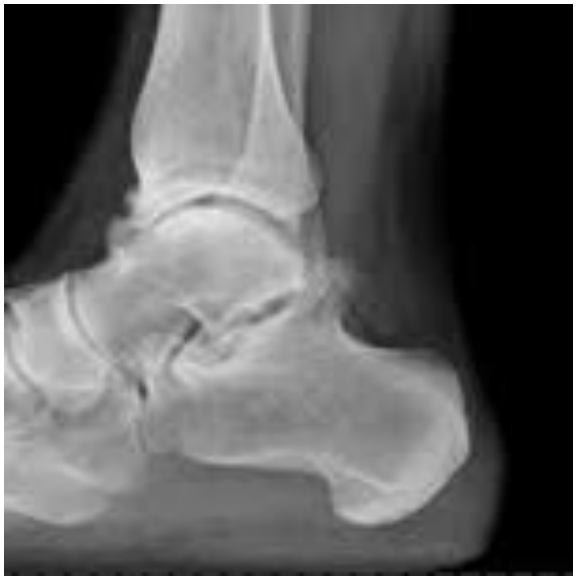
- Tenderness at medial calcaneal tubercle



Mythbusters 2-minute warning



–VS–



Plantar Fasciitis

Treatment:

- NO BAREFOOT!
- Good shoes
- Add OTC inserts
- HEP (calf stretches, ice massage)
- Corticosteroid injections (careful, they'll kick ya)
- Custom orthoses
- Surgical release of plantar fascia
- Resection of heel spur (I know, I know. I just said it's not about the spur)

How to address it in under 3 minutes:

Palpate–heel pain at infracalc area

Recommend–stretches, no barefoot, new good shoes, ice massage

Consider–steroid injection

Refer–if not responding

Encourage–90% of patients respond to non-surgical treatment for plantar fasciitis

Honorable Mention

11. Hallux limitus: DJD of 1st MTPJ; pain, swelling, stiffness.

12. Ganglion cysts: clear, gel-filled cysts along joints or tendon sheaths.

13. Onychomycosis: (nail fungus). OTC tx's don't work, topical Rx's aren't much better. Oral antifungal is best after +PAS confirms dx.

14. Verruca plantaris: plantar warts. HPV infection. High recurrence rate.

15. Tailors bunion (bunionette): painful 5th met plantar/laterally