DPC SUMMIT

Podiatry for Primary Care Physicians

-reasons to love caring for feet

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Learning Objectives

1. Expand comfort and knowledge in common podiatric cases.
2. Review common simple procedures that should no need to be referred to specialist.
3. Review in office tools that will help with eval and treat.

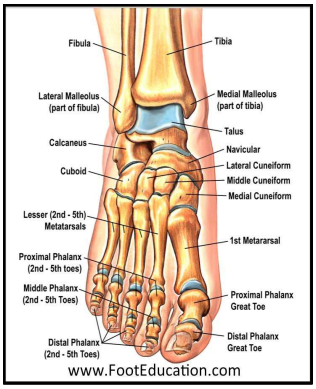
Overview:

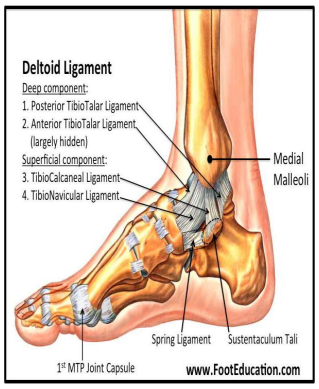
- Anatomy of foot and ankle
- Gait mechanics
- Common Problems of foot and ankle
- Common Procedures–
  - Digital Block
  - Toenail removal
  - Callous paring
  - Plantar wart treatments
  - OMT
- Q & A

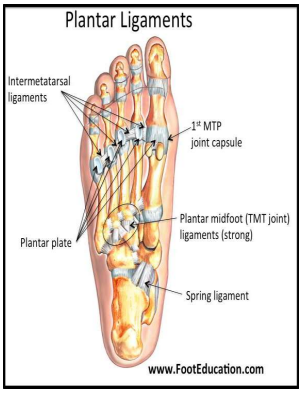
Goals of lecture

- Increase comfort in examining foot and ankle.
- Know anatomy to assess injury/pain mechanism.
- Gain comfort in treating common conditions.
- Comfort with common podiatric procedures.

Anatomy



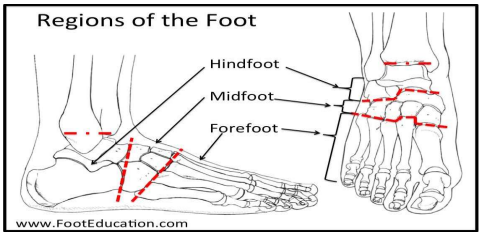




Each foot is made up of 26 bones, 30 joints and > than 100 muscles, tendons and ligaments, all of which work together to provide support, balance and mobility

Anatomy

- *The Hindfoot* -- ankle joint to transverse tarsal joint (a combination of the talonavicular and calcaneal-cuboid joints).
  - talus and the calcaneus.
- *The Midfoot*-- transverse tarsal joint to metatarsals at the tarsometatarsal (TMT) joint.
  - Limited mobility.
  - navicular, cuboid, and the three cuneiforms.
- *The Forefoot* -- metatarsals, phalanges, and sesamoids.
  - last to leave the ground during walking.
  - 21 bones in the forefoot: five metatarsals, fourteen phalanges, and two sesamoids.



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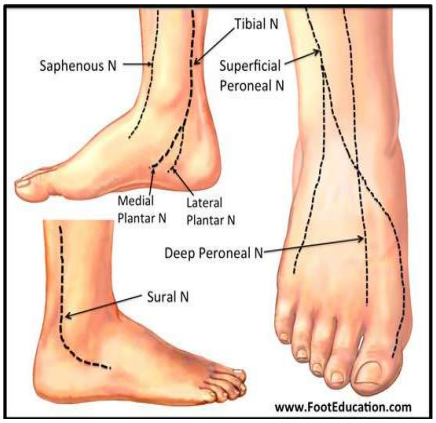
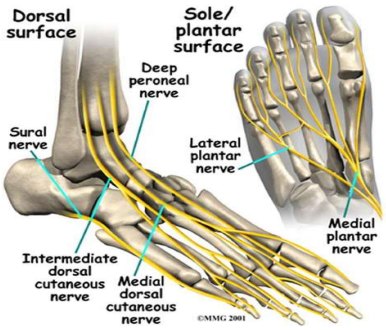
Innervation





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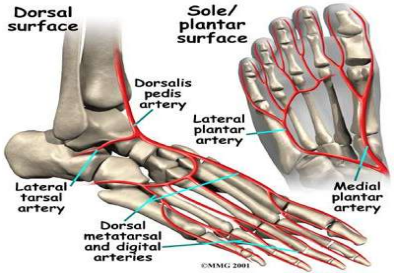
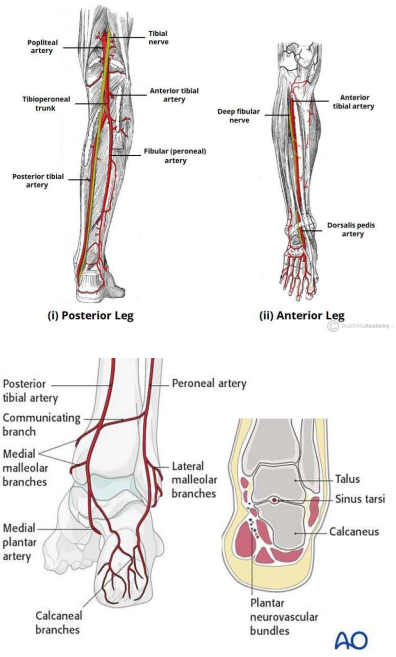
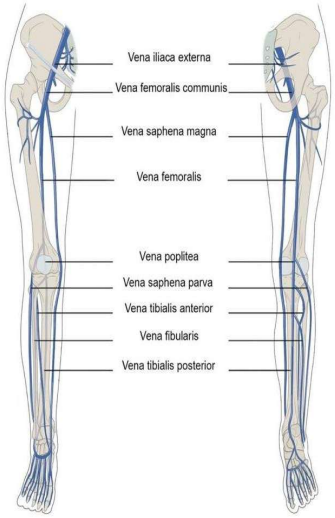
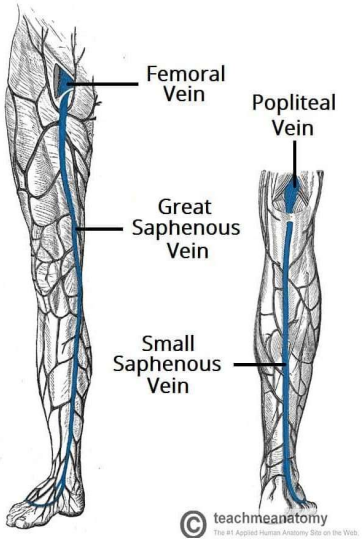
Arterial circulation

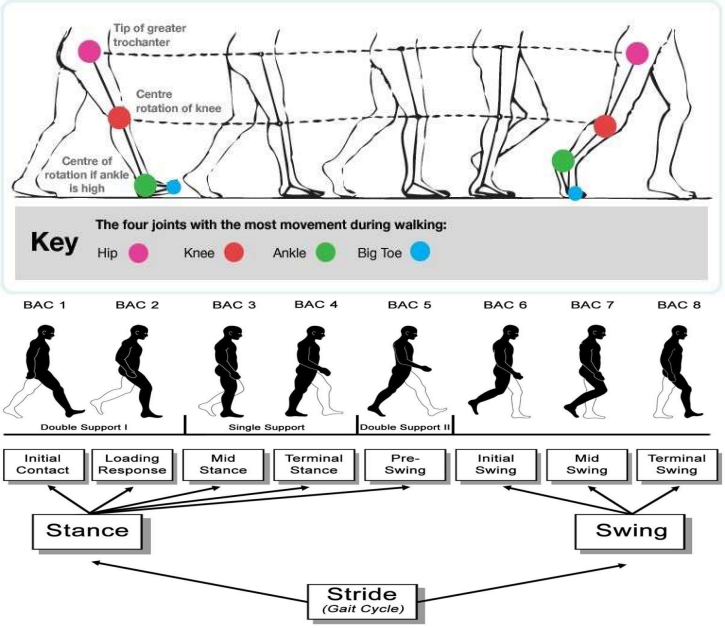




Veins of the Lower Extremity







Heel-Strike, Support, Toe-Off, Leg Lift, and Swing.

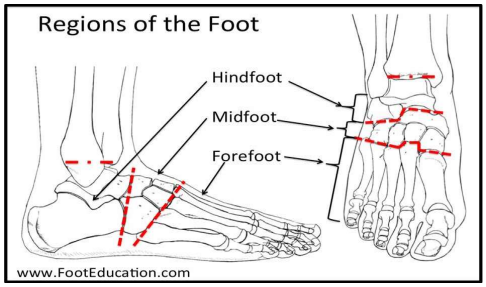
At every level of anatomy and function things can go wrong--
know your form and function!

FOOT AND ANKLE CONDITIONS & INJURIES

- Ganglion cysts
- Sprained Ankles
- Bunions, Calluses and Corns
- Diabetic complications
- Vascular lesions
- Hammer, Claw, and Mallet Toe
- Plantar Fasciitis
- Heel Pain
- Fractures
- Flat Feet
- Achilles Tendon Injury
- Peripheral Neuropathy
- Onychomycosis
- Plantar Warts
- Joint Injury
- Foreign bodies

Foot Pain

- Forefoot:
  - Neuroma
  - Nails: Ingrown, trauma, onychomycosis
  - Bunion
  - Hammer Toes
- Midfoot:
  - Plantar fasciitis
  - Pes cavous (high arch)
  - Pes Planus (flat arch)
- Posterior Foot:
  - Sprain
  - Heel Spurs
  - Contusion
  - Tarsal Tunnel



Skin Conditions

- Warts
- Ulcers
- Callous
- Onychomycosis
- Dishydrotic Eczema:
  - small blisters on the palms of hands, soles of the feet and edges of the fingers and toes
- Diabetic skin changes
- Vascular changes

Procedures

Nail Trimming

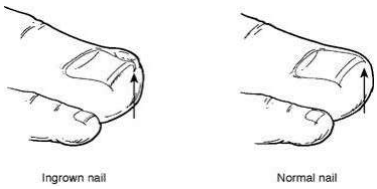
Wide opening standard clippers vs Nail Nippers for thick nails

Ingrown Nail Removal

- Granuloma formation and infection caused by ingrown nail
- Only remedy is removal of chronic pressure – NOT antibiotics

Ingrown Nail

Lateral edge is painful and edematous



Instrument Tray

- Anesthesia
- Tourniquet
- Locke Periosteal elevator
- Anvil Nail splitter
- Iris scissors
- Curette
- Hemostat
- Monsels or Silver Nitrate
- Bacitracin Plus Lido
- 2x2 gauze, rolled gauze, & coban

DIGITAL BLOCK

Important for any nail or joint manipulation, biopsy, procedures of toes that require going below top layer of skin

The tibial and peroneal nerves branch off into the digital nerves of the lower extremities

Palpate joint space, artery.

Betadine prep (twice) and let dry and then wipe with alcohol-- because we hate germs

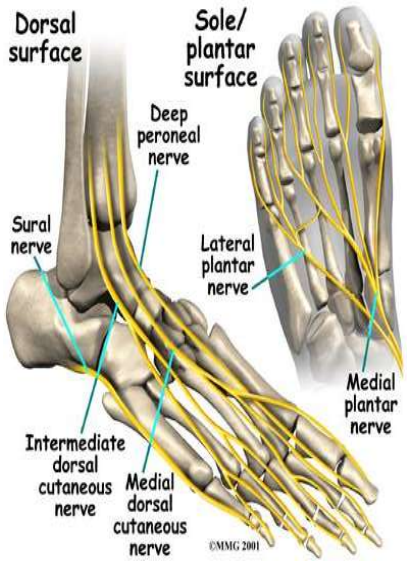
25 g ½ in needle, lidocaine WITHOUT epi

Webspace injection:

Hold the syringe perpendicular to the digit and insert the needle into the web space, just distal to the metatarsaal-phalangeal (MTP) joint 3-5 cc

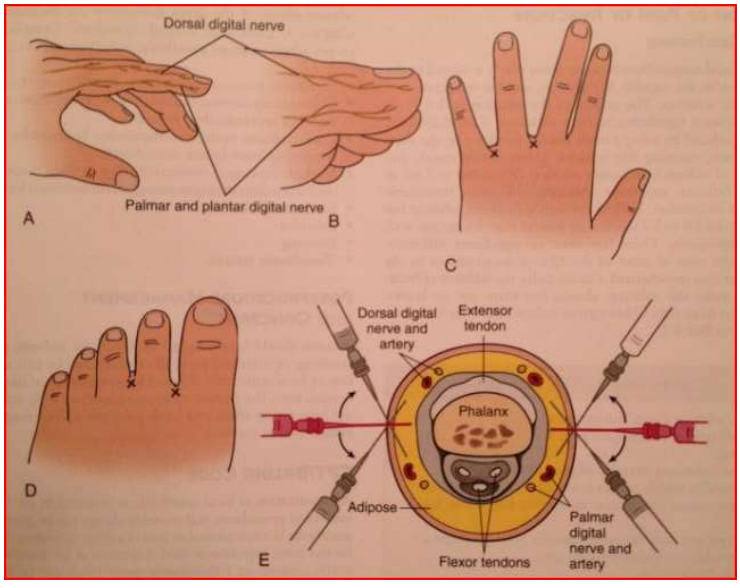
Medial Joint Injection for Great Toe: inject perpendicular and fan superior and inferior direction. 3cc

Test tip of toe for sensation



Digital Nerve Block

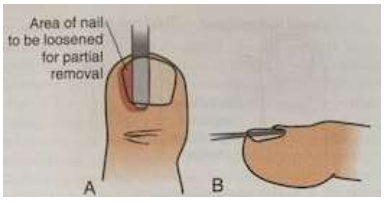
Adapted from Amundsen, G., *Local Anesthesia*, in *Procedures for Primary Care*. 2011, Elsevier Mosby



Ingrown Nail Removal

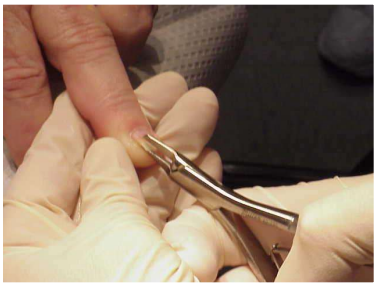
Tourniquet

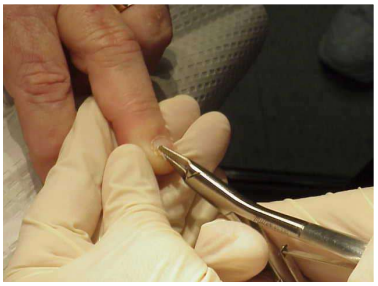
Locke periosteal elevator



Nail plate splitting

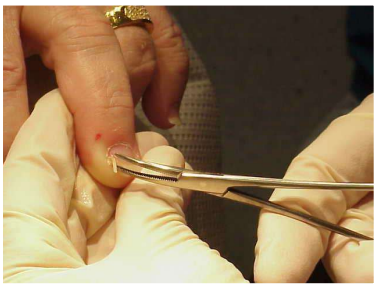
Split lateral nail plate proximal to nail matrix

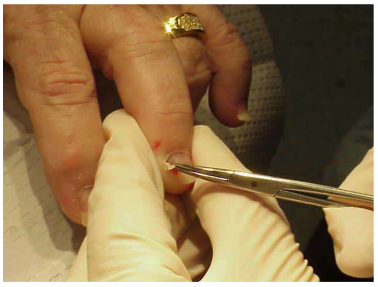




Nail Removal

Use hemostats to remove the split nail edge





After Removal

Debridement & Hemostasis

- Curette out hypergranular, colonized/infected tissue
- Apply monsels or silver nitrate for hemostasis

After Care

- Apply antibiotic ointment, gauze and coban
- If no signs of infection, no need for PO Abx's
- Instruct patient to keep digit clean and dry, changing dressing daily until heals
- Loose shoes (post-op)
- WBAT but no vigourous exercises
- Tylenol for pain
- Healing time 6-8 wks
- RTO in 4-7 days

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Recurrent Ingrown Nails

- Permanent Destruction of Nail Matrix, aka nail bed ablation or matrixectomy
  - Consider destruction of nail matrix with recurrent ingrown nails to prevent further nail plate growth
    - Phenol application (3min hold), avoid contact with normal skin; then drip 70% alcohol to neutralize the phenol
    - Incise proximal nail fold along the nail plate removal site, excise the matrix, repair the wound, & dress

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Common Errors

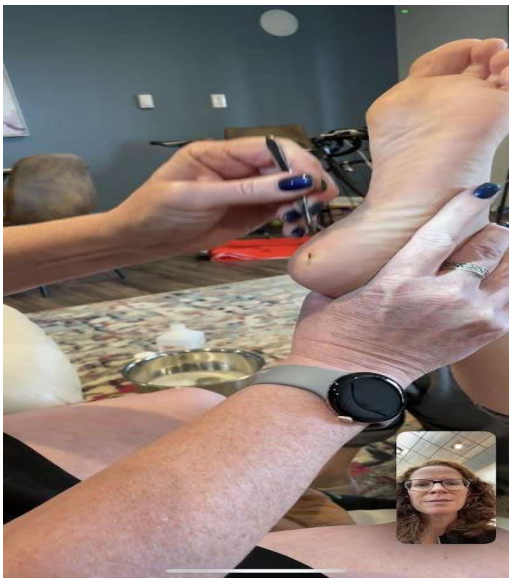
1. Inadequate anesthesia resulting in pain & discomfort (need 6-10cc of 1% lidocaine)
2. Prolonged use of tourniquet resulting in ischemia (>20 min)
3. Retained Nail: Examine the nail fold (eponychium) for any retained portion of the nail, as it may cause persistent pain.

Callus/Corn Treatment

- Removal of cause for mechanical stress, eg,
  - properly fitting shoes, moleskin, foam adhesive pads, diabetic socks
- Keratolytics
  - 40% salicylic acid pads and ointment
  - 40% urea cream
  - 12% lactic acid cream
- Curretage/Dermablade/Scalpel
  - PARE: to trim something by cutting away its outer edges.

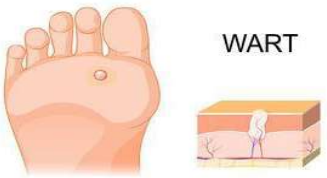
Callus Treatment

POWER of TELEHEALTH, Splinter Removal



- https://youtube.com/shorts/uR1KajlNv_8?si=6UW0G71QCmneT0I9
- https://youtube.com/shorts/Mq8luPKDTYo?si=2JQZkjxyjN8KZbmf
- https://youtube.com/shorts/NebYRgyEIc8?si=cvTTJ9lqD9-1o5gy

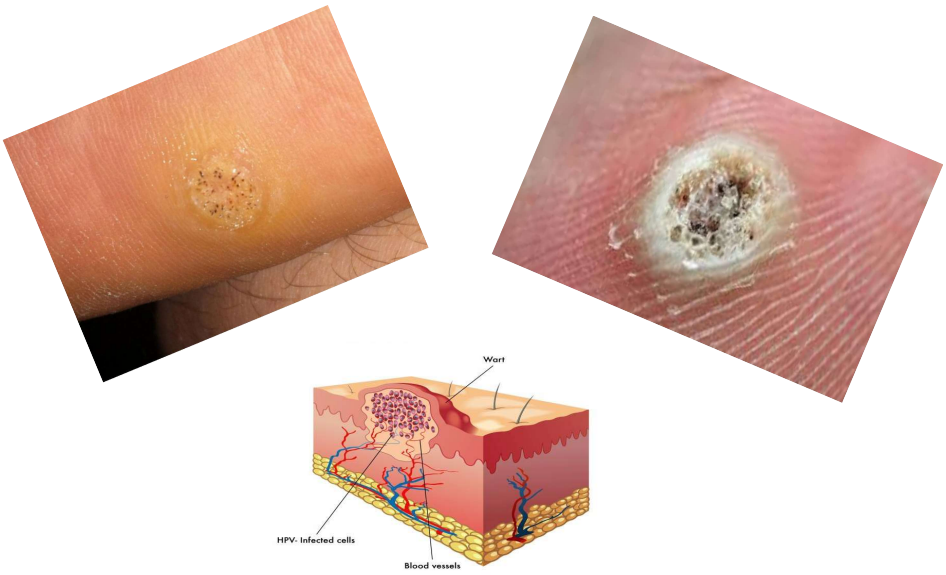
PLANTAR WART TREATMENT OPTIONS



- Remember to sterilize shoes, showers, high contact areas
- OPTIONS:
  - Pare callous and treat with cryotherapy
  - Surgically remove the entire wart and core
  - Home treatment with salicylic acid, soaks and callous thinning
  - COMBINATION OF THE ABOVE MOST LIKELY NEEDED

If pt needle phobic or the wart is deep, can treat in increments and have pt use salicylic acid compound at home between visits

Plantar Wart



Flexible Derma blade

Good control of depth and shape of area to be excised.

Versatile tool that can be used on many contoured locations of the body

Paring of callus, wart or full excision of wart

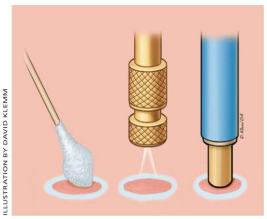
Dermal Currette

Wart Cryotherapy

- Pare Callus prior to treatment to partially remove wart and reactive hyperkeratotic skin
- Swab, Cryogun or Probe
- Freeze-thaw 30-45 seconds, 2 cycles, 2-3 mm margin
  - Ice crystals cause destruction of cellular tissue
- Repeat 2-3 x in a month
- Often requires shave or curetting of callous before each session to allow better penetration of cryotx
- Benefits:

  Inexpensive, no need for needles or anesthetic, low bleeding risk
- Complication:

  Blister, infection, pigment change



Wart Excision

- Local anesthetic is administered
- The edges of the wart are circumscribed
- curette is used to scoop out the plantar wart in its entirety
- The area is dressed appropriately for optimum healing

- Benefit: Single treatment, remove in entirety

- Complication: Longer recovery due to deeper treatment
- need for local anesthetic
- Open wound on the foot

Non surgical treatment

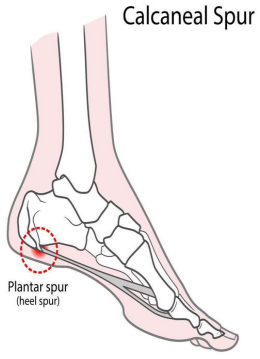
- Imiquimod– generally second line agent, can be helpful for large wart clusters
  - Apply at night
  - Alternate with salicylic acid
  - Debride hyperkeratotic skin between treatments
  - (can also take several weeks to fully respond)
- Compound W (salicylic acid)
- Duct tape occlusion

Billing

- **CPT code 17110** should be billed
- (Destruction (e.g., laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement), of benign lesions other than skin tags or cutaneous vascular lesions; up to 14 lesions).
- https://www.aafp.org/pubs/afp/issues/2012/1215/p1118.html

Plantar Fasciitis vs Heel Spur

- Assess: footwear, change in activity level
- Standing at job, new shoes, Anatomy (flat feet or a high arch)
  - Tx: ice massage, stretching, compression for arch and ankle, change footwear, avoid walking barefoot on hard surfaces
  - Injection steroid or Prolotherapy or PRP
- Heel spur more focal
  - Heel cup, off loading
  - Injection, steroid, Prolotherapy, PRP



Plantar Fascia and heel support

Osteopathic Treatment of the foot

- BLT
- Muscle Energy to flexor and extensor compartments
- Soft tissue
- HVLA for dropped navicular

Live Content Slide

When playing as a slideshow, this slide will display live content

Social Q&A for Podiatry for the Primary Care Physician