**Anatomy**

* Bones:
  + Hindfoot: Talus, Calcaneus
  + Midfoot: Navicular, Cuboid, Cuneiforms (3)
* Forefoot: Metatarsals (5), Phalanges (14)
* Ligaments: EHL, FHL, Lisfranc ligament
* Cartilage: Plantar aponeurosis
* Tendons: Achilles

**Radiographs**

* Calcaneus fracture and association with vertebral fractures
* Boehler’s angle
* Gissane’s angle
* Fleck sign

**Physical exam**

* Inspection
* Palpation
* Range of motion
* Special tests
* Neurovascular exam

**Pathological Conditions**

* March fracture
  + Occurs with sudden increases in physical activity
  + Dull/aching pain worse with activity better with rest
  + Radiographs may show fracture, periosteal reaction, cortex blurring
  + Tx. NSAIDs & rest with graded return to activity
* Morton’s neuroma
  + Due to repetitive irritation of nerve against transverse metacarpal ligament
  + Pain between MT heads worse with walking, tight fitting/high heeled shoes
  + *Mulder’s click:* Clicking with compression and palpation of forefoot
  + Tx. Custom fitting shoes vs. surgical neuroma excision
* Plantar fasciitis
  + Progressive pain at inferior and medial heel worse with initial steps
  + Clinically diagnosed by examination
  + *Windlass test*: pain with passive dorsiflexion at 1st MT joint
  + Tx. Rest, ice, NSAIDs, surgery if refractory to conservative management
* Sever’s disease
  + Heel pain in the skeletally immature athlete who actively runs & jumps
  + Clinically diagnosed by examination
  + PE: TTP at calcaneal insertion of achilles, pain with compression test
  + Tx. Rest, ice, achilles tendon stretches, NSAIDs, orthotics

* Metatarsalgia
  + Pain in the plantar aspect of the foot in the region of the metatarsal (MT) head
  + Caused by anatomical misalignment/foot abnormalities
  + Tx. Custom shoes/orthotics to modify pressure distribution, surgery if indicated
* Calcaneal fracture
  + High energy axial loading onto foot (fall from window onto concrete/MVC’s)
  + Associated with spinal compression fractures & compartment syndrome
  + Neurovascular exam, X-rays, CT=gold standard
  + Boehler’s angle, Gissane’s angle
* Jones fracture
  + Injury to zone 2 of 5th MT, mechanism: forefoot adduction
  + Zone 2 fractures: watershed area, prone to non-union
  + Pain over lateral border of forefoot, especially with weight bearing
  + Tx. surgical operation in elite athletes vs. NWB in recreational athletes
* Pseudo-Jones fracture
  + Injury to zone 1 of 5th MT, mechanism: ankle/foot inversion
  + Tx. Protected weight bearing in stiff soled shoe, boot, or cast
* Lisfranc dislocation
  + Hx. high energy trauma or sporting injury
  + Severe midfoot pain with inability to bear weight
  + PE: Neurovascular exam, *piano-key & compression tests*
  + Displacement of MT on X-ray (2-3 common), fleck sign
* Charcot’s joint
  + Neuropathy -> loss of protective sensation -> chronic destruction
  + PE: Warm and erythematous foot
  + X-ray: Joint destruction, deformity, and fragmentation
  + Tx. Non-operative, immobilization, serial casting
* Navicular fracture
  + Hx. Traumatic injury vs. Stress Fx.
  + PE: Midfoot swelling and TTP
  + Stress Fx. more prone to non-union
  + Tx. RICE, crutches, splint vs. fracture boot, consult ortho for displaced fx.
* Metatarsal fracture
  + Hx. Acute trauma vs. chronic stress
  + Tx. Splint ankle at 90**°,** RICE, NWB, compartment syndrome education
* Great & Lesser toe fractures
  + Hx. Direct trauma vs. chronic stress vs. crush injury
  + Tx. RICE, WBAT, short fracture boot