**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