Chapter 4
Clinical Assessment of Foot & Toe Injuries

Part I

Recognizing Common Foot Injuries

Location of Pain

- Identifying the location of pain and the MOI play a big role in identifying the injury.
Location of Pain

- Plantar surface of calcaneus
  - plantar fasciitis
  - rupture of plantar fascia at origin
  - heel spur (medial aspect)
  - contusion

Plantar Fasciitis

- MOI
  - unresolved strain
  - repetitive stress
  - faulty biomechanics
    - pes planus
    - pes cavus
    - weakness of intrinsic & extrinsic muscles
  - poor supporting shoes
  - training errors
    - increased intensity or duration
    - weight gain

Plantar Fasciitis

- S/S
  - c/o sharp stabbing pain on first step in morning
  - pain usually reported most at the fascia's origin on medial calcaneal tubercle
  - can also be painful along entire course of fascia
Plantar Fasciitis

**S/S**
- Initially, athletes will report that it hurts more at the beginning of a run, but then subsides
- With increased severity, the pain will become more constant

**Palpation?**
- Point tender at medial calcaneal tubercle
- May also be tender along entire course of fascia

**Assessment**
- **AROM**
  - PF, DF
- **PROM**
  - DF (stretches the plantar fascia & gastroc/soleus)
- **RROM**
  - PF, DF (may find weakness in both)
Plantar Fasciitis

**Assessment**
- examine foot type

**Management**
- Ice initially (ice massage)
- NSAIDs
- Ultrasound
- Heel lift/heel insert
- Stretching of Achilles and plantar fascia
- Use of night splint
- Modified activity until inflammation subsides
- Orthopedist may inject site with cortisone (this should be done only once)
- Elimination of predisposing factors when possible

**Return to Play**
- depends on the severity

- **Mild**
  - Pain at beginning of workout only

- **Severe**
  - Pain is constant

**Plantar Fasciitis**

**Return to Play**
- depends on the severity

- **Mild**
  - Pain at beginning of workout only

- **Severe**
  - Pain is constant
Plantar Fasciitis

**Return to Play**
- stretch plantar fascia & gastroc/soleus
- tape for workout & possibly during day
- orthotic arch support
- ice following workout

Rupture of Plantar Fascia

**MOI**
- excessive stretch of plantar fascia

**S/S**
- immediate pain
- may report having heard or felt a pop
- difficulty bearing weight
- discoloration
- swelling
- development of hammer toes

Rupture of Plantar Fascia

**Treatment**
- ice
- immobilize in PF
- crutches
- refer to orthopedist
  - MRI
  - surgery
Heel Contusion (stone bruise)

**MOI**
- direct blow to heel (stepping on hard object)

**S/S**
- pain on plantar surface of calcaneus
- Evaluation
  - point tender over bruised area

**Management**
- ice
- heel cup
Heel Spur

- Exostosis on medial calcaneal tubercle
- S/S
  - similar to those of plantar fasciitis
  - pain more prevalent on heel strike

Diagnosis

- x-rays are necessary to truly identify a heel spur

Treatment

- similar to plantar fasciitis
- surgery may be required if spur does not respond to conservative treatment

Location of Pain

- Medial aspect of heel
  - Tarsal tunnel syndrome
Tarsal Tunnel Syndrome

- Entrapment of the posterior tibial nerve or one of its branches within the tarsal tunnel
- MOI
  - previous plantarflexion-eversion injury
  - faulty biomechanics or foot posture

Tarsal Tunnel Syndrome

- Predisposing factors
  - rearfoot varus
  - pronated feet
  - unstable medial longitudinal arch
  - internal tibial rotation

Tarsal Tunnel Syndrome

- S/S
  - pain, burning, or numbness along the medial plantar surface of heel
  - pain increases with activity, decreases with rest
Tarsal Tunnel Syndrome

- **Physical Exam**
  - symptoms reproduced with passive DF and eversion of foot
  - positive Tinel’s Sign

Tarsal Tunnel Syndrome

- **Definitive Diagnosis**
  - MRI
  - nerve conduction tests

- **Treatment**
  - NSAIDs
  - correct faulty biomechanics
    - medial heel wedge to correct pes planus
  - corticosteroid injection
  - surgery to decompress the tarsal tunnel

Location of Pain

- **Forefoot (metatarsals)**
  - Fx
    - midshaft
    - avulsion
    - Jones fx
    - Lisfranc fx/dislocation
Forefoot Fractures

**MOI**
- direct trauma
- dynamic overload
- repetitive forces
- faulty biomechanics or foot posture

Forefoot Fractures

**S/S**
- deformity
- swelling
- discoloration
- sharp pain
- heard or felt a pop

Forefoot Fractures

**Physical Exam**
- pain with palpation
- pain with AROM
- pain with tap test
- pain with squeeze test
Forefoot Fractures

- Treatment
  - ice
  - immobilize (splint, boot)
  - crutches
  - refer to orthopedist

Questions?