Foot and Ankle Injuries in the Adolescent Athlete

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Foot and Ankle Injuries

• Very common
• Influenced by the unique properties of growth plates
• Significant source of disability
• Prognosis determined by effective non operative mgnt

Epidemiology of Foot and Ankle Injuries

• Most common injuries among all three levels of NCAA athletes (5 X more common than ACL, 3 X more common than concussion)
• Most common injury in high school basketball athletes (40%)
• Most common injury in Athens Olympics, 2nd most common injury in Salt Lake Olympics
Initial Evaluation of the Injured Athlete

- History to determine mechanism of injury
- Examination of the entire foot and ankle
- Comparison examination of the other limb

Specific Injuries

- Syndesmosis injuries (high ankle sprain)
- Lateral ankle sprains
- Peroneal tendon injury and instability
- Lisfranc injuries
- Fifth metatarsal fractures (Jones fractures)
- Osteochondral injuries of the Talus
- Fractures

Properties of the Distal Tibia/Fibula Physis

- Distal tibia closes central, medial, lateral
- Distal fibula physis more vulnerable than lateral ligaments
- Unique fractures juvenile tilieux and triplane
Juvenile Tilleaux Fracture

Tibiofibular Syndesmosis Injuries
- Result of forced external rotation injury on dorsiflexed foot
- 1%, longer recovery, residual symptoms
- Stable vs unstable
- Clinical findings
- Physical exam findings
- Radiographic findings

Syndesmosis Injury – Physical Exam
Syndesmosis Injuries
Radiographs

Management of Stable Syndesmosic Injuries
• Immobilization until able to weight bear
• Physical therapy focusing on range of motion, strengthening, and proprioception
• Symptoms lingering beyond 6 weeks
• Supervised return to sport

Management of Unstable Syndesmosis Injuries
• Surgical
• Fixation with screw(s) or suture
• Controversy re: removal of screws
• High rate of mal-reduction
Lateral Ankle Sprain (Inversion Injury)

Grading of Lateral Ankle Sprain (AMA ‘66)

• Grade I – Stretched lateral ligament
• Grade II – Partial tear of lateral ligament
• Grade III – Complete tear of lateral ligament

DDx of Lateral Ankle Sprain
**Acute Lateral Instability**

- Common injury
- In competition mgmt
- Treatment non surgical with RICE, mobilization, strengthening, supervised return to sport
- Associated injuries osteochondral talus or peroneal tendon

**Recurrent/Chronic Lateral Ankle Instability**

**Surgical Mgmt of Chronic Lateral Ankle Instability**
Surgical Mgmt of Chronic Lateral Instability

Peroneal Tendon Injury

• Can be associated with lateral ankle sprain
• Variability between athletes
• Role of immobilization/bracing
• Surgical mgmt

Peroneal Tendon Instability
Case Scenario - PB

Lisfranc (Midfoot injuries)

- Result of axial injury to the heel of a dorsiflexed foot
- History c/w “pop”
- Pain with palpation, WB, and stress
- Stable v unstable

Lisfranc Anatomy
Lisfranc Imaging-
Radiographs v MRI

Management of Lisfranc
Injuries

- Non operative mgmt of stable injuries
- Protected weight bearing
- Rehabilitation with focus on range of motion and strengthening
- Supervised return to sports
- Prolonged convalescence

Talus Osteochondral Injuries

- Acute or Chronic
- Acute – Anterolateral
- Chronic – Anteromedial
- Management based on chronicity of lesion
Acute Osteochondral Injuries of the Talus

- Associated with lateral ankle sprain
- Lateral in location
- Accompanied by ankle hemarthrosis, inability to weight bear
- Treatment is surgical

Chronic Osteochondral Injuries of the Talus

- Repetitive microtrauma
- Medial in location
- Vague, poorly localized pain
- Identified by radiograph
- Staged by MRI
- Role for non-operative mgmt

5th Metatarsal Fracture (Jones)

- Associated with ankle sprain
- Diaphyseal fracture “watershed”
- Consider surgical mgmt
Jones Fracture

![Image of a Jones Fracture]

Prevention of Foot and Ankle Injuries

- Injury Surveillance – break away bases
- Modification of shoe wear
- Modification of playing surface
- Utility of high top shoes, taping, and braces
- Utility of injury prevention programs