Ankle Injury/Sprains in Youth Soccer Players

Elite Soccer Community Organization (ESCO)

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Ankle Injury/Sprains

- Estimated 30,000 ankle sprains per day in the USA
- 75-95% of sprains are lateral
- Running and jumping sports have highest risk for sprains
  - 40% of all athletic injuries involve the ankle
- Significant risk of re-injury or chronic symptoms with inadequate treatment
  - 20% of patients have residual symptoms
Pediatric Ankle Injury/Sprains

- Youth athletes are at risk of injury to the growth plate
  - Especially sports involving lateral motion and jumping such as soccer

- Pediatric ankle injuries typically occur during sports or vigorous play when a child's lower leg or foot twists unexpectedly
Ankle Sprain

ANTERIOR TIB.-FIB. LIG.

ANTERIOR FIBULO-TALAR LIGAMENT

CALCANEO-FIBULAR LIGAMENT
Ankle Sprain

- The most common sports medicine injury to the foot and ankle
- Anterior Talofibular Ligament [ATFL] is the ligament injured most frequently
Clinical Practice Classification

- **Grade I**
  - Stretch of the ligament without macroscopic tearing
  - Mild swelling or tenderness
  - No functional loss
  - No mechanical instability
Clinical Practice Classification

- **Grade II**
  - Partial macroscopic tear of the ligament(s)
  - Moderate pain, swelling, tenderness
  - Some functional loss
  - Mild to moderate instability
Grade III
- Complete rupture of the ligament(s)
- Severe hemorrhage, swelling, tenderness
- Functional loss
- Abnormal instability
Treatment

**Grade I, II**

- **Recover quickly with non-operative management – good prognosis**
  - Brace for 21 days
  - RICE
  - Oral anti-inflammatory medication
  - Early active ROM exercises

**Grade III**

- Flex Cast/Unnas Boot
- Brace or below the knee boot for 21 days
- RICE
- Formal physical therapy protocol
Acute Grade III Treatment

- Treatment options
  - Primary repair and cast immobilization
  - Cast immobilization
  - Functional treatment
    » Strapping
    » Early controlled mobilization

- Advantage for functional treatment in majority of studies
  - Earlier time to absence of symptoms, return to work, return to physical activity
  - No complications
  - No increased late symptoms
A critical appraisal of the literature supports the concepts of early mobilization with a proper rehabilitation protocol


Post-injury

- Altered proprioception
- Increased peroneal latency
- Ankle inversion-eversion weakness

Minimum 6 week therapy protocol aimed at restoring these post-injury issues

- Incomplete rehabilitation common cause of persistent symptoms
  
  » Restricted ankle ROM – most commonly dorsiflexion
Who is Referred for PT?

- Grade II with history of multiple previous ankle sprains
- Grade III
- Chronic Ankle Instability
- Lateral ankle sprain with associated peroneal tendon injury
Growth Plate Injury of the Ankle

- Require immediate attention and treatment
- Growth plates
  - areas of developing cartilage tissue that regulate bone growth and help determine the length and shape of the adult bone
- Potential long-term consequences
  - Abnormal growth of leg
  - Unequal length of legs
- Pediatric ankle fractures account for 9% to 18% of all growth plate fractures
Growth Plate Injury of the Ankle
Growth Plate

- Last portion of bones to harden
- Vulnerable to fracture
- Ligaments within the ankle are generally stronger than the growth plates
- Rolling the ankle that would result in a sprain in an adult is more likely to cause a growth plate fracture in a child

Growth Plate Closure

- 12-14 Girls
- 14-16 Boys
Growth Plate Injury of the Ankle

- A strong sign of a fracture is when a child cannot put weight on the injured ankle.

- Isolated distal fibular growth plate fractures generally heal well when treated with a short-leg walking cast or boot for 4-6 weeks.

- Distal tibia growth plate fracture require closed reduction.
  - Displacement > 2 mm after attempted closed reduction requires surgery.
Questions

Thank You!

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