Anterior Talofibular Ligament Sprain of the Ankle

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Lateral Ankle Sprain

- Inversion is most common mechanism
- Talofibular ligament often involved
- Potential for avulsion fractures of the lateral or medial malleolus
Prophylactic Taping for the Lateral Ankle Sprain

Closed Basket Weave
Ankle Taping

Note the foot at 90°
heel and lace pads

Angle tape to avoid wrinkles
medial to lateral direction
First horseshoe
Figure of eight

First step of lateral heel lock
Second step of lateral heel lock
Final step of lateral heel lock
Completed tape job
Prophylactic Taping for the Lateral Ankle Sprain

Figure 1
(1) Anchor strip just below the belly of the calf.
(2) Anchor strip overlapping step 1 by half.

Figure 1
(3) Stirrup strip starting on medial side of the ankle.
(4) Tie-down to secure the stirrup.

Figure 1
(5) Second stirrup just above step 3 by half.
(6) Tie-down to secure stirrup.

Figure 1
(7) Heel lock starting on the medial side of the leg, looping the heel and back up where it started.

Figure 1
(8) Opposite of step 7

Figure 1
(9) Figure of eight starts on the lateral malleolus, goes through the arch, back across the instep, and around the top of the ankle.

Figure 1
(10) Tie-down around instep of the foot

Figure 1
(11-15) Tie-down covering the remainder of the tape job.
Prophylactic Bracing for the Lateral Ankle Sprain

- lace-up ankle support
- Example of a brace for immobilization or functional purposes
- secured with Velcro straps
- lace-up ankle support brace with figure-8 straps
Ankle Evaluation

1. CHECK LIFE THREATENING SITUATIONS
   _____ABC'S (airway, breathing, circulation)
   _____Traumatic shock

2. HISTORY OF THE INJURY
   _____where does it hurt
   _____when did it happened
   _____how did it happen
   _____position of foot before the injury
   _____position of foot after the injury

3. HISTORY OF THE INDIVIDUAL
   _____have you had a previous injure to this area
   _____ -did you see physician
   _____ -what was your rehabilitation
4. OBSERVATION

_____compare opposite sides of body
_____look for swelling
_____look for deformity
_____look for ecchymosis (discoloration)
Ankle Evaluation

5. PALPATE
   _____ tell the athlete it will hurt and why
   _____ palpate for pain or point tenderness
   _____ palpate for bumps or deformities
   _____ start away from the suspected injury
   _____ bones (Tibia, Fibula, Tarsals, Metatarsals, Phalanges)
   _____ squeeze the malleoli
   _____ muscles/tendons
   _____ palpate deltoid ligaments
   _____ palpate lateral ligaments (all 3)
Ankle Evaluation

6. TEST STRUCTURAL INTEGRITY

_____ sensory nerves
_____ motor nerves
_____ circulation

_____ Active ROM
_____ - dorsi, plantar flexion
_____ - inversion, eversion

_____ Passive ROM
_____ - dorsi flexion
_____ - inversion, eversion
_____ - planter flexion
_____ - inversion with plantar flexion

_____ Resistive ROM
_____ - dorsi flexion
_____ - inversion, eversion
_____ - planter flexion
_____ - inversion with planter flexion

_____ Special tests
_____ - anterior drawer test with rational
_____ - talar inversion stress test with rational
_____ - Thompson test with rational
_____ - Kleiger test with rational
Ankle Evaluation

7. TEST FUNCTIONAL ACTIVITY

_____**only if you suspect a mild injury**

_____walk

_____hop 10 times on injured leg (if walking is pain free)

_____jog (if hopping is pain free)

_____run and cut (if jogging is pain free)
Ankle Evaluation

8. DECISION AND ACTION
   _____ if it is a mild injury--tape & play
   _____ if it is a moderate injury--ICE & rest
   _____ if it is a severe--refer to a physician

9. RE-EVALUATE
   _____ after ICE, if used
   _____ throughout rehabilitation

10. RECORD RESULTS
    _____ enter injury report in records
## Classification

<table>
<thead>
<tr>
<th>O’Donohue’s Classification of Ligamentous Injury</th>
<th>Leach’s Classification of Ankle Ligament Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade I</strong></td>
<td>First degree sprain</td>
</tr>
<tr>
<td>Partial tear of the ligament</td>
<td>Partial tear of the ligament</td>
</tr>
<tr>
<td>• Mild tenderness</td>
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</tr>
<tr>
<td>• Mild swelling</td>
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</tr>
<tr>
<td>• Slight or no functional loss</td>
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</tr>
<tr>
<td>• No mechanical instability</td>
<td>• No mechanical instability</td>
</tr>
<tr>
<td><strong>Grade II</strong></td>
<td>Second degree sprain</td>
</tr>
<tr>
<td>Incomplete tear of the ligament</td>
<td>Incomplete tear of the ligament</td>
</tr>
<tr>
<td>• Moderate pain</td>
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</tr>
<tr>
<td>• Moderate swelling</td>
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</tr>
<tr>
<td>• Mild to moderate ecchymosis</td>
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<tr>
<td><strong>Grade III</strong></td>
<td>Third degree sprain</td>
</tr>
<tr>
<td>Complete tear with loss of integrity of the ligament</td>
<td>Complete tear with loss of integrity of the ligament</td>
</tr>
<tr>
<td>• Severe swelling</td>
<td>• Severe swelling</td>
</tr>
<tr>
<td>• Severe ecchymosis</td>
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<tr>
<td>• Loss of function/motion</td>
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**O’Donohue’s Classification**
- **Grade I**: Partial tear of the ligament
  - Mild tenderness
  - Mild swelling
  - Slight or no functional loss
  - No mechanical instability

- **Grade II**: Incomplete tear of the ligament
  - Moderate pain
  - Moderate swelling
  - Mild to moderate ecchymosis
  - Some loss of motion/function
  - Mild to moderate instability

- **Grade III**: Complete tear with loss of integrity of the ligament
  - Severe swelling
  - Severe ecchymosis
  - Loss of function/motion
  - Mechanical instability

**Leach’s Classification**
- **First degree sprain**: Rupture of the anterior talofibular ligament
- **Second degree sprain**: Rupture of the anterior talofibular and the calcaneofibular ligaments
- **Third degree sprain**: Rupture of the anterior talofibular, calcaneofibular and the posterior talofibular ligaments
The 10 Phase Approach To Rehabilitation
Structural Integrity

- anatomical structures are intact
  - surgery
  - immobilization
  - rest
Acute Lateral Ankle Sprain Treatment

R.I.C.E.

Duration of Rest, Ice, Compression, Elevation

Grade I: 12 to 48 hrs.
Grade II: 12 to 72 hrs.
Grade III: 1 to 7 hrs.

Immobilization

Duration of Immobilization

Grade I: NOT usually necessary
Grade II: 1 to 2 weeks
Grade III: 3 to 6 weeks

Splinting/Bracing

Duration of Splinting/Bracing

Grade I: NOT usually necessary
Grade II: 1 to 4 weeks
Grade III: 1 to 6 months

Physical Therapy

Duration of Rest, Ice, Compression, Elevation

Grade I: Not Required
Grade II: 3 to 12 weeks
Grade III: 2 to 6 months
Acute Lateral Ankle Sprain Treatment

Total Duration of Management

Grade I: 1 to 3 weeks
Grade II: 3 to 12 weeks
Grade III: 2 to 6 months
Joint Flexibility

- Decreased joint flexibility results from:
  - muscle spasm, pain (Therapeutic exercise with cold)
  - connective tissue adhesions (Therapeutic exercise with heat)
- When 80% of flexibility is restored rehabilitation emphasis moves to the development of muscular strength.
**Muscular Strength**

- Must perform a progressive resistive exercise on a regular basis. (DAPRE)
- Each side of the body should be worked independently.
- Once strength in the injured side is 90% of the non-injured side, emphasis moves to the development of muscular endurance.
Closed Chain
Ankle Strength Exercises
Advanced Ankle Strength Exercises
Muscular Endurance

- Stationary bike
- Running when tolerated (jog 400 meters first day and increase by 400 meters each 1 or 2 days)
- When athlete can run 1 mile emphasis should move to next phase
- **Muscular Speed**
  - high intense stationary bike
  - Cybex
- **Muscular Power**
  - Isokinetic devices
  - high-speed resistive work
- **Skill Patterns**
  - Participation in team drills at 2 speed
  - Sport-specific skill patterns

- **Agility**
  - Participation in team drills at 3/4 speed to full speed
  - Skill patterns are performed quickly and speedily
Cardiovascular Endurance

- develop creative ways to maintain cardiovascular endurance throughout rehab.