Rehabilitation after ankle injuries

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What are our objectives?

• Principles of Orthopedics management of ankle injuries
• Role of PT in ankles injuries
What do we mean by ankle injuries?

• Ankle sprains
• Ankle fractures
• Distal tibia intra-articular fx (pilon or plafond OTA/ AO 43 fx)
• Others
Common Questions?

• Acute phase management
• Showering/ bathing
• WB status
• ROM exercises
• Strengthening exercises
• Balancing exercises
• When can I go back to work?
• When am I able to drive?
Ankle sprains

- Severity
- Location of the sprain:
  - Lateral ankle sprain
  - Deltoid sprain
  - High ankle sprain
- Onset:
  - Acute vs chronic
Varieties of ankle sprain

- **Inversion**
  - Calcaneofibular

- **Eversion**
  - Deltoid ligament

- **High Ankle**
  - Syndesmotic tear

### Ankle Sprain Classification by Grade

<table>
<thead>
<tr>
<th>Severity</th>
<th>Physical Exam Findings</th>
<th>Impairment</th>
<th>Pathophysiology</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>Minimal tenderness and swelling</td>
<td>Minimal</td>
<td>Microscopic tearing of collagen fibers</td>
<td>Weight bear as tolerated, physical therapy</td>
</tr>
<tr>
<td>Grade 2</td>
<td>Moderate tenderness and swelling, Decreased range of motion, Possible instability</td>
<td>Moderate</td>
<td>Complete tears of some but not all collagen fibers in the ligament</td>
<td>Immobilize with air splint, Physical therapy</td>
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<tr>
<td>Grade 3</td>
<td>Significant swelling and tenderness, Instability</td>
<td>Severe</td>
<td>Complete tear or rupture of ligament</td>
<td>Immobilization, Physical therapy, Possible surgical reconstruction</td>
</tr>
</tbody>
</table>
Location of ankle sprain
Rehabilitation after Ankles sprains
Acute phase care: goals

- Limit inflammation, reduce pain, unload and protect the joints as necessary
- Assess the Ability to WB
- Observe the gait/ability to walk without limping
Acute interventions

- Rice VS PRICE
- Modalities (EMS, US, laser, ultrasound)
- NSAID
- Encourage motion (Prevent stiffness / Maintain greater post injury ROM)
- Manual mobilization/manipulation
- Protect, brace and support:
  - Crutches
  - Bracing options
Operative RX for severe lateral ankle sprains

- If displacement is more than > 2 mm
- Extensive grade III ankle sprains
Severe ankle sprains

• May need surgery
• Intensive PT needed
Deltoid ligament ankle sprain

• Partial tear
• Complete tear
High ankle sprain

- High ankle sprains: return to work/ play
- Intensive PT
- Covered by Becky
Chronic ankle pain or instability

• Difficult problem
• May need operative RX
Functional rehabilitation

• Initial goals:
  • Prevent further loss of range of motion
  • Minimize atrophy
  • Maintain muscle memory

• Intermediate goal:
  • Facilitate healing
  • Restore ranges of motion
  • Increase strength
  • Reestablish motor control
  • Return to work
Rehabilitation of Ankles fx
Post Op course: ankle fx

- Day 1
  - Foot is wrapped in a splint, ice, elevate, take pain medication.
  - Expect numbness in foot 12-24 hours, bloody drainage through bandage is expected.
- 10-14 days
  - First follow-up in the office, dressing changed, sutures are removed.
  - A removable boot or short leg is applied, start ankle motion out of the boot 3 times each day.
  - Showering without covering, keep incision dry, no submerging incision area
Post OP RX

• 6 weeks
  • Start stationary bike. No resistance / Start physical therapy to get back strength and movement.
  • Full walking in boot is permitted
  • Do not walk without the boot
  • Boot is needed for 3-6 more weeks
  • An ankle brace is used once the boot is discontinued.

• 9-12 weeks
  • Boot is discontinued and activity as tolerated is begun.
  • Continue with physical therapy as needed.
Pilon fx MOI
Post Op for Pilon FX (43 OTA/ AO C fx)

- Well-padded plaster splint with the foot in neutral position at the end of procedure.
- Pain should be controlled during the first 24 to 48 hours.
- The wound is typically examined in the outpatient clinic area approximately 4 to 5 days postoperatively.
- Limb is subsequently splinted in a neutral position until the sutures are removed at 2 to 3 weeks.
- **A supervised physical therapy program consisting of active, active-assisted, and passive range of motion of the ankle, subtalar, and metatarsophalangeal joints is then initiated**
Pilon Fx

• To avoid equinus contracture, a removable nighttime and resting splint is recommended.

• Partial progressive weight bearing in a removable boot is initiated approximately 12 weeks after definitive surgery. The physical therapy focus at this point **consists of maximization of motion, strengthening, gait training, and the weaning of ambulatory devices such as crutches, canes, and external supports.**

• Postoperatively, edema may be substantial and persist for several months following injury. In addition to patient education regarding this normal phenomenon.

• An elastic stocking is provided to help decrease dependency-related swelling.
Take home message

• PT after ankle sprains/ fx or pilon is critical for successful outcome

• PT should be fast/ cheap and effective to achieved desired outcomes