

## Lateral Ankle Sprain

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### OVERVIEW

**Physiology:** Ankle sprains are a common injury from a supination, or inward rolling motion of the foot. Most injuries involve the “low ankle ligaments” including the anterior talofibular ligament (ATFL) and the calcaneofibular ligament (CFL). Other associated ligament injuries can lengthen the duration of recovery. Ankle sprains can vary in severity from stretching of the ligaments (Grade 1) to complete tearing of the ligaments (Grade 3).

- **Grade 1 (Mild):** Ligaments are mildly stretched but not torn. Mild pain, swelling, and minimal loss of function are common. Recovery typically takes 1-3 weeks with proper care and rehabilitation.
- **Grade 2 (Moderate):** Ligaments are partially torn. Moderate pain, swelling, bruising, and some loss of function are typical. Recovery usually takes several weeks.
- **Grade 3 (Severe):** Ligaments are completely torn or ruptured. Pain, swelling, bruising, and substantial loss of function are common. Full recovery can take several months for return to activity, and symptoms may last longer.
- **High ankle sprain:** Ligaments connecting the tibia and fibula are injured (syndesmosis). This can cause the pain to move up the leg. Recovery is often longer than a low ankle sprain and may involve a longer period of initial immobilization.



There are two components to a stable ankle. The first, **mechanical stability**, is provided by the ligaments (ATFL and CFL) which connect the bones. These are the structures injured in an ankle sprain. The mechanical stability of the ankle is not fully restored until the ankle goes through the tissue healing process. The second, **functional stability**, is provided by the muscles and tendons that draw the foot outward. Functional stability requires coordination, strength, and speed to protect the ankle and ligaments from re-injury. These muscles are often weak after an ankle sprain, and can weaken further with immobilization and decreased use. Strength and balance in these muscles protect the healing ligaments. This is why appropriate rehabilitation is necessary for recovery.

**Symptoms:** Lateral ankle sprains typically cause pain, swelling, bruising, and difficulty walking. You may also experience tenderness around the ankle area.

**Workup:** Ankle sprains are largely diagnosed on physical examination. Often, X-rays are performed to rule out fracture or other injury. For first-time ankle sprains, MRIs are not required to make a diagnosis, but are sometimes used to evaluate for cartilage or tendon injury.

**Initial treatment:** Almost all ankle sprains can be treated without surgery. Even complete tears heal over time, but may require a period of immobilization. Surgical repair may be needed for chronic instability that does not resolve with appropriate rehabilitation or if there are other associated injuries. Following the RICE protocol can help manage symptoms and speed recovery:

- *Rest:* Limit activities that worsen the pain.
- *Ice:* Apply ice wrapped for 20 minutes every 2-3 hours to reduce swelling.
- *Compression:* Use an elastic bandage or brace to provide support and limit swelling.
- *Elevation:* Keep the affected ankle elevated above heart level to reduce swelling.

**Gradual weight-bearing:** Once pain and swelling decrease, gradually start putting weight on the injured ankle with the help of crutches or a walking aid. The most severe sprains may require walking aids for 1-3 weeks, but longer immobilization has been shown to worsen outcomes.

**Rehabilitation exercises:** Strengthening and stretching exercises play a crucial role in the recovery process. Physical therapy may be recommended to guide you through a structured rehabilitation program. Typical exercises include:

- Range-of-motion exercises: Gentle ankle movements to improve flexibility.
- Strengthening exercises: Gradual strengthening of the ankle muscles, focusing on the muscles that stabilize the ankle joint.
- Balance and proprioception exercises: Activities that improve your balance and body awareness to prevent future injuries.

**Pain management:** Over-the-counter pain relievers, such as acetaminophen or nonsteroidal anti-inflammatory drugs (NSAIDs), can help manage pain and reduce inflammation. Follow the recommended dosage and consult a healthcare professional if you have any concerns or if your pain persists.

**Return to activity:** Once you regain strength, flexibility, and stability in the ankle, gradually return to normal activities and sports. Start with low-impact exercises and gradually increase the intensity. Supportive footwear and ankle bracing may be beneficial during this phase.

**Prevention strategies:** To reduce the risk of future ankle sprains, consider the following:

- Wear appropriate footwear that provides ankle support and fits properly.
- Warm up before physical activity and incorporate exercises that improve ankle stability.
- Be cautious on uneven or slippery surfaces and watch for obstacles.
- Consider bracing or taping with certain activities, including sports.

# Lateral Ankle Sprain Therapy

## PHASE I: SYMPTOMATIC TREATMENT

### Immobilization

- Early weight bearing as tolerated
- Soft compressive sleeve as needed for swelling
- Ankle brace as needed for Grade 2 and 3 sprains
- Walking boot for severe sprains, crutches as needed with goal of transitioning out by 1-2 weeks

### Treatment

- Rest, Ice, Compression, Elevation
- Decrease swelling and progress weight bearing

## PHASE II: FUNCTIONAL REHABILITATION – OFTEN IMMEDIATE FOR GRADE 1 AND 2 SPRAINS

### Immobilization

- Brace as needed for sports activities or uneven ground

### Therapy

- Begin formal therapy
- Home strengthening exercises
- Range of motion exercises
- Isometric strengthening, focusing on eversion
- Proprioception and balance activity, single leg stance
- Gait training

### Goals

- Decrease pain
- Restore normal ankle motion and gait

## PHASE III: RETURN TO SPORT

### Immobilization:

- Brace with high-risk sport activities

### Therapy

- Neuromuscular control
- Progression of sport-specific drills to full return to sport
- Double to single leg hopping

### Goals

- Return to sport without instability
- 90% functional strength of contralateral limb, single leg hop tests

## PHASE IV: RETURN TO ACTIVITY (WEEKS 12+)

### **Immobilization:**

- None

### **Weight Bearing:**

- Full weight bearing

### **Therapy**

- Strengthening, balance, proprioception
- Sports and activity specific exercises

### **Goals:**

- Return to sport and activity

## Lateral Ankle Sprain Home Exercises

	<p><b>Inversion/Eversion Strength</b></p> <p>Reps: 10   Hold: 10   Sets: 2   Daily: 3</p> <ul style="list-style-type: none"> <li>Place your ankle in the "down and out" or "down and in" position against a band. Can loop around chair or table leg</li> <li>Hold this position for a count of 10.</li> <li>Repeat 10 times.</li> </ul>
	<p><b>Plantarflexion/Dorsiflexion Strength</b></p> <p>Reps: 10   Hold: 10   Sets: 2   Daily: 3</p> <ul style="list-style-type: none"> <li>Push down or pull up ankle against a band. Can loop around chair or table leg or use arms</li> <li>Hold this position for a count of 10.</li> <li>Repeat 10 times.</li> </ul>
	<p><b>Early Balance</b></p> <p>Reps: 1   Hold: 60   Sets: 1   Daily: 3</p> <ul style="list-style-type: none"> <li>Try to stand on your sprained ankle using a counter or table for support at first.</li> <li>Work up to standing for 1 minute.</li> <li>Focus on keeping your arms close with as little shifting as possible.</li> </ul>
	<p><b>Proprioception</b></p> <p>Reps: 1   Hold: 60   Sets: 1   Daily: 3</p> <ul style="list-style-type: none"> <li>Stand with the affected leg on a pillow. May start by supporting yourself with counter or table with goal of standing independently.</li> <li>Can be advanced to wobble board later in recovery.</li> </ul>