

# **Treatment of Acute Ankle Sprains: Quick Reference**

**By: Brian J. Boyle DPT, CSCS**

## **Initial Management:**

### **Objective:**

Control pain, swelling and maintain range of motion (ROM)

### **Treatment: (First 72 hours)**

PRICE: Protection, Rest, Ice, Compression, and Elevation

Cryotherapy started within the first 36 hours helps to reduce effusion and potentially decreases metabolism which may limit secondary hypoxic injury (1, 2)

Wrapping the acutely injured ankle with an elastic bandage, distal to proximal, can also minimize effusion.

Electric Stimulation and Ultrasound: Have not demonstrated a definite reduction in swelling, although they may be best used for pain control purposes. (3)

### **Bracing:**

Functional, removable braces (ie, air splints) that control inversion/eversion, but allow dorsiflexion and plantarflexion, generally are recommended over rigid immobilization, however Grade III sprain injuries may require more support than a typical air splint can offer.

\*\*\*Unfortunately, more extensive immobilization will prolong the rehabilitation period, although it may increase patient mobility earlier. (3)

Weightbearing should be as tolerated, as long as no associated fractures are present, but use of an assistive device may be encouraged. (3) Return to a normal gait pattern as early as possible should be encouraged so that the individual can limit the stress on other tissues/ joints that are proximal in the kinetic chain.

### **Rehabilitation:**

#### **Objective:**

Restore normal mechanics to the ankle and improve joint stability to allow the runner to return to safe running and decrease the risk for a recurrent sprain.

#### **Treatment:**

Start with ROM and progress toward restoring neuromuscular control, strengthening, proprioceptive training, and functional training before return to regular running.

\*\*\*Maintaining ROM is part of the initial management and is the first step in rehabilitation. (3)

Passive and active assisted ROM in dorsiflexion and plantarflexion should be started as early as pain permits. (This increases flexibility and reduces tightness in Achilles tendon)

Low-grade mobilizations early on, especially to the talocrural, subtalar, and midtarsal joints may be performed to decrease potential restrictions, improve biomechanics, and enhance the overall ligament healing by controlled loading. (3)

Peroneal musculature inhibition will most likely occur with an acute ankle sprain and neuromuscular control is the next step. (4) Strength training and proprioceptive exercise should be used to accomplish this.

Strength training will start with isometrics and progress to the use of resistive band/tubing and finally to close chain loading with toe raises and squats. Emphasis should be placed on eccentric contractions during the exercise and progress from stress free positioning (neutral ankle or in limited dorsiflexion) to more stressful positions in multiple planes (ie, ankle plantarflexion and inversion) would progress as tolerated by the individual. (4)

Proprioceptive training is important to recover balance and postural control. Progression from stable surfaces (ie, standing on floor) to unstable surfaces (ie, wobble board) is recommended and also varying degrees of visual input (eyes open versus closed) will add to the intensity of the exercise. (5)

### **Plyometrics and Agility Drills:**

These functional exercises should only be started when the runner is pain-free, has full ROM, can demonstrate strength more than 75% of the non-injured leg, and has adequate proprioception and balance. (3) The purpose of these drills is to increase power and improve neuromuscular control in the lower extremity.

### **Returning to Running:**

The runner should be able to perform the functional exercises without pain prior to starting back with a running program. Depending on how long the individual was in rehabilitation will determine how long they will take to get back to the previous level of running. Anecdotally, a good rule of thumb is that for every week off, it will take 2-3 weeks to restore conditioning level. Use of the stationary cycle or deep water running should strongly be encouraged until recovery is complete to allow for minimization of deconditioning. (3)

\*\*\*It is important to note that surgical treatment (even for grade III sprains/ruptures) is rarely the initial step, if at all, and recent research is finding that conservative treatment

with controlled mobilization is actually preferred and has better outcomes than surgical reconstruction, at this time. (6, 7, 8, 9)

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