

Ankle Sprain Rehabilitation Program

This is an exercise program designed to assist you in recovering from your ankle injury. If done properly, these exercises can help you get back to full activity sooner and may help to prevent further injuries from occurring. Please take a few minutes to read the following sections about the injury and the exercise program before you begin.

About the injury A sprain is an injury in which one or more ligaments are stretched, partially torn or completely torn. Ligaments are tough, fibrous structures that hold your bones together. They also contain nerve endings that send signals to your brain that allow you to know where your foot and ankle are in relation to the ground and the rest of your body. This special sense is called proprioception, and is often impaired by ankle sprains. There are 3 different grades of injury, reflecting the amount of tearing that has taken place. Generally speaking, the more severe the sprain, the more ligaments are involved in the injury and the longer the recovery period.

The major bones and ligaments of the lateral (outer) side of the ankle are shown in figure 1. The anterior talofibular ligament is the most commonly injured ankle ligament. If the anterior tibiofibular ligament on the front of the ankle (not shown in figure 1) is involved in the injury, it will probably take longer to heal. Figure 2 shows the muscles of the outer side of the lower leg. Since these muscles cross the ankle joint, strengthening them will provide extra support to the injured ligaments, which is important following an ankle sprain. Without an appropriate rehabilitation program, an ankle sprain can leave you with a weak and unstable ankle, which can predispose you to further injury.

About the Program The purpose of this program is to 1. Reduce swelling, 2. Restore normal motion, 3. Strengthen muscles and 4. Restore proprioceptive function. Each exercise session will consist of several different parts, including massage, range of motion and stretching exercises, strengthening exercises, proprioceptive training exercises and application of ice. Bicycling and/or running may also be an important part of your program. Not all of these will be done at each stage of the program. For example, some strengthening and proprioception exercises may be too painful to perform during the early stages of injury. Your doctor or therapist can help you choose the right exercises; make sure you ask them if you're not sure what to do.

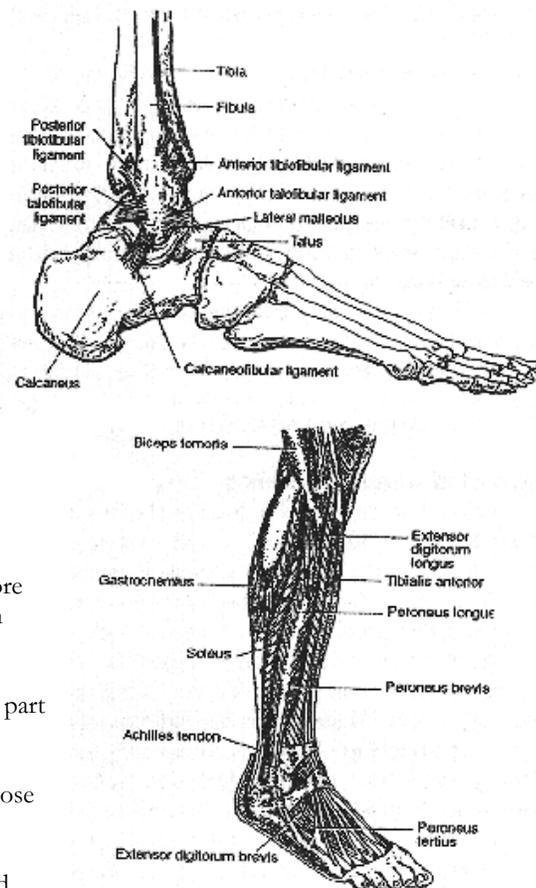
These exercises are meant to be performed daily. The exercises should be performed daily. The exercises should be performed in the order presented here, that is, starting with massage and ending with ice. Each part of the program contains different exercises for different stages of healing. You should try to do at least one exercise from each section of this handout during each exercise session, unless otherwise indicated in the instructions. It is very important that you start slowly with the easier exercises in each section, and gradually increase the repetitions, difficulty and intensity of the exercises as healing continues. The exercises should be performed within a pain-free range of motion, which means that you should back down or stop if you feel pain or if swelling increases. If pain persists, consult your doctor. Even after the pain is gone, there may still be significant weakness and loss of proprioception. Because of this, the exercise program should be continued daily until you can easily perform all the exercises. You may have been prescribed an ankle brace, which should be used for all weight-bearing activity throughout the course of your recovery, and in most cases for 2-3 months thereafter. Once you are back to full activity, continue doing the strengthening exercises 3 times week for a total of 4-6 months.

Massage Do this once daily, for 5-10 minutes each. Two types of massage are utilized in the treatment of ankle sprains:

General Massage is useful in the early stages of injury to help reduce swelling. Use slow, broad strokes with the edge of your hand to sweep fluid out of swollen areas, around the lateral malleolus (the bony bump on the outside of your ankle) and up towards the leg.

Transverse Friction Massage is helpful in decreasing scar tissue formation in healing ligaments. You may begin this treatment when the swelling is no longer increasing (usually 48-72 hours after injury). Refer to figure 2 to help locate the ankle ligaments. Usually they're at the spots that hurt the most to touch. Gently rub the area back and forth in a direction perpendicular to the direction of the ligament. Gradually increase the intensity and duration of the massage as healing progresses and as pain decreases.

Stationary Bicycling Do once daily, for 10-20 minutes. If you have access to a stationary bicycle, this is an excellent way to get your ankle moving and can be started early in the Course of rehabilitation. If you do not have access to a stationary bike, it is best not to



ride a bicycle until you are comfortable putting weight on your injured leg; even then you should ride only on level ground in an easy gear until your injury has completely healed.

If the stationary bike has straps on the pedals, remove them and begin by pedaling slowly with your heel on the pedal. This will limit the amount of ankle motion taking place. As your injury heals, progress by gradually moving your foot back on the pedal until you are pedaling with the ball of your foot. When this is comfortable, you can then replace the straps on the pedals.

Range of Motion/ Stretching Do these at least once daily. You can stretch more often if it does not bother your ankle. Hold each stretch for 15-30 seconds, repeat 5-8 times.

Active Range of Motion exercise can be begun immediately. In the early stages of injury, while there is still a lot of pain and swelling, this should be done while seated and within a pain free range of motion, as seen in the picture. Since you probably sprained the lateral (outer) side of your ankle, you should not invert (turn in) your ankle, as this will stress the injured ligament.



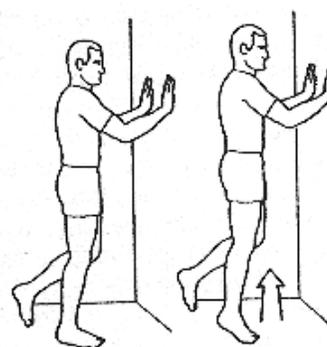
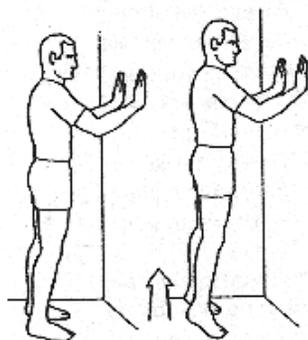
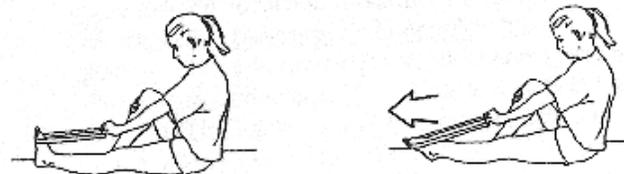
Calf Stretching As soon as your symptoms permit, begin stretching out the back of the ankle and the calf muscles by using a towel or belt to pull back on your foot while seated, as shown in the diagram. When you are able to bear weight on your injured leg, you can stretch the calf while standing, as shown below. To do this, place your injured leg behind you while leaning against a wall. Your back leg should be straight and your foot placed so that your toes are pointed straight ahead and your heel is touching the floor at all times. By leaning forward you can increase the degree of stretch. If this makes the front of your ankle hurt, reposition your foot so it is not so far back. After you have held this position for 15-30 seconds, bend your knee slightly as shown in the figure until you feel the stretch in your Achilles tendon on the back of the ankle.

Eversion Stretch For lateral ankle sprains you will also want to stretch the medial (inner) side of the ankle. This is done while seated, with one leg crossed as shown in the diagram. With one hand on the inner side of your heel, apply slow, steady pressure downward towards the floor. There are no stretches for the lateral (outer) side of the ankle since those ligaments are already stretched or torn from the injury.

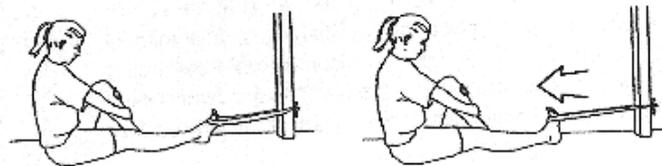


Strengthening Exercises Do once daily, 3 sets of 10-20 repetitions for each exercise. After the swelling has stabilized (usually 48-72 hours after injury) and when it is not painful to do so, begin to include strengthening exercises in your daily routine. Wearing shoes while doing the exercises that require the use of flexible elastic will help keep the elastic from slipping off your foot.

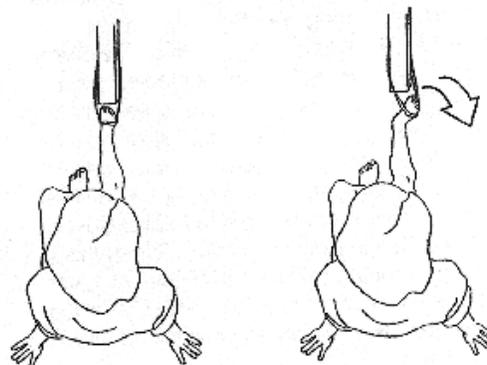
Posterior Calf Strengthening is initially performed while sitting on the floor, with the use of an elastic tube or strap, as seen in the figure. Wrap the elastic around the ball of your foot and press downward with slow, steady pressure. Start with 3 sets of 10 and progress to 3 sets of 20. When you can do this easily, increase the tension on the elastic (and the difficulty of the exercise) by pulling back on it with your hand. When you can walk comfortably, progress to toe raises on both feet while standing on the floor as shown below. When this becomes easy, do the same exercise while standing on an incline (starting with your toes higher than your heels) or while standing with the ball of your foot on the edge of a step. When you can do this easily do 3 sets of 20, progress to toe raise on one foot off of a flat surface, as seen in the diagram, and finally to toe raises on one foot off a step or incline.



Anterior Calf Strengthening is done with the elastic strap or tubing. This exercise may be easier to do while seated on a low chair with your ankles crossed. The strap should be hooked around a sturdy object such as a couch leg or bed post so that you can pull on it firmly. Start with your toes pointing away from you, then pull your foot towards you with a slow and steady motion. When you can easily do 3 sets of 20, increasing the tension on the elastic by moving your body back a little.



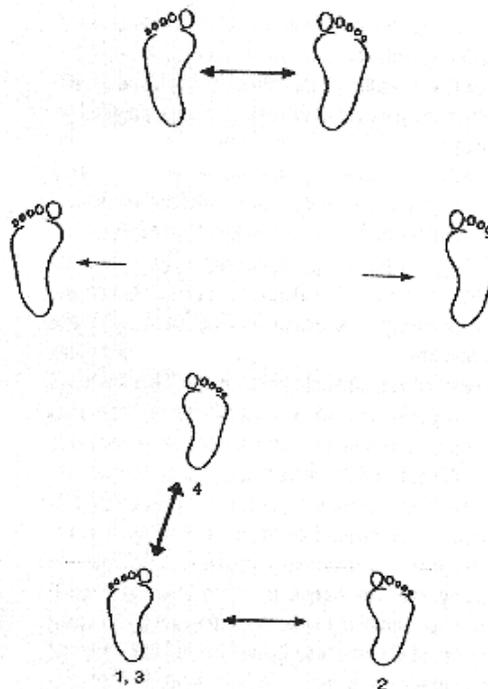
Eversion Strengthening is also done while seated on a low chair with your ankles crossed or while seated on the floor. Starts with your foot in a neutral position and with no tension on the elastic, then roll your ankle outward, drawing an imaginary arc with the ball of your foot. Make sure you use this rolling motion and are not just tilting your foot to the side. Also make sure that all the motion is at the ankle, and not at the knee or hip. For the first 2-3 weeks after injury it is important that you return your foot only to the neutral position so, you don't stress the injured ligaments on the outer side of the ankle. After that you can begin to invert the ankle after each repetition, as long as it is not painful for you to do so. When you can easily do 3 sets of 20, increase the tension on the elastic by moving your body to the side a little.



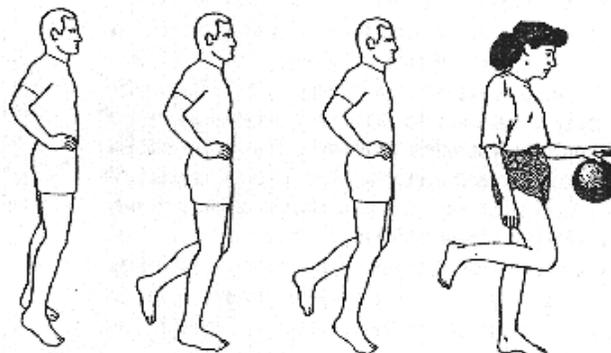
Proprioceptive Training

Do 1-3 times daily, for 1-5 minutes. Wear your ankle brace if you have one.

Weight Shifting/Agility Exercises As soon as the swelling has stabilized, you can begin side-to-side weight shifting. This is done standing with your feet shoulder width apart, by simply shifting your weight gently back and forth from one foot to the other. When you are comfortable bearing weight, advance to side-to-side stepping. This is similar to the weight shifting exercise, but involves taking complete steps back and forth from one leg to the other. As you get stronger and the pain decreases, bend your knees slightly and gradually increase the distance between your feet and the intensity of the exercise, so that you are bounding back and forth from one leg to the other. Make sure you wear your ankle brace for this one! When you can do this comfortably for 2 minutes, add an alternate forward step onto your injured leg between each side step, as diagrammed.



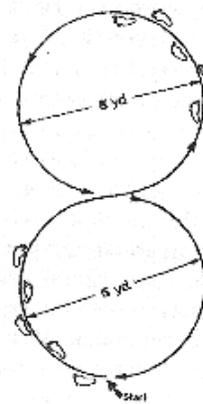
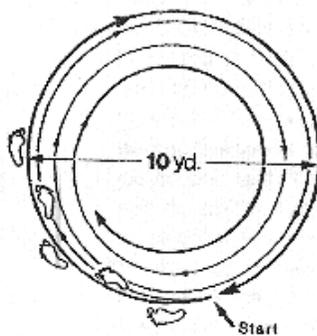
Balancing Exercises These exercises may be started when you are comfortable bearing weight on your injured leg, around the time you start doing toe raises for strengthening. Start by balancing on your toes for 30 seconds to 1 minute. You can do this several times a day if it doesn't hurt. Increase to 2 minutes as you are able. When you are ready, try balancing on the toes of your injured leg, try bouncing a ball or have a friend play catch with you while you balance on your injured leg.



Running Drills

5 minutes or more per day.

If you are involved in a sport that involves running, you will want to do these drills before returning to participation. When putting your full weight on your injured leg is no longer painful, begin with slow walking and progress at whatever rate is comfortable. If you notice any pain when advancing from one level to the next, back down to a pain-free level and stay there for a few days before advancing again. From walking, progress to a fast walk and then to a jog with a short stride. When this is comfortable, run in wide circles. Do this in both directions. When this is easy, do running drills as shown in the far right picture. Increase the time of you're jogging to 20 minutes, then increase your speed and intensity as tolerated.



Icing

10-20 minutes, at least once daily, more often in the early stages of injury or whenever your ankle is bothering you. Every exercise session should be followed by the application of ice. Wrap an ace bandage around the ice bag to hold it firmly against your ankle.