

ANKLE INJURIES

PREVENTION AND REHABILITATION

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Ankle injuries are an all-too-common occurrence in the sport of gymnastics. With landings from big heights and often with rotation and onto unstable surfaces, the potential for an ankle injury occurs on every event.

With such great risk for injury, it is important to include exercises that will help strengthen the muscles surrounding the ankle to make the joint more stable. What good is it to do hours of skills, routines and conditioning, only to have the season cut short by an ankle injury?

This article will discuss exercises to avoid potential ankle injuries, exercises for rehabilitation of an ankle injury and the effects of the taping/bracing of a previously injured ankle. The recommendations of this article are not intended, nor should they be used as a substitute, for a physician or physical therapist's diagnosis or treatment. Upon suspecting an ankle injury, an appointment with a physician is strongly recommended.

Pick an event. Any event. Men's or Women's. Every event requires, at least, landing on the feet for a dismount. In events like floor, vault and beam, the foot makes contact with the ground several times during the event, with every foot placement having the potential to cause injury to the ankle.

Next, think about how many routines your gymnasts are doing throughout practice and meets daily, weekly, and during the season. The potential for injury is high unless the muscles supporting the ankle and the ligaments (tissue that connects the many bones of the leg and foot to one another) are strong. Therefore, it is important to start strengthening the ankle prior to injury.

The most common exercise to help strengthen this area is toe raises. You can do them on two feet or one foot depending on the strength of the gymnast. They should be performed with the heel hanging off of a step or beam so that the heel drops below horizontal. This will allow for the calf muscle to be strengthened and stretched throughout its full range of motion. To make it more challenging, try them on a trampoline or Tumble Trac. Try them on a balance disc or an eight-inch soft landing mat (skill cushion). This will add an instability factor to the exercise.

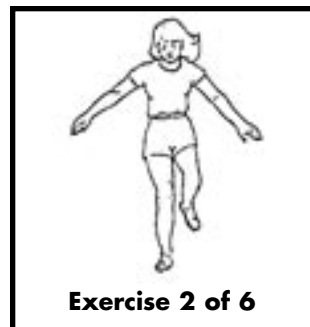
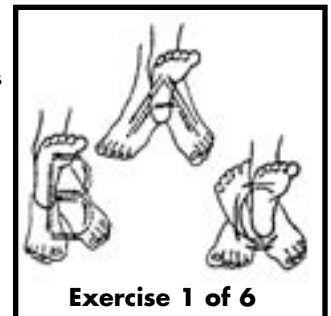
Single leg standing with the eyes closed is another excellent exercise. When it becomes easy, stand on the 8-incher again. As you balance, feel all of the small muscles in your ankle contracting to keep you from falling. Try it at home on a folded pillow. Just make sure you're out of the way of the coffee table!

Any single leg exercises (squats, stands, rebounds) will help strengthen the muscles of the ankle joint. These exercises, as well as calf stretching, should be included in your daily conditioning program, to help decrease the likelihood of an injury to the ankle.

So you've read this article too late and you've already had an ankle injury?! After you've seen the doctor or physical therapist, and have been cleared to get back to the gym to do strength, try these ankle strengthening exercises: (see pictures)

Ankle Alphabet

1. Move your ankle around slowly as if tracing the letters of the alphabet.
2. Repeat for letters A through Z.
3. Do 1-3 sets.
4. Repeat 1-2 times per day.

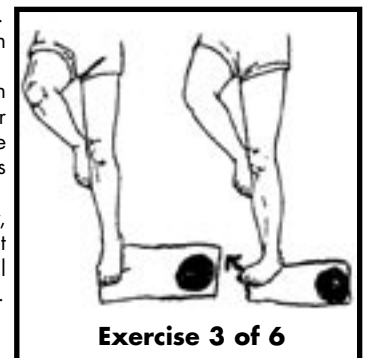


Ankle - Balance Disc

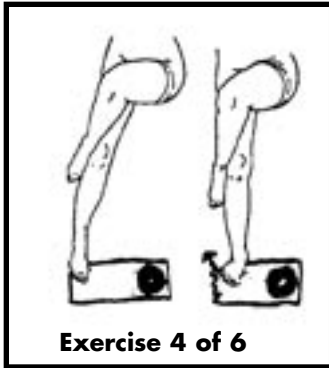
1. Stand on the floor or trampoline without holding onto the wall as shown.
2. Keeping foot flat, practice balancing on one foot.
3. Continue for 5 minutes, on and off, 1-2 times per day.

Ankle Inversion - Elastic Tubing

1. Sit in a chair with your heel on floor.
2. Lay a towel flat as shown, with a book or weight at the far end.
3. Place the ball of your foot on the towel, and using only your ankle, make the towel slide so that the book/weight moves towards your foot.
4. Keep your heel on the floor, pick up the ball of your foot and repeat the movement until the book/weight is close to the foot.
5. Repeat 5-10 times.
6. Do 1-2 times per day.



Ankle Eversion - Elastic Tubing



Exercise 4 of 6

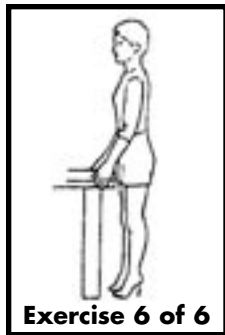
1. Repeat previous exercise, this time, placing the towel and weight at the inside of your foot.
2. Do this exercise so that the foot is pulling the weight with the ankle moving outward.
3. Repeat 5-10 times.
4. Do 1-2 times per day.

Dorsiflexion - Resisted

1. Sitting in a chair, place one foot on top of the other foot.
2. Without letting the bottom foot move, try to pull it upward against the top foot.
3. Repeat 10 times, 3 sets.
4. Do this exercise 1-2 times per day.



Exercise 5 of 6



Exercise 6 of 6

Plantar Flexion - Toe Raises

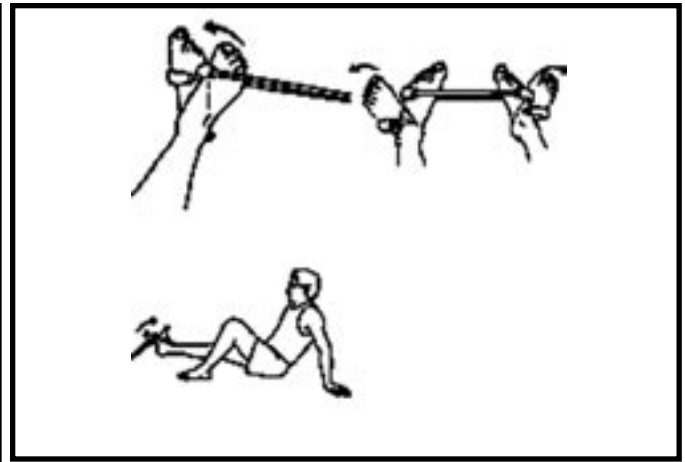
1. Stand with feet 12 inches apart.
2. Raise up slowly onto your toes as high as you can.
3. Repeat 10 times, 3 sets.
4. When tolerated, raise up and down on one foot only.
5. Do this exercise 1-2 times per day.

For a very acute (just happened) ankle injury, small movements may still be challenging, especially if you have been off of the foot for any period of time. If movement is still limited, try simply writing the alphabet in the air with your foot, with the movement occurring at the ankle. Repeat 3 times.

Inversion-using a piece of therapeutic elastic band, tie it in a loop around a stationary object. Put your foot in the loop and with your heel planted on the floor, move your foot inward against the resistance of the band.

Eversion- using the same band attached to the same object, turn around so that when your foot is in the band, you will now plant the heel, and move the foot outward against the resistance of the band.
Dorsiflexion-same band, only this time you are facing the object the band is attached to. Place your foot in the loop and, with heel planted, pull your toes towards your shin.

All of these exercises should be done for 3-4 sets of 10-15 repetitions. They can be done everyday. If a band or piece of tubing is not available, spread a towel out on the floor. Floor must be smooth, not carpeted (trampoline bed or landing mat would work too). Put a weight or a heavy book at one end of the towel. While sitting in a chair, plant the heel, place the ball of the foot on the towel, and slide the towel inwards or outwards so that the towel drags the weighted object. Lift the toes, and repeat until weight has slid all the way in. Repeat 3-5 times and then switch directions.



The pre-habilitation exercises, toe raises, single leg stands and calf stretches can be done now as well.

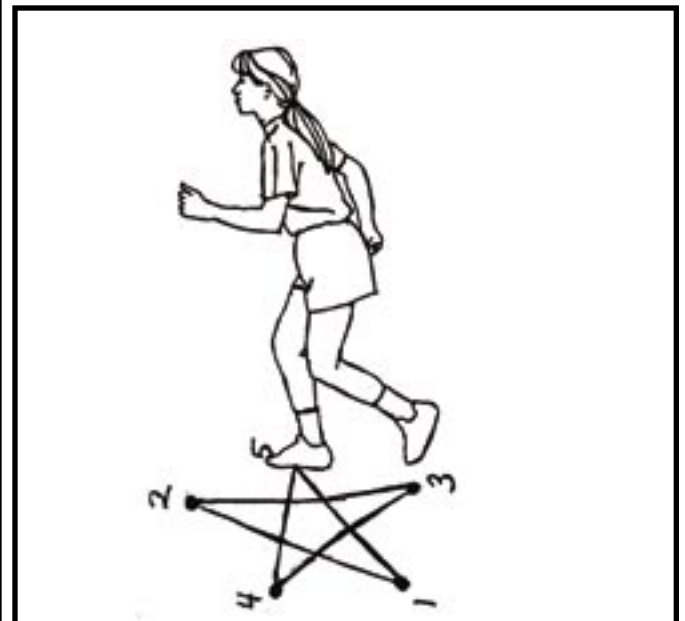
A few weeks into rehabilitation of your ankle injury, and after the doctor allows you to put full weight on the injury, start with some light jogging on a Tumble Trac or trampoline. The bounce of the trampoline will allow you to have to do less pushing off than you would have to do on the floor, and also provides the opportunity to work the stabilization of the ankle to prevent the ankle from rolling side-to-side.

Try two footed rebounds on the Tumble Trac, progressing to hopping. Hopping should only be done when the ankle is pain-free and all of the previously mentioned exercises have been being performed regularly.

Another good trampoline exercise is a star jump. Draw a star with chalk on the trampoline bed (about 2 feet top to bottom, depending on the athlete's height). Starting at the bottom, left corner, draw a number 1. Draw a 2 at the top point, a 3 at the bottom right, a 4 at the left point and a 5 at the right. Start at number 1, and hop on one foot, in sequence (1,2,3,4,5,1) and repeat 10 times. Then start at 1 and go in reverse order (1,5,4,3,2,1) and repeat 10 times.

All of these exercises should be followed by 20 minutes of icing the ankle.

(continued on page 12)



ANKLE TAPING

Ankle taping or bracing should be done at the suggestion of the doctor or therapist. Most will suggest taping for the first three months of a significant injury. Strengthening and rehabilitation of the ankle should be done without bracing, as much as possible, unless otherwise told by the physician.

When there is an ankle sprain, some of the ligaments have been stretched. Once they are stretched, they remain stretched. It is scarring that adds to the stability of the joint, as well as the strengthening of some of the muscles in the lower leg and foot and the rebuilding of collagen fibers.

Athletic trainers and orthopedic surgeons differ on their beliefs in long-term ankle taping or bracing. Many believe that after three months of rehabilitation and with the athlete being able to perform all skills with zero pain, that ankle taping or bracing may no longer be necessary. Some believe, however, that there is no negative affect of long-term bracing, and if it may decrease the chances of re-injuring the ankle, then bracing should be done.

My concern is that (other than costing a lot of money in tape), long-term taping/bracing can inhibit the full range of motion the ankle needs to go through in order to perform a skill to its maximum amplitude. Talk with your coach, physician or trainer to see if they recommend taping after three months from the injury date.

If they recommend taping or bracing, studies have shown that ankle taping loses almost all of its supportive factors after the first 20-30 minutes. Bracing is much more effective and certainly more economical.

Ankle injuries are too common in our sport. There are however, things that can be done to prevent an injury from happening. Conditioning is done to improve the body's performance in the sport and to help the athlete perform better. Ankle strengthening exercises should be incorporated into your conditioning routine to help prevent an injury, and to increase the athlete's foot strength.

Wes Norris has a Bachelor's degree in Exercise Science from Central Connecticut State University. He is a Certified Strength and Conditioning Specialist (CSCS) through the National Strength and Conditioning Association (NSCA). He has coached levels 4-elite for over 13 years at several clubs including Tampa Bay Turners in Florida and CATS in Connecticut. He is currently a Fitness Specialist for Hartford (CT) Hospital.