

# Ankle Strengthening Exercises - what to do after an ankle sprain

Today, our esteemed guest pediatric physical therapist Deborah Stack helps us with therapy for twisted ankles. Dr. Stack has been a physical therapist for over 15 years and heads The Pediatric Therapy Center of Bucks County in Pennsylvania. She holds both masters and doctoral degrees in physical therapy from Thomas Jefferson University.

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✘ As I watched my ten-year-old play basketball today, my first question was "Will my child might finally get the ball into the basket?" My second question was, "Will all the kids make it through the game without spraining an ankle?"

Kids are playing competitive sports at younger and younger ages and children are suffering sports injuries earlier as well. Acute ankle trauma is responsible for 10 to 30 percent of sports-related injuries in young athletes.<sup>1</sup>With all the rapid starts, stops, and turns on the basketball court some injury is inevitable. But what is an ankle sprain? What can you do to help your child from joining the crutches crew? What do kids need to do to get back to full play after an injury?

A sprain is stretching and or tearing of ligaments that connect bones to one another. Sprains are graded from one to three with one being the mildest and three being the most severe. In a grade one sprain the ligament simply is overstretched. Grade two sprains involve partial tearing of the ligaments and grade three feature a complete tear. This could happen for a multitude of reasons, from play or even an accident that might not have been their fault, this type of sprain may need attention from a doctor, especially if it is after an accident.

The most common ankle sprain is an inversion sprain where the ankle turns over so the sole of the foot faces inward and damages the ligaments on the outside of the ankle. In younger children, the ligaments tend to be stronger than their bones, so growth plate fractures occur instead of sprains. Therefore, if a child refuses to walk on his leg or seems to be in excessive pain, you should have your pediatrician rule out a fracture.

To help avoid injury, make sure those sneakers are in good condition. Pull laces snug and tie them securely. High top

sneakers are recommended for basketball for added protection. Physically three things are needed for a healthy ankle: range of motion, muscular control, and proprioception. Proprioception is the information that comes from your joints and muscles to your brain and lets your brain know what position the ankle is in.

My child turned his ankle. Now what do I do? Remember the acronym RICE: rest, ice, compression, elevation. Rest means to stay off the ankle. For more severe sprains this may mean using crutches for a few days. Ice should be applied (over a thin towel to protect skin) immediately and then for up to 20 minutes every few hours until swelling is minimal. Compression refers to wrapping an elastic bandage over the area. When you use a bandage, it is important to make sure the bandage is not too tight and that any bandage is wrapped at an angle, not straight around the leg, to prevent circulatory problems. The ankle should also be elevated above the level of the heart several times a day while swelling is still present. Recline on the couch while putting ice on for 20 minutes.

How does your future Olympian get back into the game? Range of motion exercises can begin as soon as they can be done without pain, preferably in 48-72 hours. Ankle circles and alphabet letters (below) are two good exercises. These should then be followed by isometric (muscle contraction without movement) and isotonic strengthening exercises (toe and heel raises, see below) such as the ankle heals. Finally, rehab is not complete until the child works to regain proprioception on balance boards, compliant foam etc. One low-tech option is to stand on a firm pillow while watching television. For a bit more excitement, try some Wii balance board games. Remember, full ligaments strength does not return until months after an ankle sprain.<sup>2</sup> Without full rehabilitation, the ankle is prone to reinjury.

So tell your child to play, but play smart. An ankle sprain is a real injury and needs proper attention before your child returns to the court.

## **Exercises**

### **Ankle circles<sup>3</sup>**

Sit on the floor with your legs stretched out in front of you. Move your ankle from side to side, up and down and around in circles. Do five to ten circles in each direction at least three times per day.

### **Alphabet Letters<sup>3</sup>**

Using your big toe as a "pencil," try to write the letters of the alphabet in the air. Do the entire alphabet two or three times per day.

### **Toe Raises<sup>4</sup>**

Pull your toes back toward you while keeping your knee as

straight as you can. Hold for 15 seconds. Do this ten times at least three times per day.

### **Heel Raises<sup>4</sup>**

Point your toes away from you while keeping your knee as straight as you can. Hold for 15 seconds. Do this ten times at least three times per day.

1. *Perelman M, Leveille D, DeLeonibus J, Hartman R, Klein J, Handelman R, et al. Inversion lateral ankle trauma: differential diagnosis, review of the literature, and prospective study. J Foot Surg. 1987;26:95–135.*

2. *Wolfe MW, Uhi T, McCluskey, L. Management of Ankle Sprains. Am Fam Physician 2001;63:93–104.*

3. [http://www.med.umich.edu/llibr/sma/sma\\_anksprai\\_rex.htm](http://www.med.umich.edu/llibr/sma/sma_anksprai_rex.htm)

4. <http://familydoctor.org/online/famdocen/home/healthy/physical/injuries/010.html>

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