Questions for the Physician or Rehabilitation Team

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Ankle Injuries

The ankle is an important joint because everything that occurs at the foot and ankle affects higher joints such as the knees, hips, and even the lower back. Many different structures including bones, tendons, and ligaments can be injured in the foot and ankle. Lateral ankle sprain (injury to the outside ankle ligaments) is the most common ankle injury and is often referred to as a "rolled ankle."

Anatomy

The ankle joint is composed of three bones: the tibia, fibula, and talus. The ligaments that provide ankle stability on the lateral aspect of the foot are the anterior talofibular, calcaneofibular, and posterior talofibular ligaments. The medial ligament is the deltoid ligament. Multiple muscles are associated with the movement of the foot and ankle.

Sprains

Ankle sprain is one of the most common injuries experienced by physically active/athletic people. According to the American Orthopedic Foot and Ankle Society approximately 25,000 people sprain their ankles everyday. Ankle sprains occur when the ankle joint is forced beyond its normal working motion stretching or tearing various ligaments (fibrous bands connecting bone to bone). This may occur when stepping in a hole in the park, landing on an opponent's foot in basketball, or even stepping off a curb the wrong way.

Ankle sprains can be categorized by degree of severity:

- First degree (grade I): stretch and/or minor tear of the ligament without laxity (loosening)
- Second degree (grade II): tear of ligament plus some laxity
- Third degree (grade III): complete tear of the affected ligament (very loose)

Physician Care

On occasion, when the ankle is "turned" a fracture (break) may be present depending on the force of the injury; therefore if your symptoms do not begin to resolve in 2-3 days, you should seek qualified medical attention. Many times you may need an X-ray to rule out a fracture. Vanderbilt Sports Medicine has X-ray facilities on site and physicians who can read the X-ray for immediate results.

Therapy

For minor sprains that gradually improve in the first couple of days, some simple strengthening and balance exercises in addition to R.I.C.E. will be enough to return you to a functional level of living. Other more serious injuries will greatly benefit from rehabilitation where a physical therapist or athletic trainer will guide you through a series of exercises, as described in the previous section, to strengthen and return you to full function.

Preventive Tips

- Wear proper, well fitting shoes when you exercise or play
- Stretch before and after athletic or recreational activities
- Consider taping or bracing the ankle for strenuous sports

What to Expect

Physician Care

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Initial Care

Signs and Symptoms

Usually the individual can walk (although somewhat painfully), and may have mild swelling and discoloration (black and blue). These signs and symptoms usually occur on the outside of the ankle as a result of stretching or tearing of the ligament tissue.

Initial care

The first thing to do following this type of injury with these symptoms would be to follow the R.I.C.E. principle which is Rest, Ice, Compression (with an elastic bandage), and Elevation of the extremity. Some people may find it useful and necessary to use crutches in order to get about. Individuals may find some pain relief from over-the-counter anti-inflammatory medications such as Advil, Ibuprofen, or Aleve if allowed by your physician.

R.I.C.E.

- **Rest:** Rest your ankle. This is the first step in treating ankle sprains. Activities that aggravate the injury should be avoided or diminished. Rest allows the small tears in the ligaments to heal.
- **Ice:** Apply cold therapy to decrease inflammation and pain. Treat the ankle with an ice bag two to three times a day for a period of 15-20 minutes each time.
- **Compression:** Use an elastic bandage or compression sleeve to keep swelling from accumulating in the ankle and going to the toes.
- **Elevation:** Elevate your ankle to help reduce swelling. Be sure to elevate your ankle above your heart. At night you can place some books between the mattress and box springs of your bed.

Stages of Rehabilitation

**Stage I: Initial Phase (Goals and treatment)**

1) Control swelling: RICE approach, E-stim
2) Range of Motion (ROM): Ankle pump, "ankle alphabet"
3) Ambulation: Use of assistive device such as crutches to ambulate pain-free
4) Bracing: Use of an aircast / Ankle Support Orthosis (ASO) to provide additional support to the ankle

**Stage II: Intermediate Phase (Goals and treatment)**

1) Range of Motion (ROM): Obtain ROM to equal the nonaffected ankle joint by aggressively stretching the muscles surrounding the injured ankle joint
2) Strengthening: Advance to strengthening the ankle joint with the use of Therabands, calf raises, etc.
3) Ambulation: Wean off the use of assistive device if able to ambulate without a noticeable limp.
4) Proprioception: Encourage appropriate firing of the ankle joint muscles with activity such as single leg stance exercise, lateral slide, sit-up, etc.
5) Bracing: Advance from an aircast to an ASO or discontinue bracing as appropriate.
6) Return to normal daily activities.

**Stage III: Advance Phase (Goals and treatment)**

1) Advance strengthening exercise: Progressively increase the Theraband/weight resistance.
2) Advance proprioception: Advance to single leg stance on uneven surfaces, incorporate various sport chord exercises, and add agility ladder drills.
3) Sport/Lifestyle specific activities: Begin straight plane jogging progressing to sprinting to side to side sport specific movement.
4) Return to sports/ recreation.
5) Discharge from therapy.
Signs and Symptoms

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Stages of Rehabilitation

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2) **Range of Motion (ROM)**: Ankle pump, "ankle alphabet"
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5) **Bracing**: Advance from an aircast to an ASO or discontinue bracing as appropriate.
6) **Return to normal daily activities.**

**Stage III: Advance Phase (Goals and treatment)**

1) **Advance strengthening exercise**: Progressively increase the Theraband/weight resistance.
2) **Advance proprioception**: Advance to single leg stance on unlevel surfaces, incorporate various sport chord exercises, and add agility ladder drills.
3) **Sport/Lifestyle specific activities**: Begin straight plane jogging progressing to sprinting to side to side sport specific movement.
4) **Return to sports/ recreation.**
5) **Discharge from therapy.**
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What Is A Physical Therapist?

Physical Therapists are healthcare professionals who evaluate and treat people with healthcare problems resulting from injury or disease. In today’s healthcare system, Physical Therapists are experts in the examination and treatment of musculoskeletal and neuromuscular problems that effect daily functional abilities as well as recreation/sports abilities. Physical Therapists assess joint motion, muscle strength/endurance, and performance of activities required in daily living. The minimum educational requirement is a post-baccalaureate degree from an accredited education program. The majority of programs offer a master's degree, but a growing number of programs offer the Doctor of Physical Therapy (DPT) degree. Candidates must pass a state administered national exam as well as maintain annual continuing competency/licensure requirements.

What Is A Certified Athletic Trainer?

Certified athletic trainers (ATCs) are medical experts in the prevention of athletic injuries; recognition, evaluation and immediate care of athletic injuries; and rehabilitation and reconditioning of athletic injuries. Athletic trainers can help you avoid unnecessary medical treatment and disruption of normal daily life. The American Medical Association recognizes athletic training as an allied health care profession.

In addition to athletic injury rehabilitation, Vanderbilt Sports Medicine provides athletic training services for local high schools. The American Medical Association recommends that a certified athletic trainer be in every high school. The minimum educational requirement is a bachelor’s degree and being certified by the NATA Board of Certification (NATABOC). In addition to certification, athletic trainers must meet individual state licensing requirements in a growing number of states.

Our Core Purpose
To improve the lives of others through science, education and clinical skill.

Our Core Values

- Everything you do must enhance the athlete/patient experience, thereby improving the reputation of VSM.
- Work with the highest honor and integrity.
- Check your ego at the door. “Team” before “I”--Ask not what VSM can do for you, but what you can do for the Department.
- Lead the field of Sports Medicine with research that will improve the practice of the disciplines in our department.
- Strive to be leaders in education for care givers, patients, and the community.
- Treat each athlete/patient as we would treat our own family.

Our Physicians

Kurt Spindler, MD: Orthopaedic Surgeon
John Kuhn, MD: Orthopaedic Surgeon
Warren Dunn, MD: Orthopaedic Surgeon
James Carey, MD: Orthopaedic Surgeon
Charlie Cox, MD: Orthopaedic Surgeon
Gene Hannah, MD: Sports Medicine Physician
Andrew Gregory, MD: Sports Medicine Physician, Pediatrics
Paul Rummo, DO: Sports Medicine Physician, Hand Center
Robert W. Fitch, MD: Sports Medicine Physician, Emergency Department
Alex Diamond, DO: Sports Medicine Physician

Vanderbilt Sports Medicine
For more information on this and other injuries see our website:
www.vanderbiltorthopaedics.com

This information is intended for education of the reader about medical conditions and current treatments. It is not a substitute for examination, diagnosis, and care provided by your physician or a licensed healthcare provider. If you believe that you, your child, or someone you know has the condition described herein, please see your healthcare provider. Do not attempt to treat yourself or anyone else without proper medical attention. All rights reserved 2010, Vanderbilt University, Vanderbilt University Medical Center, Vanderbilt Children’s Hospital.

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