

Injuries to the Ankle and Foot

By Breanna Braun, Certified Athletic Trainer

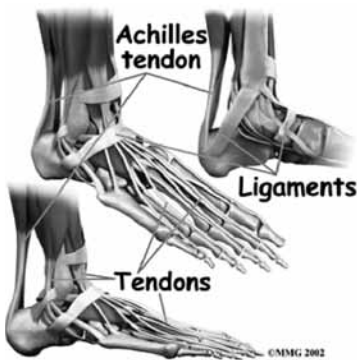
Bay Area Medical Center

- There are approximately 25,000 ankle sprains/day in the United States.
- Our feet and legs take the majority of the beating in athletic competition.
- The Achilles tendon is the largest tendon in the body, and can tolerate 1,000 lbs. of force.

Anatomy

The foot and ankle contain 26 bones, including the two bones of the lower leg (tibia, fibula). There are also many muscles, tendons and ligaments that help the ankle and foot to function.

What is an Ankle Sprain?



It is a stretch or tear (partial or complete) of the ligaments in the ankle joint. Ligaments provide stability to a joint, but are also able to stretch. Sprains occur when they go beyond their limits.

Most are on the lateral (outside) of the ankle because the ligaments are weakest there.

The medial (inside) of the ankle is rarely sprained because the structures there are very strong.

The syndesmotic or “high ankle sprain” injures the ligament located between the fibula and tibia. This injury is often much slower to heal.

How Do Sprains Happen?

- Twisting or rolling of the ankle from landing on an uneven surface, cutting, or awkwardly landing from a jump
- There may be a pop or an inability to bear weight
- Swelling and bruising may develop over the ankle and sometimes the foot and lower leg



What Do You Do?

- RICE (rest, ice, compression, elevation).
- See your athletic trainer (ATC) to determine the severity of the injury and if x-rays are necessary to rule out a fracture
- Have a ATC, physician or physical therapist design a rehab program for you
 - Programs usually contain treatments for decreasing pain and swelling and exercises for increasing range of motion, strength and balance, including sports-specific activities before return to play
 - Taping or bracing may be used to protect the ankle during sports participation

Chronic Ankle Problems

Athletes who return to activity too early or have

recurrent sprains often develop chronic problems. These people should speak with their ATC or physician about developing a long-term exercise program for prevention, using bracing or taping, and in extreme cases, surgery may be used.

Achilles Tendonitis

Achilles tendonitis is an inflammation of the tendon. There are several causes including:

- Rapidly increasing volume or speed of activity
- Adding hills/stairs to training routine
- Trauma caused by a sudden, hard contraction of the calf muscle
 - This can also cause a tendon rupture. Tendons weakened by tendonitis are also more likely to rupture.
- Overuse caused by lack of flexibility

SIGNS AND SYMPTOMS

- Mild pain after activities that gradually worsens
- Feeling of sluggishness in leg
- Swelling
- Stiffness that loosens with warm-up
- Pain, sometimes severe, along tendon several hours after running
- Morning pain above where tendon attaches to heel bone

TREATMENT

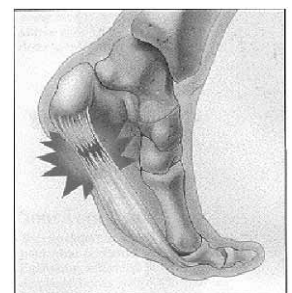
- Rest – stop aggravating activities. You may be able to switch to a non-weight bearing activity (i.e. swimming, biking)
- Nonsteroidal anti-inflammatory drugs (Advil, Aleve, ibuprofen, etc.)
- Ice
- Orthoses (heel lift or other shoe insert)
- Stretching, massage, ultrasound and exercises to strengthen weak muscle groups
- Surgery is a last resort

PREVENTION

- Choose correct running shoes
- Warm up gradually and include a cool down
- Stretch and strengthen the calf muscle
- Increase exercise volume gradually (~10%/week)
- Avoid unaccustomed strenuous sprinting and incline running

Plantar Fasciitis

Plantar fasciitis is an inflammation of the plantar fascia, the fibrous tissue that originates at the heel bone and flares out, attaching to the toes. It is caused by micro-tearing of the fascia from stress at its heel attachment site.



SYMPTOMS

- Point tenderness over bottom of foot, near the heel
- Pain will develop gradually over time



If your foot flattens too much, the plantar fascia may overstretch and become inflamed.



If your foot doesn't flatten, the plantar fascia may be pulled too tight, eventually causing pain.

Continued on Back



Thomas E. Leow, Jr., MD
ORTHOPAEDIC SURGEON

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Injuries to the Ankle and Foot

Continued from Front

- Pain is worst when first getting out of bed in the morning or after prolonged immobility

CAUSES

- Rapid increases in volume of activity
- Tight calf muscles
- Poor foot biomechanics and certain foot abnormalities
- Poor shoe wear (incorrect fit, little cushioning, too old)

TREATMENT

- Similar to achilles tendonitis
- Modifications in shoes, activities, stretching, NSAIDs, ultrasound, ice
- Surgery is last resort

"Achilles Tendon." *Your Orthopaedic Connection*. 2001. American Academy of Orthopaedic Surgeons. 6 April 2006 http://orthoinfo.aaos.org/fact/thr_report.cfm?thread_id124&topcategory=Foot

"Sprained Ankle." *Your Orthopaedic Connection*. 2001. American Academy of Orthopaedic Surgeons. 6 April 2006 http://orthoinfo.aaos.org/fact/thr_report.cfm?Thread_ID152&topcategory=Foot

"Plantar Fasciitis." University of Wisconsin Hospital & Clinics Sports Medicine Center. Handout

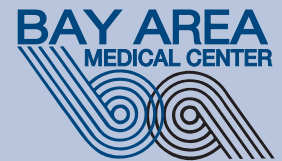
Arnheim, Daniel D. and William E. Prentice. *Principles of Athletic Training*. 10th ed. Boston, MA: McGraw-Hill Companies, Inc., 2000.

Quick Tips for Ankle Sprains

- Practice RICE: Rest, Ice, Compression, Elevation
- See your athletic trainer to determine severity of injury and if x-rays are necessary
- Have a physician, athletic trainer or physical therapist design a rehab program for your recovery

Sidelines

A newsletter to promote sports health, injury prevention and recovery of student athletes



It's not the will to win, but the will to prepare to win that makes the difference.

■ PAUL 'BEAR' BRYANT

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