

Sprains, Strains and Breaks...

What's the Difference?

By Dr. Bill Alexander, Fort Duncan Medical Center. Used by Permission.

If you've sprained your ankle, you know how severe that pain can be. But maybe that "sprain" was a "strain" or possibly even a "break." The amount of pain in each case can be virtually equal; however, it is always best to seek medical attention.

Definitions of Musculoskeletal Injuries

A sprain is a stretch and/or tear of a ligament, the tissue connecting two bones. Ligaments stabilize and support the body's joints. For example, ligaments in the knee connect the upper leg with the lower leg, enabling people to walk and run.

A strain is a twist, pull and/or tear of a muscle and/or tendon. Tendons are cords of tissue that connect muscles to bones.

A break is a fracture, splinter or complete break in one bone, often caused by an accident, sports injury or bone weakness related to osteoporosis.

Physicians attend to more than 28 million Americans with musculoskeletal injuries each year, according to the American Academy of Orthopaedic Surgeons (AAOS). Sprains, dislocations and fractures make up more than half of those injuries.

Musculoskeletal conditions rank number one among impairments, says Bill Alexander, MD, an orthopedic surgeon at Fort Duncan Medical Center. "One out of every seven Americans has a musculoskeletal impairment," he says.

Sprains

A sprain is caused by trauma (a fall, a twist, a blow to the body) that knocks a joint out of position and overstretches or even ruptures the supporting ligaments. This can occur when a person lands on an outstretched arm, slides into a base, lands on the side of his or her foot or runs on an uneven surface.

Though the intensity varies, pain, bruising and inflammation are common to all sprains: whether they are mild, moderate or severe. The person may feel a tear or pop in the joint. With a severe sprain, ligaments tear completely or separate from the bone. This loosening makes the joint nonfunctional. A moderate sprain partially tears the ligament, producing joint instability and some swelling. In a mild sprain, a ligament is stretched, but there is no joint loosening or instability.

More than 27,000 ankle sprains occur each day in the United States, and more than 2 million people each year experience permanent disability as a result of their sprains, according to the AAOS. But preventing repetitive injuries could drastically cut that number.

"The most common reason for an ankle sprain is having had one already," says Dr. Alexander. "The best prevention of a second sprain is appropriate treatment of the first."

He notes that repeated sprains can lead to ankle arthritis, a loose ankle or tendon injury.

Strains An acute strain is caused by a direct blow to the body, overstretching or excessive muscle contraction. Chronic strains are the result of overuse -- prolonged, repetitive movement -- of muscles and tendons. Inadequate rest during intense training can cause a strain.

Typical indications of strain include pain, muscle spasm, muscle weakness, swelling, inflammation and cramping. In a severe strain, the muscle or tendon is partially or completely ruptured, leaving a person incapacitated. Some muscle function will be lost with a moderate strain, where the muscle or tendon is overstretched and slightly torn. With a mild strain, the muscle or tendon is stretched or pulled slightly. Some common strains are:

Back strain -- When the muscles that support the spine are twisted, pulled or torn. Athletes who engage in excessive jumping (during basketball or volleyball, for example) are vulnerable to this injury.

Hamstring muscle strain -- A tear or stretch of a major muscle in the back of the thigh. The injury can sideline a person for up to six months. The likely cause is muscle strength imbalance between the hamstrings and the muscles in the front of the thigh, the quadriceps. Kicking a football, running or leaping to make a basket can pull a hamstring. Hamstring injuries tend to recur.

Breaks

Bone breaks always should be looked at by a physician to be certain proper healing and connection occur. If an injury has not been examined by a physician or its pain does not subside, seek a professional opinion.

Athletes Are Most Susceptible

All sports and exercises, even walking, carry a risk of sprains. The anatomic areas most at risk for sprains depend on the activities involved. For example, basketball, volleyball, soccer and other jumping sports share a risk for foot, leg and ankle sprains.

- Soccer, football, hockey, boxing, wrestling and other contact sports put athletes at risk for strains. So do sports that feature quick starts, including hurdling, long jumping and running races. Gymnastics, tennis, rowing, golf and other sports that require extensive gripping have high incidences of hand strains. Elbow strains occur frequently in racquet, throwing and contact sports.
- Basketball leads the AAOS list of 10 popular recreational activities with the most injuries. Each year, more than 1.5 million injuries related to basketball are medically treated, according to data from the U.S. Consumer Product Safety Commission.
- Other high-injury activities include bike riding, baseball, soccer, softball, jumping on trampolines, inline skating, horseback riding, weight lifting and volleyball.
- "The greatest number of trampoline-related injuries occurs among children ages 14 and younger," says Dr. Alexander. "Sprains, strains and fractures are the most common injuries."

Treat Injuries with RICE

A severe sprain or strain may require surgery or immobilization followed by months of physical therapy. Mild sprains and strains may require rehabilitation exercises and lifestyle changes during recovery.

In all but mild cases, doctors should evaluate the injuries and establish treatment and rehabilitation plans.

Meanwhile, RICE (rest, ice, compression and elevation) usually will help minimize damage caused by sprains, strains and breaks.

This process should begin immediately after an injury and continue off and on for about 72 hours, according to most health experts.

RICE relieves pain, minimizes swelling and speeds healing, and it often is the best treatment for soft-tissue injuries, including bruises, sprains and strains.

- **Rest:** The injured area should be moved as little as possible to allow healing to begin.
- **Ice:** Apply it immediately to reduce inflammation, which causes more pain and slows healing. Cover the injured area with an ice pack (inside a wet cloth) and apply the ice for 10 to 20 minutes intermittently for 48 to 72 hours. Never ice for more than 20 minutes -- it can cause a nerve injury.
- **Compression:** Using a pressure bandage helps prevent or reduce swelling. Use an elastic, or Ace, bandage. Wrap the injured area without making it so tight that it cuts off the blood supply.
- **Elevation:** Raise the injured area above the level of the heart. Prop up a leg or arm while resting it. You may need to lie down to get your leg above your heart level. Do all four parts of the RICE treatment at the same time. If you suspect a more serious injury -- for example, a broken bone -- talk to a doctor immediately.

Prevention: No one is immune to sprains and strains, but here are some tips developed by the AAOS to help reduce your injury risk:

1. Do stretching exercises daily.
2. Always wear properly fitting shoes.
3. Nourish your muscles by eating a well-balanced diet.
4. Warm up before any sports activity and use or wear protective equipment appropriate for that sport.