

Sprains and strains

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Definition

Sprains and strains are common injuries that share similar signs and symptoms, but involve different parts of your body.

A sprain is a stretching or tearing of ligaments — the tough bands of fibrous tissue that connect one bone to another in your joints. The most common location for a sprain is in your ankle.

A strain is a stretching or tearing of muscle or tendon, a fibrous cord of tissue that connects muscles to bones. Strains often occur in the lower back and in the hamstring muscle in the back of your thigh.

Initial treatment for both sprains and strains includes rest, ice, compression and elevation. Mild sprains and strains can be successfully treated at home. Severe sprains and strains sometimes require surgery to repair torn ligaments, muscles or tendons.

When to see a doctor

Mild sprains and strains can be treated at home. But you should see a doctor if you:

- Can't walk more than four steps without significant pain
- Can't move the affected joint
- Have numbness in any part of the injured area
- See redness or red streaks spreading out from the injury

Causes

Sprains

A sprain occurs when you overextend or tear a ligament while severely stressing a joint. Sprains often occur in the following circumstances:

- **Ankle.** Walking or exercising on an uneven surface
- **Knee.** Pivoting during an athletic activity
- **Wrist.** Landing on an outstretched hand during a fall
- **Thumb.** Skiing or playing racquet sports, such as tennis

Strains

There are two types of strains: Acute and chronic. An acute strain occurs when a muscle becomes strained or pulled — or may even tear — when it stretches unusually far or abruptly. Acute strains often occur in the following ways:

- Slipping on ice
- Running, jumping or throwing
- Lifting a heavy object or lifting in an awkward position

A chronic strain results from prolonged, repetitive movement of a muscle. This may occur on the job or during sports.

Risk factors

Factors contributing to sprains and strains include:

- **Poor conditioning.** Lack of conditioning can leave your muscles weak and more likely to sustain injury.
- **Fatigue.** Tired muscles are less likely to provide good support for your joints. When you're tired, you're also more likely to succumb to forces that could stress a joint or overextend a muscle.
- **Improper warm-up.** Properly warming up before vigorous physical activity loosens your muscles and increases joint range of motion, making the muscles less tight and less prone to trauma and tears.

Tests and diagnosis

X-rays can help rule out a fracture or other bone injury as the source of the problem. Magnetic resonance imaging (MRI) also may be used to help diagnose the extent of the injury.

Treatments and drugs

Treating sprains and strains depends on the joint involved and the severity of the injury.

Medications

For mild sprains and strains, your doctor likely will recommend basic self-care measures and an over-the-counter pain reliever such as ibuprofen (Advil, Motrin, others) or acetaminophen (Tylenol, others).

Therapy

In cases of a mild or moderate sprain or strain, apply ice to the area as soon as possible to minimize swelling. In cases of severe sprain or strain, your doctor may immobilize the area with a brace or splint.

Surgery

In some cases, such as in the case of a torn ligament or ruptured muscle, surgery may be considered.

Lifestyle and home remedies

For immediate self-care of a sprain or strain, try the P.R.I.C.E. approach — protection, rest, ice, compression, elevation. In most cases beyond a minor strain or sprain, you'll want your doctor and physical therapist to help you with this process:

- **Protection.** Immobilize the area to protect it from further injury. Use an elastic wrap, splint or sling to immobilize the area. If your injury is severe, your doctor or therapist may place a cast or brace around the affected area to protect it and instruct you on how to use a cane or crutches to help you get around, if necessary.
- **Rest.** Avoid activities that cause pain, swelling or discomfort. Even with some muscles out of commission, you can usually still exercise other muscles to prevent deconditioning. If you have a sprained ankle, for example, you may be able to work out on a stationary bicycle by resting your injured foot on a footrest peg, pedaling with your other leg, and working both arms. That way you still exercise three limbs and keep up your cardiovascular conditioning.
- **Ice.** Even if you're seeking medical help, ice the area immediately. Use an ice pack or slush bath of ice and water for 15 to 20 minutes each time and repeat every two to three hours while you're awake for the first few days following the injury. Cold reduces pain, swelling and inflammation in

injured muscles, joints and connective tissues. It also may slow bleeding if a tear has occurred. If the area turns white, stop treatment immediately. This could indicate frostbite. If you have vascular disease, diabetes or decreased sensation, talk with your doctor before applying ice.

- **Compression.** To help stop swelling, compress the area with an elastic bandage until the swelling stops. Don't wrap it too tightly or you may hinder circulation. Begin wrapping at the end farthest from your heart. Loosen the wrap if the pain increases, the area becomes numb or swelling is occurring below the wrapped area.
- **Elevation.** To reduce swelling, elevate the injured area above the level of your heart, especially at night. Gravity helps reduce swelling by draining excess fluid.

Over-the-counter pain medications such as ibuprofen (Advil, Motrin, others) and acetaminophen (Tylenol, others) also can be helpful.

After the first two days, gently begin to use the injured area. You should see a gradual, progressive improvement in the joint's ability to support your weight or your ability to move without pain. Mild and moderate sprains usually heal in three to six weeks. A physical therapist can help you to maximize stability and strength of the injured joint or limb.

Prevention

As part of an overall physical conditioning program, regular stretching and strengthening exercises can help to minimize your risk of sprains and strains. Try to be in shape to play your sport; don't play your sport to get in shape. If you have a physically demanding occupation, regular conditioning can help prevent injuries.

You can protect your joints in the long term by working to strengthen and condition the muscles around the joint that has been injured. The best brace you can give yourself is your own "muscle brace." Ask your doctor about appropriate conditioning and stability exercises. Also, use footwear that offers support and protection.

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