

Sprains and strains

Sprains and strains are two types of soft tissue injury. A sprain is a joint injury that typically involves tearing of the ligaments and joint capsule. A strain is an injury to muscle or tendons. First aid includes rest, ice, compression with bandages and elevation (RICE). A physiotherapist can provide further treatment, including exercise and physical therapy.

Soft tissue injuries may be sudden (acute) or get worse gradually (chronic). They can take between two and 12 weeks to heal, depending on the injury, initial and ongoing management, and the age and general health of the person.

Causes

Soft tissue is made from bundles of fibres. Muscle and tendons contain specialised cells that monitor the degree of contraction and stretch. With general use, muscles and tendons use soft contractions to resist overstretching. However, sudden twists or jolts can apply greater force than the tissue can structurally withstand. The fibres overstretch beyond their capacity and tear. Bleeding from ruptured blood vessels causes the swelling.

Injuries to soft tissues such as ligaments and tendons can come on suddenly or may get worse gradually. A sudden injury is related to a specific incident and is often called an acute soft tissue injury. This means it has occurred within the previous 24 to 72 hours. An injury that gets worse over time (for example, over three months) is often referred to as a chronic soft tissue injury. These are commonly caused by overuse or changes in normal tissue stress.

Sprains

Joints are held together and supported by tough bands of connective tissue called ligaments. The entire joint is enclosed inside a membrane filled with lubricating synovial fluid, which helps to nourish the joint and provide extra cushioning against impact. A sprain is a joint injury that typically involves small tears (microtrauma) of the ligaments and joint capsule. Common sites for sprains include the thumb, ankle and wrist.

Strains

Muscles are anchored to joints with connective tissue called tendons. Injury to these tendons or the muscles themselves is called a strain. Common sites for strains include the calf, groin and hamstring.

Symptoms

The symptoms of a sprain or strain may include:

- Pain
- Swelling
- Stiffness
- Reduced efficiency of function.

Degrees of severity

Acute soft tissue injuries are graded according to their severity and include:

- **Grade I** – some fibres are torn and the site is moderately painful and swollen, but function and strength are mostly unaffected.

- **Grade II** – many fibres are torn and the site is painful and swollen, with some loss of function and strength.
- **Grade III** – the soft tissue is totally torn, with considerable loss of function and strength. Grade III injuries often need surgical repair.

First aid

Suggestions for immediate treatment of acute sprains or strains include:

- Stop your activity.
- Rest the injured area.
- Use icepacks every two hours, applied for 15 minutes and separated from the skin by wet towelling.
- Compress or bandage the injured site firmly, extending the wrapping from below to above.
- Elevate (raise) the injured area above heart height whenever practical.
- Avoid exercise, heat, alcohol and massage, which can exacerbate swelling.

If symptoms get worse in the first 24 hours, see your doctor for further medical investigation.

Chronic injuries

A chronic injury evolves slowly with time and tends to hurt even when at rest. Using the joint triggers greater pain. The most common cause of a chronic soft tissue injury is overuse. Contributing factors to overuse injuries include poor technique, structural abnormalities and exercising too frequently without sufficient recovery breaks.

Some people, such as athletes or those who play regular sport, suffer from recurring chronic injury. This can be caused by loose ligaments, inflexible scar tissue from previous injuries and muscle imbalance. These types of recurring injury also often happen in workplaces where people carry out repetitive tasks.

Treatment

Most soft tissue injuries take a few weeks to heal, depending on the severity of the sprain or strain and the general health of the individual. It is important to get the correct treatment as soon after the injury as possible to assist rapid recovery. See your doctor or physiotherapist immediately if function is impaired or if the pain and swelling don't subside after a couple of days.

Treatment options may include:

- Physiotherapy exercises to promote healing, strength and flexibility
- Manual techniques, such as mobilisation and massage
- Electrotherapy
- Pain-killing medications
- Gradually introducing activities to normal levels.

Severe injuries where the tissue has completely ruptured may need surgery to reattach the torn pieces back together. Surgically repaired Grade III injuries will require significant physiotherapy to regain strength and function. A short period of immobilisation can assist with the healing process for Grade II type injuries.

Where to get help

- Your doctor
- Physiotherapist
- Australian Physiotherapy Association Tel. (03) 9092 0888

Things to remember

- A sprain is a type of joint injury which typically involves tearing of the ligaments and capsule.

- A strain is an injury to muscle or tendons.
- Immediate treatment includes rest, icepacks, compression (bandaging) and elevation (RICE).
- Ongoing treatment and supervision of return to work or sport may be performed by your physiotherapist.

This page has been produced in consultation with, and approved by:

Australian Physiotherapy Association

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