CONDITION

Strains

A strain is an overstretched or torn muscle or tendon caused by sudden force or repeated overload.

WHAT IT IS
Overstretched or torn muscle or tendon

BODY SYSTEM
Muscles, tendons, and movement

MAIN SYMPTOMS
Pain, tenderness, swelling, weakness

WHAT CAUSES IT
Sudden force or repeated overload

HOW IT IS DIAGNOSED
Physical examination; imaging for uncertain or severe injuries

MAIN TREATMENT
Protection, pain relief, and progressive rehabilitation

CAN IT BE CURED?
Yes - most heal with time and rehabilitation

IS IT AN EMERGENCY?
Sometimes - severe swelling, numbness, or a cold limb

LONG-TERM OUTLOOK
Most recover; severe tears can cause lasting weakness

Overview

A strain is an injury to a muscle or tendon. Tendons are strong bands of tissue that connect muscles to bones. A strain happens when these tissues are stretched beyond their usual limit or partly or completely torn.

Strains are sometimes called pulled muscles. They can affect almost any muscle, but they are common in the thigh, calf, groin, lower back, and shoulder. A strain may happen suddenly during sport, lifting, slipping, or an awkward movement. It can also develop gradually through repeated activity.

A strain is different from a sprain. A sprain affects a ligament, which connects one bone to another across a joint. Both injuries can cause pain, swelling, and difficulty moving, so it is not always possible to tell them apart without an examination.

Many strains heal with protection and gradual rehabilitation. More serious tears can take months to recover and may occasionally need surgery. Recognising a severe injury matters because early assessment can help prevent ongoing weakness or loss of movement.

Symptoms

Symptoms usually begin in the injured muscle or near the tendon where it joins a bone. They may start immediately after a sudden injury or build slowly with repeated use.

Common symptoms include:

With a sudden tear, you may feel or hear a pop. A dent or unusual bulge may appear if the muscle or tendon has separated. Bruising can spread or become more noticeable over the next few days.

Strains are often described as mild, moderate, or severe. A mild strain involves overstretched tissue or a small number of torn fibres. A moderate strain involves a larger partial tear and more loss of function. A severe strain may be a complete tear, with major weakness or an inability to use the affected area.

Pain alone does not reliably show how much damage has occurred. Some complete tendon tears cause surprisingly little pain after the first few moments.

- Pain or tenderness, especially when using or stretching the muscle
- Swelling or bruising
- Weakness or reduced movement
- Muscle spasm or cramping
- A feeling of tightness or stiffness

Causes and risk factors

A sudden strain can happen when a muscle contracts strongly while it is being stretched. Sprinting, jumping, changing direction, lifting a heavy object, or trying to prevent a fall can all produce this type of force.

Gradual strains result from repeated loading without enough recovery. They may occur during work, sport, or exercise, especially after a rapid increase in intensity or duration.

Factors that can make a strain more likely include:

Some medicines and health conditions can affect muscles or tendons, but they are not the

usual cause of a simple strain. Tell a healthcare professional about your medicines and medical history if an injury occurred with little force or keeps happening.

- Starting an unfamiliar activity or increasing training too quickly
- Muscle weakness, tiredness, or poor control of movement
- Returning to activity before an earlier injury has recovered
- Limited flexibility needed for a particular movement
- Poor lifting technique or unsuitable sporting technique
- Slippery or uneven surfaces
- A previous strain in the same area

Diagnosis

A healthcare professional will ask how the injury happened, where it hurts, and what movements are difficult. They may look for swelling, bruising, weakness, tenderness, and changes in the shape of the muscle or tendon. They may also check the nearby joint, nerves, and blood flow.

Most straightforward strains are diagnosed from the history and physical examination. An X-ray does not show a muscle strain, but it may be used when a broken bone or another bone injury is possible.

Ultrasound can show some muscle and tendon tears while the area is moving. Magnetic resonance imaging, or MRI, gives more detailed pictures of soft tissue. Imaging is usually reserved for an uncertain diagnosis, suspected complete tear, severe loss of function, or symptoms that are not improving as expected.

Other problems can feel like a strain. These include a fracture, joint injury, blood clot, slipped spinal disc, infection, or pain coming from a nerve. Sudden chest, upper-back, or arm pain should not automatically be assumed to be a muscle strain.

Treatment and management

Early care aims to protect the injured tissue, control discomfort, and maintain safe movement. Complete bed rest is rarely helpful for a straightforward strain.

For the first day or two, you can reduce or pause activities that cause sharp pain. A wrapped cold pack may ease pain for short periods. Do not place ice directly on the skin or use it on an

area with poor sensation. Compression and elevation may help swelling, but any bandage should be loosened if it causes numbness, tingling, colour change, or increasing pain.

Pain medicines may help you stay comfortable enough to move. Options can include paracetamol, also called acetaminophen, or anti-inflammatory medicines. These are not suitable for everyone. A pharmacist or healthcare professional can help you check whether a medicine is safe with your health conditions, pregnancy status, allergies, or other medicines.

As the early pain settles, gradual movement and loading help restore strength and flexibility. Rehabilitation may include:

Some soreness during rehabilitation can occur, but sharp pain, increasing swelling, or worsening function suggests that the activity is too demanding. Repeatedly testing an injury with hard exercise can delay recovery.

A physiotherapist may be helpful after a moderate or severe strain, a repeat injury, or difficulty returning to normal activity. Surgery is uncommon. It may be considered for certain complete muscle or tendon tears, especially when the injury causes major loss of function.

- Comfortable movement through an increasing range
- Gradual strengthening of the injured muscle
- Balance or coordination exercises when relevant
- Practice of work, daily, or sporting movements
- A staged return to full activity

Complications

Most strains heal without serious complications. Recovery can take longer if the injured area is repeatedly overloaded or rehabilitation stops before strength and movement return.

Possible problems include ongoing pain, stiffness, weakness, reduced confidence in movement, and another strain in the same area. Scar tissue may limit flexibility in some injuries. A large collection of blood within a muscle, called a haematoma, can sometimes form after a significant tear.

Rarely, severe swelling inside a group of muscles can reduce blood flow and damage nerves. This is called compartment syndrome and needs emergency treatment. Severe muscle damage can also release muscle proteins into the blood, potentially harming the kidneys. Dark brown urine after a major injury or extreme exertion needs urgent assessment.

Prevention

Not every strain can be prevented. Sudden falls, collisions, and unexpected movements can injure healthy tissue.

You may reduce your risk by building activity gradually rather than making a sudden increase. Regular strength and movement training can prepare muscles for the demands placed on them. A warm-up that includes easy versions of the planned activity may also help you move with better control.

Use suitable footwear and equipment, and learn safe techniques for lifting, work, or sport. Allow recovery after demanding activity, especially when muscles are sore or tired.

After a strain, complete rehabilitation before returning to full speed, heavy lifting, or competition. Pain relief alone does not mean the tissue has regained its strength. A previous strain is a risk factor for another injury, particularly if weakness remains.

Living with it and what to expect

A mild strain may begin to feel better within a few days and recover over days to several weeks. A larger partial tear often takes several weeks or longer. Complete tears and injuries involving major tendons can require months of rehabilitation.

Recovery is not always steady. Pain and stiffness may improve, then briefly increase after more activity. The overall trend should be toward better movement, strength, and function.

During recovery, you may need temporary changes to work, exercise, childcare, driving, or household tasks. Staying active in ways that do not overload the injury is usually more helpful than avoiding all movement. A healthcare professional or physiotherapist can advise on safe adjustments when the injury affects essential activities.

Return to demanding activity should be gradual. The injured area should have useful movement and strength, and you should be able to complete the required movements without sharp pain or loss of control.

Most people return to their usual activities without lasting problems. A severe tear can leave some weakness, stiffness, or altered muscle shape even after treatment. Recurrent strains may need a review of strength, training load, technique, or whether another condition is contributing.

When to get medical help

Arrange a routine assessment if the injury is not steadily improving, keeps returning, or continues to limit sleep, work, walking, or daily activity. Assessment is also sensible if the injury happened with little force or you are unsure whether it is a strain.

Seek prompt medical assessment if:

Seek emergency help for severe, rapidly increasing pain or tight swelling, particularly with numbness, weakness, pale or cold skin, or loss of movement. These can indicate reduced blood flow or pressure around nerves and muscles.

Emergency assessment is also needed after a major injury with deformity or an open wound. Dark brown urine after severe muscle injury or extreme exertion needs urgent care.

Call emergency services for chest pressure or pain with breathlessness, sweating, faintness, nausea, or pain spreading to the arm, jaw, or back. Do not assume these symptoms are caused by a chest muscle strain.

- You heard a pop and cannot use the affected muscle normally
- You cannot bear weight or move a nearby joint
- There is extensive bruising, marked swelling, or a visible dent
- Pain is worsening rather than settling
- The area becomes red, hot, or associated with fever
- You take blood-thinning medicine and develop substantial bruising

Common questions

Is a strain the same as a sprain?

No. A strain affects a muscle or tendon. A sprain affects a ligament connecting two bones. Their symptoms can overlap, and an examination may be needed to tell them apart.

How long does a muscle strain take to heal?

A mild strain may recover within days to a few weeks. A moderate tear may take several weeks or longer. A severe or complete tear can take months and may need specialist treatment. Recovery time is influenced by the tissue injured, the size of the tear, and the demands of your usual activity.

Can I walk or exercise with a strain?

Gentle activity is often reasonable if you can move without sharp pain, limping, or worsening

symptoms. Avoid sprinting, heavy lifting, or forceful stretching until strength and movement have returned. Increase activity in stages rather than testing the injury at full effort.

Should I use ice or heat?

A wrapped cold pack can reduce pain during the first day or two. Heat may feel soothing later, especially for stiffness, but it should not be hot enough to burn the skin. Neither replaces gradual movement and rehabilitation.

Do I need a scan for a strain?

Usually not. Many strains can be diagnosed through an examination. Ultrasound or MRI may be useful when a complete tear is suspected, the diagnosis is unclear, or recovery is not progressing as expected.

Can a torn muscle heal without surgery?

Most muscle strains, including many partial tears, heal without surgery. Treatment usually involves temporary protection followed by progressive rehabilitation. Certain complete tears or major tendon injuries may need surgical repair.

Sources

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