

MUSCLE STRAIN

What Is It?

A muscle strain is the stretching or tearing of muscle fibers. Most muscle strains happen for one of two reasons: either the muscle has been stretched beyond its limits or it has been forced to contract too strongly. In mild cases, only a few muscle fibers are stretched or torn, and the muscle remains intact and strong. In severe cases, however, the strained muscle may be torn and unable to function properly. To help simplify diagnosis and treatment, doctors often classify muscle strains into three grades, depending on the severity of muscle fiber damage:

- **Grade I strain.** In this mild strain, only a few muscle fibers are stretched or torn. Although the injured muscle is tender and painful, it has normal strength.
- **Grade II strain.** This is a moderate strain, with a greater number of injured fibers and more severe muscle pain and tenderness. There is also mild swelling, noticeable loss of strength and sometimes a bruise.
- **Grade III strain.** This strain tears the muscle all the way through, sometimes causing a "pop" sensation as the muscle rips into two separate pieces or shears away from its tendon. Grade III strains are serious injuries that cause complete loss of muscle function, as well as considerable pain, swelling, tenderness and discoloration. Because Grade III strains usually cause a sharp break in the normal outline of the muscle, there may be an obvious "dent" or "gap" under the skin where the ripped pieces of muscle have come apart.

Although the risk of muscle strain is especially high during sports activities, you also can strain a muscle by lifting a heavy carton or by simply stepping off a curb.

Almost all types of athletic activity carry some risk of muscle strains, but these injuries tend to happen most often in contact sports, such as football, and in sports that require quick starts, such as basketball and tennis.



Symptoms

Symptoms of muscle strain include:

- Muscle pain and tenderness, especially after an activity that stretches or violently contracts the muscle -- Pain usually increases when you move the muscle but is relieved by rest.
- Muscle swelling, discoloration or both
- Muscle cramp or spasm
- Either a decrease in muscle strength or (in Grade III strains) a complete loss of muscle function
- A pop in the muscle at the time of injury
- A gap, dent or other defect in the normal outline of the muscle (in Grade III strain)

Diagnosis

Your doctor will want to know what type of activity triggered your muscle pain and whether there was a pop in the muscle at the time of injury. The doctor will ask about your symptoms, especially any decrease in muscle strength or any difficulty moving.

Your doctor will want to know whether you've had recent fever, weight loss, leg numbness, urinary or bladder problems, or other symptoms that may point to a more severe medical problem.

After noting your symptoms and past medical history, your doctor will examine you, checking for muscle tenderness, spasm, weakness and decreased muscle movement. If this exam points to a mild or moderate muscle strain, you may not need any additional testing. However, if the diagnosis is in doubt, X-rays or magnetic resonance imaging (MRI) scan may be helpful.

If you have back pain, your doctor may order additional tests to check for a urinary tract infection or a problem involving the vertebrae (backbones), vertebral disks, spinal canal or spinal cord.

Expected Duration

How long a sprain lasts depends on the location and severity of the injury. Symptoms of a mild back strain usually improve within one to two weeks and are gone within four to six weeks. In the legs, mild or moderate strains may take up to 8 to 10 weeks or more to heal. Symptoms of a severe (Grade III) strain may persist until the torn muscle is repaired surgically.

**16 Yonge St., Unit K
Toronto, Ontario
M5E 2A1**

**P: 416.258.2551
F: 416.266.2955**

glow@1Clinic.ca

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Prevention

To help prevent muscle strains:

- Warm up before participating in sports and activities.
- Follow an exercise program aimed at stretching and strengthening your muscles.
- Increase the intensity of your training program gradually. Never push yourself too hard, too soon.
- Maintain a healthy body weight. Obesity can stress muscles, especially in your legs and back.
- Practice good posture when you sit and stand.
- Use the correct technique when you lift heavy loads.

Treatment

If you have a Grade I or Grade II strain, your doctor will ask you to follow the RICE rule:

- **R**est the injured muscle (and take a temporary break from sports activities).
- **I**ce the injured area to reduce swelling.
- **C**ompress the muscle with an elastic bandage.
- **E**levate the injured area.

To help relieve muscle pain and swelling, your doctor may suggest that you take acetaminophen (Tylenol and others) or a nonsteroidal anti-inflammatory drug (NSAID), such as ibuprofen (Advil, Motrin and others). For someone with a painful back strain that does not improve with NSAIDs or acetaminophen (Tylenol), prescription pain medications or muscle relaxants may be appropriate.

If you have a severe Grade II or Grade III strain, your doctor may refer you to an orthopedic specialist. Depending on the severity and location of your muscle strain, the orthopedist may immobilize the injured muscle in a cast for several weeks or repair it surgically.

Mild strains may heal quickly on their own, but more severe strains may require a rehabilitation program.



When To Call a Professional

Call your doctor promptly if:

- You hear or feel a pop in your muscle at the time of injury.
- You have severe pain, swelling or discoloration in the injured muscle.
- Your injured muscle is obviously weak or has difficulty moving compared to the same muscle on the opposite side of your body.
- You have mild muscle symptoms that do not improve after 48 hours.
- You have severe back pain that makes it impossible for you to do normal daily activities, or you have mild back pain that worsens after a few days.
- You are being treated for a strained back and your symptoms do not improve within two weeks.
- You have back pain together with any of the following symptoms, which can signal a medical problem that is more serious than a mild back strain:
 - Fever or chills
 - Pain or a burning feeling when you urinate
 - Sudden weakness, numbness or tingling in a leg
 - Numbness in your groin or rectum
 - Difficulty controlling your bladder or bowel function

Prognosis

Recovery depends on the location and severity of your muscle strain. In general, almost all Grade I strains heal within a few weeks, whereas Grade II strains may take two to three months or longer.

After surgery to repair a Grade III strain, most people regain normal muscle function after several months of rehabilitation.

