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# Sciatica

## Introduction

The longest nerve in your body, the sciatic nerve runs from your pelvis through your buttock and hip area and down the back of each leg. It controls many of the muscles in your lower legs and provides feeling to your thighs, legs and feet. The term "sciatica" refers to pain that radiates along the path of this nerve — from your back into your buttock and leg.

Sciatica isn't a disorder in and of itself. Instead, it's a symptom of another problem involving the nerve, such as a herniated disk. Depending on the cause, the pain of acute sciatica usually goes away on its own in six weeks or so.

In the meantime, heat and cold applications, over-the-counter pain relievers, and exercise or physical therapy can help ease the discomfort of sciatica and speed recovery. Surgery to relieve pressure on the nerve may be an option when symptoms of sciatica don't respond to conservative treatment and pain is chronic or disabling.

## Signs and symptoms

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[Sciatic nerve](#)

Pain that radiates from your lower (lumbar) spine to your buttock and down the back of your leg is the hallmark of sciatica. You may feel the discomfort almost anywhere along the nerve pathway, but it's especially likely to follow a path from your low back to your buttock and the back of your thigh and calf.

The pain can vary widely, from a mild ache to a sharp, burning sensation or excruciating discomfort. Sometimes it may feel like a jolt or electric shock. Sciatic pain often starts gradually and intensifies over time. It may be worse

when you cough or sneeze, and prolonged sitting or walking can also aggravate symptoms. Usually only one lower extremity is affected.

In addition to pain, you may also experience:

- **Numbness or muscle weakness** along the nerve pathway in your leg or foot. In some cases, you may have pain in one part of your leg and numbness in another.
- **Tingling or a pins-and-needles feeling**, most commonly in your toes or part of your foot.
- **A loss of bladder or bowel control.** This is a sign of cauda equina syndrome, a rare but serious condition that requires emergency care. If you experience either of these symptoms, seek medical help immediately.

## Causes

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[Intervertebral disk](#)

Sciatica frequently occurs when a nerve root is compressed in your lower (lumbar) spine — most often as a result of a herniated disk in the low back. Disks are pads of cartilage that separate the bones (vertebrae) in your spine. They keep your spine flexible and act as shock absorbers to cushion the vertebrae when you move.

But as you grow older, the disks may start to deteriorate, becoming drier, flatter and more brittle. Eventually, the tough, fibrous outer covering of the disk may develop tiny tears, causing the jelly-like substance in the disk's center to seep out (herniation or rupture). The herniated disk may then press on a nerve root, causing pain in your back, leg or both. If the damaged disk is in the middle or lower part of your back, you also may experience numbness, tingling or weakness in your buttock, leg or foot.

Although a herniated disk is by far the most common cause of sciatic nerve pain, other conditions can also put pressure on the sciatic nerve, including:

- **Lumbar spinal stenosis.** Your spinal cord is a bundle of nerves that extends the length of your spine. It's housed inside a channel (spinal canal) within the vertebrae. Thirty-one pairs of nerves branch off from the spinal cord, providing communication between your brain and the rest of your body. In spinal stenosis, one or more areas in the spinal canal narrow, putting pressure on the spinal cord or on the roots of the branching nerves. When the narrowing occurs in the lower spine, the lumbar and sacral nerve roots may be affected.

- **Spondylolisthesis.** This condition, often the result of degenerative disk disease, occurs when one vertebra slips slightly forward over another vertebra. The displaced bone may pinch the sciatic nerve where it leaves the spine.
- **Piriformis syndrome.** Running directly above the sciatic nerve, the piriformis muscle starts at your lower spine and connects to each thighbone (femur). Piriformis syndrome occurs when the muscle becomes tight or goes into spasms, putting pressure on the sciatic nerve. The pain may radiate down the back of your thigh but doesn't extend below the knee. Active women — runners and serious walkers, for example — are especially likely to develop the condition. Prolonged sitting, car accidents and falls also can contribute to piriformis syndrome.
- **Spinal tumors.** In the spine, tumors can occur inside the spinal cord, within the membranes (meninges) that cover the spinal cord, or in the space between the spinal cord and the vertebrae — the most common site. As it grows, a tumor compresses the cord itself or the nerve roots. This can cause severe back pain that may extend to your hips, legs or feet; muscle weakness and a loss of sensation, especially in your legs; difficulty walking; and sometimes loss of bladder or bowel function.
- **Trauma.** A car accident, fall or blow to the spine can injure the lumbar or sacral nerve roots.
- **Sciatic nerve tumor or injury.** Although this doesn't occur often, the sciatic nerve itself may be affected by a tumor or injury.
- **Other causes.** In some cases, your doctor may not be able to find a cause for your sciatica. A number of problems can affect the bones, joints and muscles, all of which could potentially result in sciatic pain.

## Risk factors

Risk factors are health problems, lifestyle choices and inherent qualities, such as age or race, that make it more likely you'll develop a particular condition. Major risk factors for sciatica include:

- **Age.** Age-related changes in the spine are the most common cause of sciatica. You're likely to have some deterioration in the disks in your back by the time you're 30, and most people who develop herniated disks are in their 30s and 40s. Spinal stenosis, another leading cause of sciatica, primarily strikes people in their 50s and beyond.
- **Occupation.** A job that requires you to twist your back, carry heavy loads or drive a motor vehicle for long periods makes you more prone to develop sciatica.
- **Physical activity.** Although walking and jogging have been associated with an increased risk of sciatica, exercise in general has not. In fact, people who sit for prolonged periods or have a sedentary

lifestyle are more likely to develop sciatica than active people are.

- **Genetic factors.** Researchers have identified two genes that may predispose some people to disk problems.
- **Diabetes.** This condition, which affects the way your body uses blood sugar, increases your risk of nerve damage.

## When to seek medical advice

Mild sciatica usually goes away given a little time and patience. Call your doctor if self-care measures fail to ease your symptoms or if your pain lasts longer than six weeks, is severe or becomes progressively worse. Get immediate medical care if:

- You experience sudden, severe pain, numbness or muscle weakness in your back or leg
- The pain follows a violent injury, such as a traffic accident
- You have trouble controlling your bowels or bladder

## Screening and diagnosis

To help diagnose sciatica and pinpoint which nerves, if any, are affected, your doctor will ask about your medical history and perform a thorough physical exam, paying special attention to your spine and legs.

You're also likely to have some basic tests that check your muscle strength and reflexes. For example, you may be asked to walk on your toes or heels, rise from a squatting position and, while lying on your back, lift your legs one at a time straight in the air. Pain that results from sciatica will usually become worse during these activities.

If your pain lasts longer than six weeks or is very severe, or you have another serious condition such as cancer, you may have one or more imaging tests to help identify why the sciatic nerve is compressed and to rule out other causes for your symptoms.

These tests include:

- **Spinal X-ray.** Because ordinary X-rays can't detect herniated disk problems or nerve damage, they're not usually helpful for pinpointing the cause of sciatica. A spinal X-ray can show most cancers affecting the bony structures of the spine, narrowed disks and spondylolisthesis, however, and can help rule out other causes of nerve root impingement.
- **Magnetic resonance imaging (MRI).** This is probably the most sensitive test for assessing sciatic nerve pain. Instead of X-rays, MRI uses a powerful magnet and radio waves to produce cross-sectional images of your back. The test can detect damage to your disks and ligaments as well as the presence of tumors. MRI is noninvasive and has no harmful side effects.

During the test, you lie on a movable table inside the MRI machine, which is essentially a large magnet. If you have a hard time lying still for the required period of time — usually 30 to 90 minutes — or you're anxious about the enclosed space, you may be given a sedative. Some MRI units may be wider, shorter or open on all sides, which may be more comfortable for you, although the quality of images taken with these systems may vary.

- **Computerized tomography (CT) scan.** This test uses a narrow beam of radiation to produce detailed, cross-sectional images of your body. When CT is used to image the spine, you may have a contrast dye injected into your spinal canal before the X-rays are taken — a procedure called a CT myelogram. The dye then circulates around your spinal cord and spinal nerves, which appear white on the scan.

The test can show herniated disks and tumors, but it poses some risks, including infection and damage to the spinal cord. In addition, CT exposes you to more ionizing radiation than do regular X-rays.

## Complications

In some cases, sciatica can result in permanent nerve damage, although this is uncommon. Depending on what's causing the nerve to be compressed, other complications may occur, including loss of feeling or movement in the affected leg and loss of bowel or bladder function.

## Treatment

For most people, sciatica responds well to self-care measures. You'll heal more quickly if you continue with your usual activities but avoid what may have triggered the pain in the first place. Although resting for a day or so may provide some relief, prolonged bed rest isn't a good idea. In the long run, inactivity will make your symptoms worse.

In addition, try the following measures:

- **Cold packs.** Initially, your doctor may suggest using cold packs to reduce inflammation and relieve discomfort. Wrap an ice pack or a package of frozen peas in a clean towel and apply to the painful areas for 15 to 20 minutes at least four times a day.
- **Hot packs.** After 48 hours, apply heat to the areas that hurt. Use warm packs, a heat lamp or a heating pad on the lowest setting. If you continue to have pain, try alternating warm and cold packs.
- **Stretching.** Initially, passive stretching exercises for your low back can help you feel better and may help relieve nerve root compression, but avoid jerking, bouncing or twisting.
- **Over-the-counter medications.** Pain relievers (analgesics) fall into two categories — those that reduce pain and inflammation and those that only treat pain. Nonsteroidal anti-inflammatory drugs (NSAIDs)

such as aspirin and ibuprofen, and acetaminophen products such as Tylenol can both be helpful for sciatica.

Although they can provide real relief, both types of medication have a "ceiling effect" — that is, there's a limit to how much pain they can control. If you have moderate to severe pain, exceeding the recommended dosage won't provide additional benefits. What's more, NSAIDs can cause side effects such as nausea, stomach bleeding or ulcers, and acetaminophen can cause liver problems if taken in excess.

If you use these medications, talk to your doctor so that you can be monitored for problems. In addition, periodically re-evaluate whether you still need them. Exercise, stretching, massage and other nondrug treatments can often provide the same benefits without side effects.

- **Prescription drugs.** In some cases, your doctor may prescribe an anti-inflammatory medication along with a muscle relaxant. Tricyclic antidepressants and anticonvulsant drugs also may be prescribed for chronic pain. They may help by blocking pain messages to the brain or by enhancing the production of endorphins, your body's natural painkillers.
- **Physical therapy.** If you have a herniated disk, physical therapy can play a vital role in your recovery. Once acute pain improves, your doctor or a physical therapist can design a rehabilitation program to help prevent recurrent injuries.

Rehabilitation typically includes exercises to help correct your posture, strengthen the muscles supporting your back and improve your flexibility. Your doctor will have you start physical therapy, exercise or both as early as possible. It's the cornerstone of your treatment program and should become part of your permanent routine at home.

- **Regular exercise.** It may seem counterintuitive to exercise when you're in pain, but regular exercise is one of the best ways to combat chronic discomfort.

Exercise prompts your body to release endorphins — chemicals that prevent pain signals from reaching your brain. Endorphins also help alleviate anxiety and depression, conditions that can make your pain more difficult to control. What's more, combining aerobics with strength training and exercises that maintain or improve flexibility can help prevent age-related degenerative changes in your back.

If you're new to exercise, start out slowly and progress to at least 30 minutes most days. To prevent injury, consider learning proper weightlifting techniques from a certified personal trainer, fitness specialist or physical therapist.

### More aggressive treatments

When conservative measures don't alleviate your pain within a few months, one of the following may be an option:

- **Epidural steroid injections.** In some cases, your doctor may inject a corticosteroid medication into the affected area. Corticosteroids mimic the effects of the hormones cortisone and hydrocortisone, which are made by the outer layer (cortex) of your adrenal glands. When prescribed in doses that exceed your natural levels, corticosteroids suppress inflammation, thereby relieving pressure and pain.

Their usefulness in treating sciatica is a matter of debate, however, and they seem most effective when used in conjunction with a rehabilitation program. In addition, corticosteroids can cause serious side effects, so the number of injections you can receive is limited — usually no more than three in one year.

- **Surgery.** This is usually reserved for times when the compressed nerve causes significant weakness, bowel or bladder incontinence, or you have pain that gets progressively worse or doesn't improve with other therapies.

Surgery is most often performed to remove a portion of a herniated disk that's pressing on a nerve, a procedure called diskectomy. Ideally, most of the disk is left intact to preserve as much of the normal anatomy as possible. Sometimes a surgeon will perform this operation through a small incision while looking through a microscope (microdiskectomy).

Success rates of standard diskectomy and microdiskectomy are about equal, but you're likely to have less pain and to recover more quickly with microdiskectomy. Possible complications for either type of disk surgery include bleeding, infection, injury to the nerves or spinal cord, scarring, and the risks of anesthesia. What's more, although you may experience immediate results from disk surgery, it doesn't stop degenerative changes and your pain may recur in time.

## Prevention

It's not always possible to prevent sciatica, but the following suggestions can play a key role in protecting your back:

- **Exercise regularly.** This is the most important thing you can do for your overall health as well as for your back.

Pay special attention to your core muscles — the muscles in your abdomen and lower back that are essential for proper posture and alignment. Pilates — an exercise technique for total body conditioning and rehabilitation — may be particularly helpful in keeping these muscles strong.

For cardiovascular benefits, try using a stationary bike, treadmill,

elliptical trainer or cross-country ski machine. Cycling outdoors is also recommended, but be sure your seat and handlebars are adjusted properly.

- **Maintain proper posture when you sit.** A good chair should comfortably support your hips and the seat shouldn't press on the back of your thighs or knees. If the chair doesn't support the natural curve in your lower spine, place a rolled towel or pillow behind your back.

When working at a computer, adjust your chair so that your feet are flat on the floor and your arms rest on your desk or the chair's arms, with your elbows bent at a right angle. Take frequent breaks, even if it's just to walk around your office.

When you drive, adjust your seat to keep your knees and hips level, and move the seat forward to avoid overreaching for the pedals.

- **Use good body mechanics.** Being conscious of how you stand, lift heavy objects and even how you sleep can go a long way toward keeping your back healthy. That's because poor posture stresses your back, leading to fatigue and stress on joints and nerves. If you stand for long periods, rest one foot on a stool or small box from time to time. While you stand, hold reading material at eye level instead of bending forward.

Before you lift something heavy, decide where you'll place it and how you'll get there. Bend at your knees, not your back, so that your legs do the lifting. Carry objects close to your body at about waist level. If possible, set the object down on a surface between shoulder and knee height to avoid lifting objects over your head or bending over too far. Don't twist at your waist. Instead, turn by pivoting your feet.

Be careful moving heavy things when you're tired — fatigue can cause you to move more awkwardly. Heavy loads pose the greatest risk, so know your limitations. Don't attempt to lift something you feel is beyond your ability.

For the best sleep posture, choose a firm mattress. Use pillows for support, but don't use one that forces your neck up at a severe angle.

## Complementary and alternative medicine

Complementary and alternative medicine (CAM) refers to medical and health care systems, practices, and products that aren't currently part of conventional medicine — the care you receive in your primary care doctor's office. Many of these therapies are being studied intensely and some have proven to help alleviate back pain.

- **Acupuncture.** Originating in China more than 2,500 years ago, this medical system is based on the idea that that health and life depend

on a vital energy called qi — pronounced "chee" and sometimes written chi — that flows along 14 pathways in your body. When qi is blocked, disease and pain result. Inserting very fine needles into specific points along the meridians unblocks energy flow and restores your body's healthy balance.

During an acupuncture treatment, you're likely to have from one to 20 or more hair-thin needles inserted into your skin. Most needles are inserted superficially, although some may go deeper, depending on where they're placed and the problem being treated. In most cases, you won't feel the needles — in fact, many people find the treatments extremely relaxing. The needles may remain in place from a few minutes to half an hour or longer.

Acupuncture has received a great deal of attention from western scientists in the past decade, and studies of this complex medical system are ongoing. In 1998, the National Institutes of Health acknowledged that acupuncture appears to be effective at relieving a number of kinds of pain, including low back pain from sciatica.

Most important to the success of an acupuncture treatment is a skilled practitioner. Licensed acupuncturists usually have extensive training — up to four years of specialized schooling after college — and have passed a stringent state or national exam.

- **Acupressure.** This therapy is based on the same principles as acupuncture, but rather than using needles, the practitioner massages or presses specific points along the meridians to effect healing. Although the results may be more subtle than with acupuncture, acupressure may be a good choice if you'd rather avoid needles.
- **Chiropractic.** Chiropractic treatment is based on the philosophy that restricted movement in the spine may lead to reduced function and pain. Spinal adjustment (manipulation) is one form of therapy chiropractors use to treat restricted spinal mobility. The goal is to restore spinal movement and, as a result, improve function and decrease pain.

Chiropractors manipulate the spine from different positions using varying degrees of force. Manipulation doesn't need to be forceful to be effective. Chiropractors may also use massage and stretching to relax muscles that are shortened or in spasm.

In 1994, the Agency for Healthcare Research and Quality, formerly the Agency for Health Care Policy and Research, rated spinal manipulation as an effective treatment for acute back pain.

- **Hypnosis.** People have been using hypnosis to promote healing since ancient times. In the past 50 years, however, it has experienced a resurgence among physicians, psychologists and mental health professionals. Hypnosis produces an induced state of deep relaxation

in which your mind stays narrowly focused and open to suggestion.

During hypnosis, you can receive suggestions designed to decrease your perception of pain and increase your ability to cope with it. It also can help you stop habits such as smoking. No one knows exactly how hypnosis works, but experts believe it alters your brain wave patterns in much the same way as other relaxation techniques.

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