



Diseases and Conditions

Spinal stenosis

By Mayo Clinic Staff

Spinal stenosis is a narrowing of the open spaces within your spine, which can put pressure on your spinal cord and the nerves that travel through the spine to your arms and legs. Spinal stenosis occurs most often in the lower back and the neck.

While spinal stenosis may cause no signs or symptoms in some people, other people may experience pain, tingling, numbness, muscle weakness, and problems with normal bladder or bowel function.

Spinal stenosis is most commonly caused by wear-and-tear changes in the spine related to osteoarthritis. In severe cases of spinal stenosis, doctors may recommend surgery to create additional space for the spinal cord or nerves.

Many people have evidence of spinal stenosis on X-rays, but may not have signs or symptoms. When symptoms do occur, they often start gradually and worsen over time. Symptoms vary, depending on the location of the stenosis:

- **In the neck (cervical spine).** Cervical stenosis can cause numbness, weakness or tingling in a leg, foot, arm or hand. Tingling in the hand is the most common symptom, and many people also report problems with walking and balance. Nerves to the bladder or bowel may be affected, leading to incontinence.
- **In the lower back (lumbar spine).** Compressed nerves in your lumbar spine can cause pain or cramping in your legs when you stand for long periods of time or when you walk. The discomfort usually eases when you bend forward or sit down.

When to see a doctor

Make an appointment with your doctor if you have persistent pain, numbness or weakness in your back, legs or arms.

While some people are born with a small spinal canal, most spinal stenosis occurs when something happens to reduce the amount of space available within the spine. Causes of spinal stenosis may include:

- **Overgrowth of bone.** Wear and tear damage from osteoarthritis on your spinal bones can prompt the formation of bone spurs, which can grow into the spinal canal. Paget's disease, a bone disease that usually affects adults, also can cause bone overgrowth in the spine.
- **Herniated disks.** The soft cushions that act as shock absorbers between your vertebrae tend to dry out with age. Cracks in a disk's exterior may allow some of the soft inner material to escape and press on the spinal cord or nerves.
- **Thickened ligaments.** The tough cords that help hold the bones of your spine together can become stiff and thickened over time. These thickened ligaments can bulge into the spinal canal.
- **Tumors.** Abnormal growths can form inside the spinal cord, within the membranes that cover the spinal cord or in the space between the spinal cord and vertebrae.
- **Spinal injuries.** Car accidents and other major trauma can cause dislocations or fractures of one or more vertebrae. Displaced bone from a spinal fracture may damage the contents of the spinal canal. Swelling of adjacent tissue immediately following back surgery also can put pressure on the spinal cord or nerves.

Most people with spinal stenosis have passed the age of 50. When younger people develop spinal stenosis, the cause is typically a genetic disease affecting bone and muscle development throughout the body.

Rarely, untreated cases of severe spinal stenosis may progress and cause permanent:

- Numbness
- Weakness
- Balance problems
- Incontinence
- Paralysis

If your family doctor suspects that you have spinal stenosis, he or she may refer you to a doctor who specializes in disorders of the nervous system (neurologist). Depending on the severity of your symptoms, you might also be referred to a spinal surgeon.

What you can do

Before the appointment, you might want to prepare a list of answers to the following questions:

- When did you first notice this problem?
- Has it worsened with time?
- Have your parents or siblings ever had similar symptoms?
- Do you have other medical problems?
- What medications or supplements do you take regularly?

What to expect from your doctor

Your doctor may ask some of the following questions:

- Do you have pain? Where is it?
- Does any position ease the pain or worsen it?
- Do you have any weakness, numbness or tingling?
- Do you feel clumsier lately?
- Have you had any difficulty controlling your bowel or bladder?
- What treatments have you tried already for these problems?

Spinal stenosis can be difficult to diagnose because its signs and symptoms resemble those of many age-related conditions. Imaging tests may be needed to help pinpoint the true cause of your signs and symptoms.

Imaging tests

These tests may include:

- **X-rays.** Using a small exposure to radiation, X-rays can reveal bony changes, such as bone spurs that may be narrowing the space within the spinal canal.
- **Magnetic resonance imaging (MRI).** In most cases, this is the imaging test of choice for diagnosing spinal stenosis. Instead of X-rays, an MRI uses a powerful magnet and radio waves to produce cross-sectional images of your spine. The test can detect damage to your disks and ligaments, as well as the presence of tumors. Most important, it can show pressure on the spinal cord or spinal nerves.
- **CT myelogram.** If you can't have an MRI, your doctor may recommend computerized tomography (CT), a test that combines X-ray images taken from many different angles to produce detailed, cross-sectional images of your body. In a CT myelogram, the CT scan is conducted after a contrast dye is injected. The dye outlines the spinal cord and nerves, and it can reveal herniated disks, bone spurs and tumors.

The type of treatment you receive for spinal stenosis may vary, depending on the location of the stenosis and the severity of your signs and symptoms.

Medications

To control pain associated with spinal stenosis, your doctor may prescribe:

- **NSAIDs.** Nonsteroidal anti-inflammatory drugs (NSAIDs) help relieve pain and reduce inflammation common to osteoarthritis. Some NSAIDs, such as ibuprofen (Advil, Motrin IB, others) and naproxen (Aleve), are available without prescription.
- **Muscle relaxants.** Medications such as cyclobenzaprine (Amrix, Fexmid) can calm the muscle spasms that occasionally occur with spinal stenosis.
- **Antidepressants.** Nightly doses of tricyclic antidepressants, such as amitriptyline, can help ease chronic pain.
- **Anti-seizure drugs.** Some anti-seizure drugs, such as gabapentin (Neurontin, Gralise,

Horizant) and pregabalin (Lyrica), are used to reduce pain caused by damaged nerves.

- **Opioids.** Drugs that contain codeine-related drugs such as oxycodone (Percocet, OxyContin, others) and hydrocodone (Norco, Zohydro, others) can be habit-forming.

Therapy

It's common for people who have spinal stenosis to become less active, in an effort to reduce pain. However, that can lead to muscle weakness, which can result in more pain. A physical therapist can teach you exercises that may help:

- Build up your strength and endurance
- Maintain the flexibility and stability of your spine
- Improve your balance

Steroid injections

Your nerve roots may become irritated and swollen at the spots where they are being pinched. Injecting a corticosteroid into the space around that constriction can help reduce the inflammation and relieve some of the pressure. However, steroid injections don't work for everyone. And repeated steroid injections can weaken nearby bones and connective tissue, so only a few injections a year are suggested.

Surgery

Surgery may be considered if more conservative treatments haven't helped or if you're disabled by your symptoms.

The goal is to relieve the pressure on your spinal cord or nerve roots by creating more space within the spinal canal. Examples include:

- **Laminectomy.** The procedure removes the back part (lamina) of the affected vertebra. In some cases, that vertebra may need to be linked to adjoining vertebrae with metal hardware and a bone graft (spinal fusion) to maintain the spine's strength.
- **Laminotomy.** This procedure removes only a portion of the lamina, typically carving a hole just big enough to relieve the pressure in a particular spot.
- **Laminoplasty.** This procedure is performed only on the vertebrae in the neck. It opens up the space within the spinal canal by creating a hinge on the lamina. Metal hardware bridges the gap in the opened section of the spine.

In most cases, these space-creating operations help reduce spinal stenosis symptoms. But some people's symptoms stay the same or get worse after surgery. Surgical risks include infection, a tear in the membrane that covers the spinal cord, a blood clot in a leg vein and neurological deterioration.

The following home treatments might help:

- **Pain relievers.** Over-the-counter medications such as ibuprofen (Advil, Motrin IB, others) and

naproxen (Aleve) can help reduce pain and inflammation.

- **Hot or cold packs.** Some symptoms of cervical spinal stenosis may be relieved by applying heat or ice to your neck.
- **Diet and nutrition.** Losing excess weight can reduce load-bearing stress on the lumbar spine.
- **Canes or walkers.** In addition to providing stability, these assistive devices can help relieve pain by allowing you to bend forward while walking.

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