

### Introduction

Your spine, or backbone, protects your spinal cord and allows you to stand and bend. Spinal stenosis causes your spine to narrow. The narrowing puts pressure on your nerves and spinal cord. This can cause pain. Spinal stenosis is diagnosed with a physical exam and imaging tests. Treatments may include medicines, physical therapy, braces and surgery.

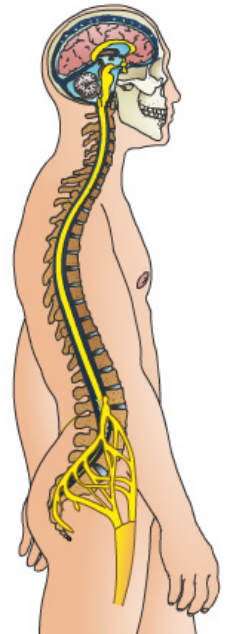
This reference summary explains spinal stenosis. It talks about symptoms and causes of spinal stenosis. It also covers diagnosis and treatment of the condition.



### The Spine and Spinal Stenosis

The spine protects the spinal cord and the nerves that go from the brain to different parts of the body. The spine is formed of solid vertebrae. The vertebrae are separated by softer disks. There are 33 vertebrae in the spine, but only 24 of these vertebrae are able to move. Nerves passing through the spinal canal leave the spine through windows called foramina. If the nerves get compressed, this causes pain, tingling and numbness in the parts of the body that are controlled by the nerves, such as legs or arms.

Sometimes the nerves get compressed because of narrowing of the openings they go through. These openings include the spinal canal and the foramina. When the nerves are compressed through these openings, it is known as spinal stenosis. The narrowing, or spinal stenosis, could happen inside the spinal canal. In this case, it is called central stenosis. The narrowing of the passages through which nerves pass can also happen in the foramina, the windows through which nerves leave the vertebrae of the spine. This is known as foraminal stenosis.



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Most cases of spinal stenosis include a combination of central and foraminal stenosis.

## Symptoms

Some people with spinal stenosis may not have symptoms. In some cases, symptoms can appear slowly and get worse over time.

Signs of spinal stenosis include:

- Foot or hand problems.
- Numbness, weakness, cramping or pain in the arms or legs.
- Pain going down the leg.
- Pain in the neck or back.

If you have the symptoms of spinal stenosis or other changes, contact your health care provider. One type of spinal stenosis, cauda equina syndrome, is very serious. This type happens when there is pressure on nerves in the lower back.

Symptoms of cauda equina syndrome may include:

- Loss of control of the bowel or bladder.
- Pain, weakness or loss of feeling in one or both legs.
- Problems having sex.

If you have any of the symptoms of cauda equina syndrome, you should call your health care provider right away. Cauda equina syndrome is a medical emergency.

## Causes

Spinal stenosis is most common in men and women over 50 years old. Younger people who were born with a narrow spinal canal or who hurt their spines may also get spinal stenosis.

There are many possible causes of spinal stenosis. These include:

- Changes in the spine due to aging.
- Arthritis.
- Inherited conditions.



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Changes that happen in the spine as people get older are the most common cause of spinal stenosis. These changes can put pressure on the nerves in the spine.

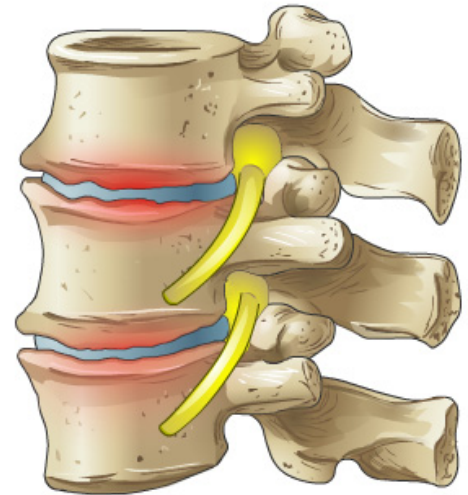
As people get older:

- Bones and joints may get bigger.
- Surfaces of the bones and discs may bulge out and create bone spurs.
- The bands of tissue that support the spine may get thick and hard.

All of these changes increase the likelihood of getting spinal stenosis.

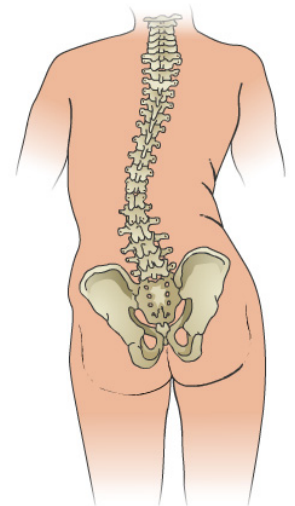
In some cases, arthritis may cause spinal stenosis. Arthritis is a condition that causes painful swelling of the joints. There are many types of arthritis, but two types can affect the spine. These are:

- Osteoarthritis.
- Rheumatoid arthritis.



Osteoarthritis is the most common type of arthritis. It is often related to aging or an injury. Osteoarthritis may affect many joints in the body. It wears away the cartilage that keeps joints in place. It also causes bone spurs and problems with the affected joints. Rheumatoid arthritis happens when the immune system attacks the body's own tissues by mistake. It causes the soft tissues of the joints to swell and can affect the internal organs and systems. While it is not a common cause of spinal stenosis, rheumatoid arthritis can cause severe damage to the joints.

Certain inherited conditions may also cause spinal stenosis. For example, some people are born with a small spinal canal. Others are born with or develop scoliosis, which causes sideways curves of the spine. Both of these conditions can affect the nerves in the spine.



Scoliosis

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Other possible causes of spinal stenosis include:

- Calcium deposits on the ligaments that run along the spine.
- Injuries.
- Paget's disease, which is a disease that affects the bones.
- Too much fluoride in the body.
- Tumors of the spine.

Fluoride strengthens teeth and prevents tooth decay. But it can cause health problems if too much is present in the body.

## Diagnosis

Your health care provider will first ask about your symptoms and medical history. He or she will perform a physical exam. Spinal stenosis has symptoms similar to many other conditions related to aging. Imaging tests are often needed to find the cause of your symptoms.

Imaging tests used to diagnose spinal stenosis may include:

- X-rays.
- MRI.
- CT myelogram.
- Bone scan.



An x-ray cannot confirm a diagnosis of spinal stenosis. But it may be used to rule out other conditions with similar symptoms. An MRI uses strong magnets to create cross-sectional images of the inside of the body. The images help your health care provider detect damage to the spine or the presence of any tumors. It can also show pressure on the spinal cord or nerves around the spine.

A CT scan takes detailed images of the body by combining x-rays taken from multiple angles. For a CT myelogram, a contrast dye is injected in the spine before the images are taken. The dye outlines the spine and spinal nerves to reveal tumors or spinal damage. A bone scan may also be done. For this test, you are given an injection of a small, safe amount of radioactive substance. The substance shows where bone is breaking down or being formed.

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## Treatment

Treatment for spinal stenosis depends on:

- How severe your symptoms are.
- The location of the stenosis.
- Your preferences.

Both nonsurgical and surgical treatments are available to treat spinal stenosis. Unless symptoms are severe, nonsurgical treatments are often tried first. Your health care provider may prescribe medicines. Medicines can help reduce pain and swelling caused by spinal stenosis.



There are many different types of medicine used to treat spinal stenosis. Talk to your health care provider about their benefits and possible side effects. You may also be instructed to avoid certain activities, including exercise or sports. A brace may also be worn to help support your lower back.

For some people, physical therapy can help. A physical therapist will teach you exercises that:

- Build strength in your back to keep the spine stable.
- Help your spine stay flexible.
- Improve balance.

Steroid injections can reduce swelling and pain. The injections are given near the area affected by spinal stenosis. But the injections come with risks and can cause complications. Only a few injections are allowed each year.



If nonsurgical treatments do not work, surgery may be needed. Surgery may be done right away if:

- Your symptoms get in the way of walking.
- You have problems with bowel or bladder control.
- You have serious problems with your nervous system.

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The goal of surgery is to relieve the pressure on your spinal cord or nerve roots. For example, a laminectomy removes the back part of the affected vertebra. This part is called the lamina. When the lamina is removed, it creates more room within the spinal canal.

Another type of surgery is a foraminotomy. This surgery creates a larger space in your back for the nerves by opening the narrowed “window” in the spine. Bone around the nerves is shaved down to create more room. In some cases, vertebrae also may need to be fused together to maintain the spine's strength. This is called a spinal fusion. If you need surgery, talk to your health care provider about possible complications. While surgeries to treat spinal stenosis are safe, all surgeries carry some risks.



## Summary

Your spine, or backbone, protects your spinal cord and allows you to stand and bend. Spinal stenosis causes your spine to narrow. The narrowing puts pressure on your nerves and spinal cord. This can cause pain. Some people with spinal stenosis may not have symptoms. In some cases, symptoms can appear slowly and get worse over time. Signs of spinal stenosis include:

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There are many possible causes of spinal stenosis. These include:

- Changes in the spine due to aging.
- Arthritis.
- Inherited conditions.
- Other conditions, including injuries and tumors.



Spinal stenosis is diagnosed with a physical exam and imaging tests. Treatments may include medicines, physical therapy, braces and surgery. Unless symptoms are severe, nonsurgical treatments are often tried first. If nonsurgical treatments do not work, surgery may be needed.

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