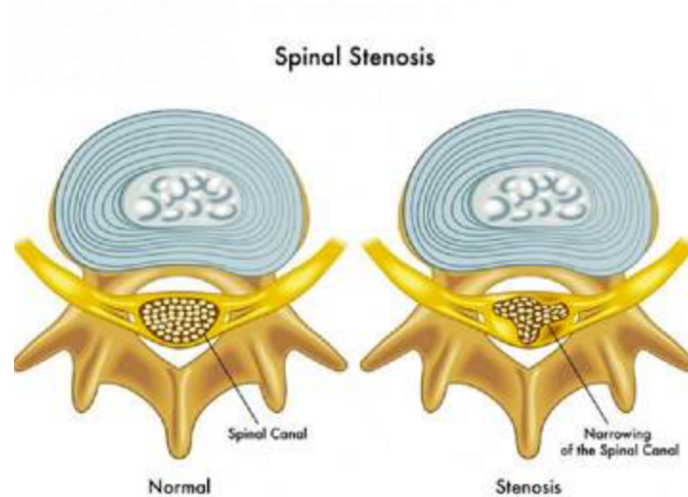


## Spinal Stenosis

**What is spinal stenosis?** A clue to answering this question is found in the meaning of each word. Spinal refers to the spine. Stenosis is a medical term used to describe a condition where a normal-size opening has become narrow. Spinal stenosis may affect the cervical (neck), thoracic (chest), or lumbar (lower back) spine.

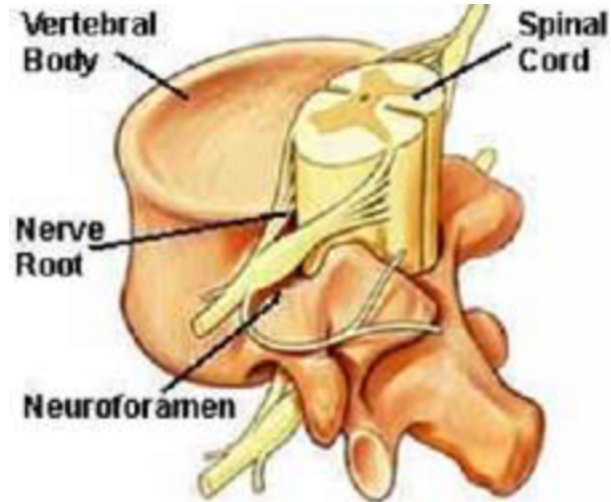
The area affected most commonly is the lumbar spine followed by the cervical spine.



Stenosis is a medical term used to describe a condition where a normal-size opening has become narrow.

### **Visualizing Spinal Stenosis:**

Consider a water pipe. Over time, rust and debris builds up on the walls of the pipe, thereby narrowing the passageway that normally allows water to freely flow. In the spine, the passageways are the spinal canal and the neuroforamen. The spinal canal is a hollow vertical hole that contains the spinal cord. The neuroforamen are the passageways that are naturally created between the vertebrae through which spinal nerve roots exit the spinal canal.



The spine's bony structures encase and protect the spinal cord. Small nerve roots shoot off from the spinal cord and exit the spinal canal through passageways called *neuroforamen*. The neuroforamen are the passageways that are naturally created between the vertebrae through which spinal nerve roots exit the spinal canal.

Lumbar (low back) spinal stenosis is illustrated below. Notice the narrowed areas in the spinal canal (reddish-colored areas). As the canal space narrows, the spinal cord and nearby nerve roots are squeezed causing different types of symptoms. The medical term is *nerve compression*.



**Anatomy Overview Can Help You Understand Spinal Stenosis:**

The spine is a column of connected bones called vertebrae. There are 24 vertebrae in the spine, plus the sacrum and tailbone (coccyx). Most adults have 7 vertebrae in the neck (the cervical vertebrae), 12 from the shoulders to the waist (the thoracic vertebrae), and 5 in the lower back (the lumbar vertebrae). The sacrum is made up of 5 vertebrae between the hipbones that are fused into one bone. The coccyx is made up of small fused bones at the tail end of the spine.

**Lamina and Spinous Processes:** At the back (posterior) of each vertebra, you have the lamina, a bony plate that protects your spinal canal and spinal cord. Your vertebrae also have several bony tabs that are called spinous processes; those processes are attachment points for muscles and ligaments.

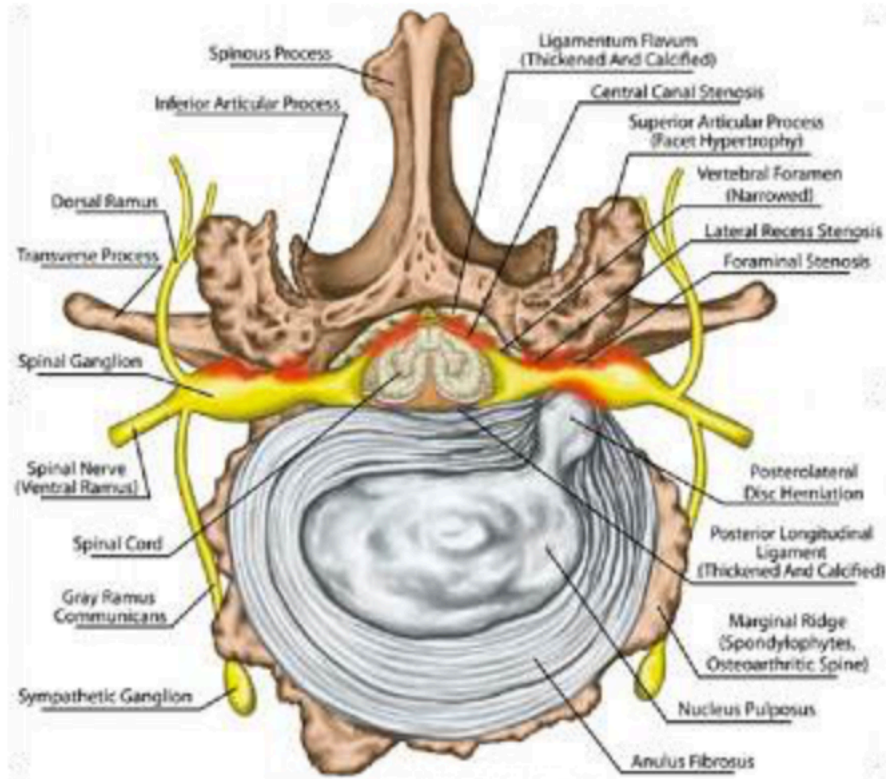
**Ligaments, Especially the Ligamentum Flavum:** Vertebrae are connected by ligaments, which keep the vertebrae in their proper place. The ligamentum flavum is a particularly important ligament. Not only does it help stabilize your spine, it also protects your spinal cord and nerve roots. Plus, the ligamentum flavum is the strongest ligament in your spine.

The ligamentum flavum is a dynamic structure, which means that it adapts its shape as you move your body. When you're sitting down and leaning forward, the ligamentum flavum is stretched out; that gives your spinal canal more room for the spinal nerves. When you stand up and lean back, though, the ligamentum flavum becomes shorter and thicker; that means there's less room for the spinal nerves. (This dynamic capability helps explain why people with spinal stenosis find that sitting down feels better than standing or walking.)

**Discs:** In between each vertebra are tough fibrous shock-absorbing pads called the intervertebral discs. Each disc is made up of a tire-like outer band (annulus fibrosus) and a gel-like inner substance (nucleus pulposus).

**Spinal Nerves and the Spinal Cord:** Nerves are also an important part of your spinal anatomy—after all, they're what sends messages from your brain to the rest of your body. The spinal cord, the thick bundle of nerves that extends downward from the brain, passes through a ring in each vertebra. Those rings line up into a channel called the spinal canal.

Between each vertebra, two nerves branch out of the spinal cord (one to the right and one to the left). Those nerves exit the spine through openings called the foramen and travel to all parts of your body.



In the overhead slice of a lumbar vertebra, the key anatomical structures are labeled, including causes of low back spinal stenosis: herniated disc and compressed nerves.

Normally, the spinal channel is wide enough for the spinal cord, and the foramen are wide enough for the nerve roots. But either or both can become narrowed and cause spinal stenosis.

**Read more about spinal stenosis at [www.spineuniverse.com](http://www.spineuniverse.com)**