OrthoInfo Basics

About Your Back

Your spine is a complex structure that does a lot. There are always demands being placed on your spine.

Your spine holds up your head, shoulders, and upper body. It gives you support to stand up straight, and gives you flexibility to bend and twist. It also protects your spinal cord.

Understanding how your spine works can help you understand why you have back pain.

What are the parts of the spine?

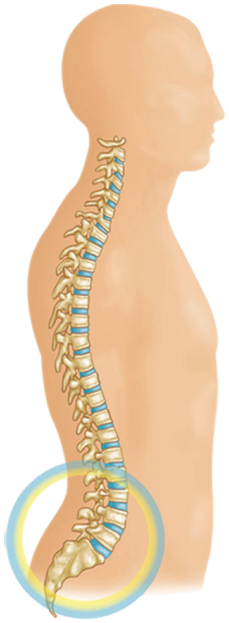
Understanding how your spine works can help you better understand the common causes of back pain.

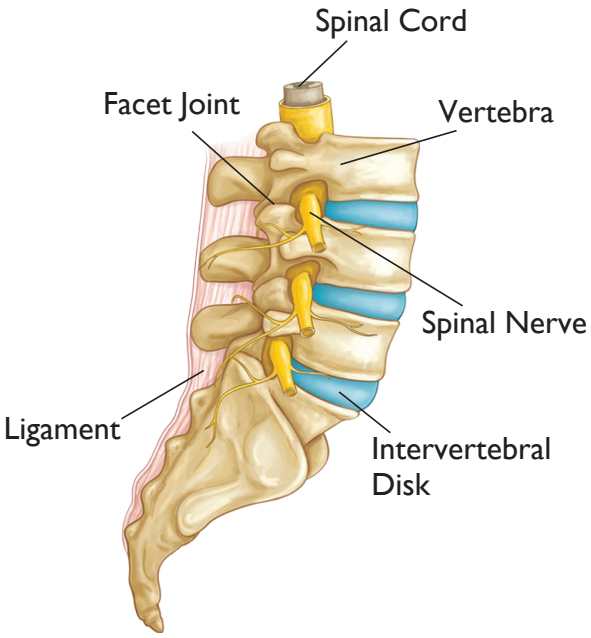
Vertebrae. Your spine is made up of vertebral bones that are stacked on top of one another. These bones connect to create a canal that protects the spinal cord.

Spinal cord and nerves. These "electrical cables" travel through the spinal canal carrying messages between your brain and muscles. Nerves branch out from the spinal canal through openings in the vertebrae.

Muscles and ligaments. These provide support and stability for your spine and upper body. Strong ligaments connect your vertebrae and help keep the spinal column in position.

Facet joints. Between vertebrae are small joints that help your spine move.





What are intervertebral disks?

Intervertebral disks sit in between the vertebrae.

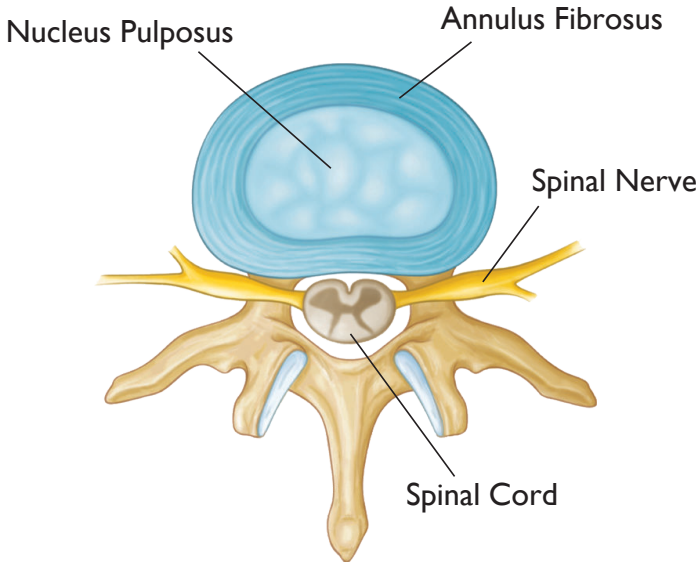
When you walk or run, the disks act as shock absorbers and prevent the vertebrae from bumping against one another. They work with your facet joints to help your spine move, twist, and bend.

Intervertebral disks are flat and round, and about a half inch thick. They are made up of two components.

Annulus fibrosus. This is the tough, flexible outer ring of the disk. It helps connect to the vertebrae.

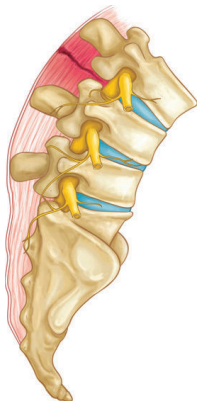
Nucleus pulposus. This is the soft, jelly-like center of the annulus fibrosus. It gives the disk its shock absorbing capabilities.

In many cases, back pain is related to aging disks. In children and young adults, disks have a high water content. As we get older, the disks begin to dry out and shrink. They lose their ability to cushion the vertebrae, which can result in pain.

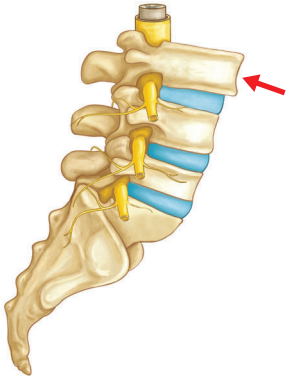


What are the most common causes of back pain?

Back pain is often caused by injury. Just getting older also plays a role in many back conditions.



Strains and Sprains. The most common cause of back pain is an injury to the muscles (strain) or ligaments (sprain) that support your spine. Muscle and ligament fibers can be overstretched or torn. This frequently is the result of lifting a heavy weight improperly, having poor posture, or being overweight.



Degenerative Spondylolisthesis. (Spon-dee-low-lis-THEE-sis). Changes from general wear and tear make it hard for your joints and ligaments to keep your spine in the proper position. The vertebrae move more than they should, and one vertebra can slide forward on top of another. If too much slippage occurs, the bones may begin to press on the spinal nerves.

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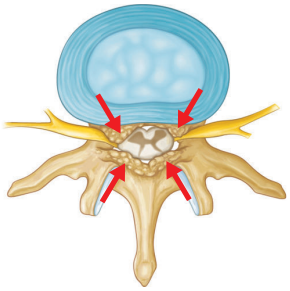
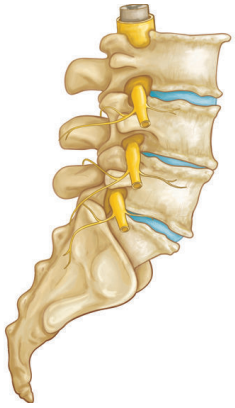
(Causes of Back Pain — continued from page 2)

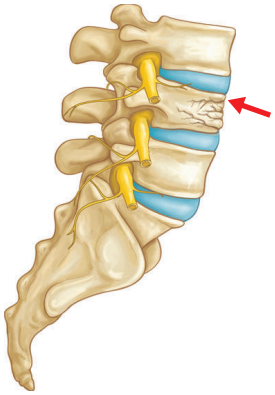
Spinal Stenosis. Spinal stenosis occurs when the space around the spinal cord narrows. This puts pressure on the spinal cord and the spinal nerves.



When intervertebral disks collapse and osteoarthritis develops, your body may respond by growing new bone in your facet joints to help support the vertebrae. Over time, this bone overgrowth –called spurs– can lead to a narrowing of the spinal canal. Osteoarthritis can also cause the ligaments that connect vertebrae to thicken, which can also narrow the spinal canal.

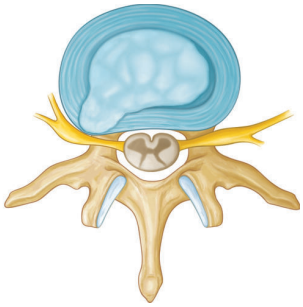


Disk Degeneration. With age, intervertebral disks begin to wear away and shrink. In some cases, they may collapse completely and cause the facet joints in the vertebrae to rub against one another. Pain and stiffness result. This "wear and tear" on the facet joints is referred to as osteoarthritis. It can lead to further back problems, including spinal stenosis.



Compression Fractures. Compression fractures occur when too much pressure is placed on a vertebra and the front of it cracks and loses height. This may happen with a very hard fall or other traumatic injury. More often, compression fractures are due to osteoporosis, a condition that weakens bone. The thinning bone may even break with everyday activity.

In severe cases of osteoporosis, especially in the elderly, the vertebra bone completely collapses. Multiple fractures like these cause a severely rounded back.



Herniated Disk. A disk herniates when the nucleus pushes against a weakened annulus, causing it to bulge outward. This puts pressure on the nerves and causes pain. If the annulus is very worn or injured, the jelly-like nucleus may squeeze all the way through.

For more information

For more information about your spine and common causes of back pain, visit *OrthoInfo* at **www.orthoinfo.org.**

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