In the low back, nerves join to form the sciatic nerve, which runs down into the leg and controls the leg muscles. Sciatica is a condition that may cause radiating pain, numbness, tingling, and/or muscle weakness in the leg but originates from nerve root impingement in the lower back.

Nerve impingement is most often caused by spinal stenosis or a herniated disc:

**Spinal stenosis**

Stenosis refers to a narrowing of the spinal canal, usually in the lower back (lumbar) region. This narrowing is often a result of the normal degenerative aging process. It occurs as the disks of cartilage that separate the spine’s vertebrae lose water and the space between the vertebrae become smaller, causing friction between the bones. The loss of water in the disks makes them...
less flexible and unable to act as shock absorbers in the spine. Daily wear and tear on the spine becomes more significant without these shock absorbers.

As the disks degenerate, vertebrae may shift, causing the spinal canal to narrow. In some cases, the nerves that travel through the spinal column to the legs become squeezed. This can cause back and leg pain, and even leg weakness. Arthritis and falls also contribute to the narrowing of the spinal canal, compressing the nerves and nerve roots and causing pain and discomfort.

**Bulging, ruptured or herniated disc**

The spinal vertebrae are separated by flexible discs of shock-absorbing cartilage. These discs are made of a supple outer layer with a soft jelly-like core (nucleus). If a disc is compressed, so that part of it intrudes into the spinal canal but the outer layer has not been ruptured, it may be referred to as a "bulging" disc. This condition may or may not be painful and is extremely common.

Herniated disks are often referred to as "slipped" or "ruptured" discs. When a disc herniates, the tissue located in the center (nucleus) of the disc is forced outward. Although the disc does not actually "slip," strong pressure on the disc may force a fragment of the nucleus to rupture the outer layer of the disc.

If the disc fragment does not interfere with the spinal nerves, the injury is usually not painful. If the disc fragment moves into the spinal canal and presses against one or more of the spinal nerves, it can cause nerve impingement and pain.

If the injured disc is in the low back, it may produce pain, numbness, or weakness in the lower back, leg, or foot. If the injured disc is in the neck, it may produce pain, numbness, or weakness in the shoulder, arm, or hand.

**Degenerative disc disease**

Degenerative disc disease is a general term applied to back pain that has lasted for more than three months. It is caused by degenerative changes in the intervertebral discs in the spine and can occur anywhere in the spine: low back (lumbar), mid-back (thoracic), or neck (cervical).

Under the age of 30, these discs are normally soft, and they act as cushions for the vertebrae. With age, the material in these lumbar discs becomes less flexible and the disks begin to erode, losing some of their height. As their thickness decreases, their ability to act as a cushion lessens. The less dense cushion now alters the position of the vertebrae and the ligaments that connect
them. In some cases, the loss of density can even cause the vertebra to shift their positions. As the vertebrae shift and affect the other bones, the nerves can get caught or pinched and muscle spasms can occur.

Degenerative disc disease is primarily a result of the normal aging process, but it may also occur as a result of trauma, infection, or direct injury to the disk. Heredity and physical fitness may also play a part in the process.

**Radiculopathy/nerve impingement**

Radiculopathy refers to a condition in which the spinal nerve roots are irritated or compressed. Many people refer to it as having a "pinched nerve." Lumbar nerve impingement indicates that the nerve roots in the lower spine are involved, while cervical radiculopathy is associated with nerve roots in the neck. Nerve impingement is most often caused by a herniated disk or spinal stenosis.

*This information was taken from the University Pointe Pain Management Center and was adapted for use on NetWellness with permission, 2007.*

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