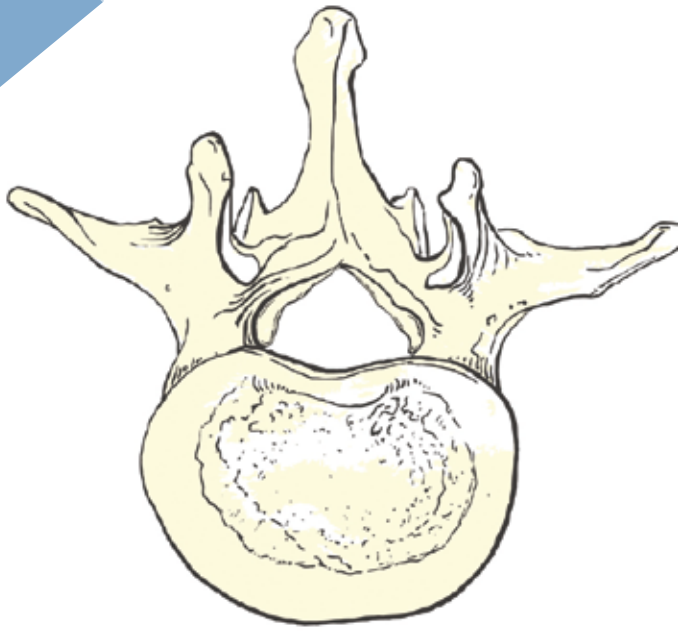
# Lumbar Spinal Stenosis



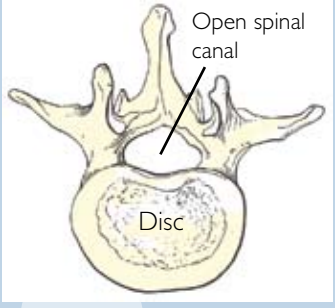
North American Spine Society
Public Education Series

# What Is Lumbar Spinal Stenosis?

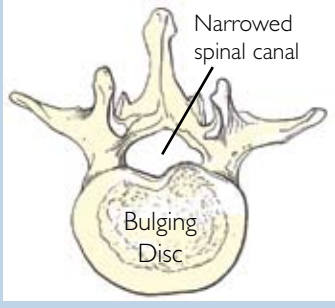
The vertebrae are the bones that make up the lumbar spine (low back). The spinal canal runs through the vertebrae and contains the nerves supplying sensation and strength to the legs. Between the vertebrae are the intervertebral discs and the spinal facet joints.

The discs become less spongy and less fluid-filled with age. This can result in reduced disc height and bulging of the hardened disc into the spinal canal. Arthritis can cause the bones and ligaments of the spinal facet joints to thicken and enlarge, and push into the spinal canal. These changes cause narrowing of the lumbar spinal canal which is known as spinal stenosis (see figures below).

Spinal stenosis does not necessarily cause symptoms. Many people can have significant stenosis on imaging studies but fail to have symptoms.




Vertebra with open spinal canal (viewed from the top).

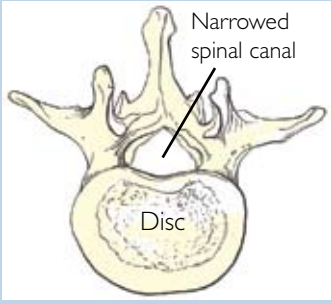



Vertebra with narrowed spinal canal caused by bulging disc (viewed from the top).

# What Are the Symptoms?

When present, symptoms may include pain, or numbness or cramping in the legs, with or without back pain. Weakness in the legs may occur. Rarely, bowel and/or bladder problems can occur.

Symptoms are often worse with prolonged standing or walking. Symptoms may come and go, and may vary in severity when present. Bending forward or sitting increases the room in the spinal canal and may lead to reduced pain or complete relief from pain.




Vertebra with narrowed spinal canal caused by arthritis (viewed from the top).

# How Is it Diagnosed?

Your physician will take a history and perform a physical examination.

X-ray studies may be ordered that may reveal evidence of narrowed discs and/or thickened facet joints. A magnetic resonance imaging (MRI) study may be obtained for a more detailed evaluation of spinal structures. Or, a computed axial tomography (CAT) scan and/or a lumbar myelogram may be advised for similar improved detail.

Each of these studies can provide information about the presence, location and extent of spinal canal narrowing and nerve root pressure.

Magnetic resonance imaging (MRI) studies showing reduced space in the spinal canal (top view shown above, side view shown at right).

## What Treatments Are Available?

If your doctor determines that lumbar spinal stenosis is causing your pain, he or she will usually try nonsurgical treatments at first.

These treatments may include anti-inflammatory medications (orally or by injection) to reduce associated swelling or analgesic drugs to control pain.

Physical therapy may be prescribed with goals of improving your strength, endurance and flexibility so that you can maintain or resume a more normal lifestyle.

Spinal injections (such as an epidural injection of cortisone) may be prescribed.

# Medication and Pain Management

Your doctor may use one medication or a combination of medications as part of your treatment plan. Medications used to control pain are called analgesics. Most pain can be treated with non-prescription medications like aspirin, ibuprofen, naproxen or acetaminophen. Some analgesics, referred to as nonsteroidal anti-inflammatory drugs, or NSAIDs, are also used to reduce swelling or inflammation that may occur. These include aspirin, ibuprofen, naproxen, and a variety of prescription drugs. If your doctor gives you analgesics or anti-inflammatory medications, you should watch for side effects like stomach upset or bleeding. Chronic use of prescription or over-the-counter analgesics or NSAIDs should be monitored by your physician for the development of any potential problems.

If you have severe persistent pain that is not relieved by other analgesics or NSAIDs, your doctor might prescribe narcotic analgesics (such as codeine) for a short time. Take only the medication amount that is prescribed. Taking a larger dosage doesn't help you recover faster. Side effects include nausea, constipation, dizziness and drowsiness, and use can result in dependency. All medication should be taken only as directed. Make sure you tell your doctor about any kind of medication you are taking—even over-the-counter drugs—and inform your doctor whether your medication is working for you. *(For more information, see the NASS patient education brochure on NSAIDs.)*

Other medications with anti-inflammatory effects are also available. Corticosteroid medications—either orally or by injection—are sometimes prescribed for more severe back and leg pain because of their very powerful anti-inflammatory effect. Corticosteroids, like NSAIDs, can have side effects. Risks and benefits of this medication should be discussed with your physician.

Medications like gabapentin (which was originally developed for people with seizures) may be prescribed by your physician for leg symptoms–particularly numbness, tingling, burning and cramping pains. Gabapentin has been shown to decrease pain and improve walking tolerance for some patients within several months of use. The medication may be started at a low dose and increased as tolerated under doctor's orders.

Selected spinal injections, or "blocks," may be used to relieve symptoms of pain. These are injections of corticosteroid into the epidural space (the area in the spinal canal surrounding the spinal nerves) or facet joints performed by a doctor with special training in this technique. Depending on response to initial injection, several follow-up procedures may be performed at later dates. Injections are often done as part of a comprehensive rehabilitation and treatment program.

# Nonsurgical Treatment

Symptoms of spinal stenosis frequently result in activity avoidance. This results in reduced flexibility, strength and cardiovascular endurance. A physical therapy or exercise program usually begins with stretching exercises to restore flexibility to tight muscles. You may be advised to stretch frequently to maintain flexibility gains. Cardiovascular (aerobic) exercise, such as stationary bicycling or walking on a treadmill, may be added to build endurance and improve circulation to the nerves. Improved blood supply to the nerves may alleviate the symptoms of spinal stenosis.

You may also be given specific strengthening exercises for the muscles of the back, abdomen and legs. Everyday activities can be less challenging if flexibility, strength and endurance are optimized. Your therapist and physician may advise you on how best to incorporate a maintenance exercise program into your life, either at home using simple equipment, or at a fitness facility.

For some individuals with spinal stenosis, home modification and safety will be considered. Perhaps the washer and dryer should be moved to a more convenient location. A bedside commode may be advisable. Bathroom safety devices are prescribed if needed. Strategies for preparing meals, pacing activities and conserving energy may be reviewed. Optimal fitting of assistive walking devices such as canes and walkers may be recommended.

Unless significant or progressive leg weakness develops, or bowel or bladder problems occur, the presence of spinal stenosis by itself usually does not represent a dangerous condition in the adult. Therefore, treatment is aimed at pain reduction and increasing the patient's ability to function.

Nonsurgical treatments do not correct the spinal canal narrowing of spinal stenosis itself but may provide long-lasting pain control and improved life function without requiring more invasive treatment. A comprehensive program may require three or more months of supervised treatment.

# What if I Need Surgery?

Surgery is reserved for that small percentage of patients whose pain cannot be relieved by non-surgical treatment methods. Surgery will also be advised for those individuals who develop progressive leg weakness, or bowel and bladder problems.

Since spinal stenosis is a narrowing of the bony canal, the goal of the surgery is to open up the bony canal to improve available space for the nerves. This is called lumbar decompression surgery, or laminectomy.

Surgery, when necessary, will relieve the leg pain and less reliably, will relieve the back pain. Patients are allowed to return to most activities within weeks. Postoperative rehabilitation may be advised to assist in return to normal activities.

Sometimes, in spinal stenosis, the vertebrae shift or slip in relation to each other (spondylolisthesis). Abnormal motion (instability) may then occur between the vertebrae. In such cases, spinal fusion surgery may be required in addition to decompression in order to stabilize the involved vertebrae.

A fusion is performed by placing bone graft, bone substitute, and/or instrumentation between the vertebrae being fused. *(See the North American Spine Society patient education brochure on Fusion for more information.)* Fusion can be performed from the front (anterior approach) or from the back (posterior approach), or may require both anterior and posterior approaches. The choice of approach is influenced by many technical factors including the need for spur removal, anatomic variation between patients, and degree of instability. The success rate of fusion surgery is over 65%.

After surgery, you will remain in the hospital for at least several days. Most patients are able to return to all activities within six to nine months. A postoperative rehabilitation program is usually prescribed to guide return to activities and normal life.

FOR MORE INFORMATION,
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