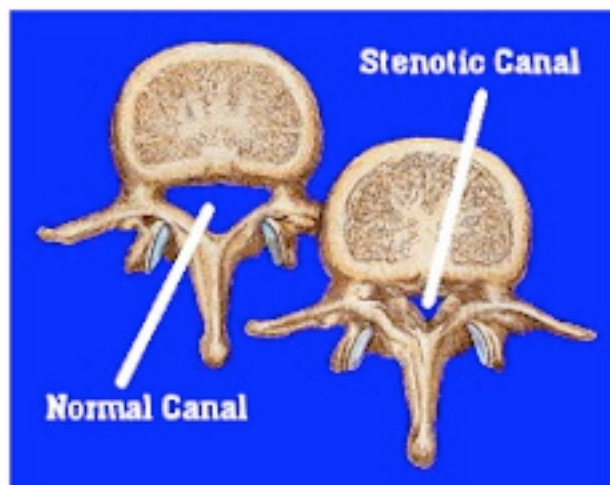


## SPINAL STENOSIS

Spinal Stenosis is a condition in which there is narrowing of spaces in the spine. The result of this narrowing is often pressure on the spinal cord and/or the nerves. Approximately 75% of cases of spinal stenosis occur in the low back (lumbar spine). In most cases, the narrowing of the spine associated with stenosis compresses the nerve root, which can cause pain into the leg.

### **What Causes Spinal Stenosis?**

- **Aging:** The most common cause for spinal stenosis involves degenerative disease (wear and tear) of the spine. During the aging process, the disks between the vertebrae often lose their strength, and the result is that they bulge into the spinal canal. In addition the body's ligaments, including those inside the spinal canal, can thicken and take up space within the canal, thus contributing to narrowing. Finally, the facet joints behind the spinal canal may enlarge and further narrow the spine. All of these factors can cause the spaces in the spine to narrow.
- **Arthritis:** Two forms of arthritis that may affect the spine are osteoarthritis and rheumatoid arthritis.
- **Heredity:** If the spinal canal is too small at birth, symptoms of spinal stenosis may show up in a relatively young person. Structural deformities of the involved vertebrae can cause narrowing of the spinal canal.
- **Instability of the Spine, or Spondylolisthesis:** When one vertebra slips forward on another, the spinal canal can become narrow.
- **Tumors of the spine:** Abnormal growths of soft tissue may affect the spinal canal directly by causing inflammation or by growth of tissue into the canal. Tissue growth may lead to bone resorption (bone loss due to overactivity of certain bone cells) or displacement of bone and the eventual collapse of the supporting framework of the spinal column.
- **Trauma:** Accidents and injuries may either dislocate the spine and the spinal canal or cause burst fractures that produce fragments of bone that penetrate the canal.



### **What Are the Symptoms of Stenosis?**

Stenosis in the lumbar spine may result in low back pain as well as pain in the legs. The typical scenario is to experience back and/or leg pain with walking and little to no pain with sitting or lying down. This is sometimes referred to as “Neurogenic Claudication.”

Additional symptoms may include:

- Frequent falling or clumsiness
- Pain and difficulty when walking
- Numbness, tingling, or hot / cold feelings in the legs

Stenosis can also occur in the cervical spine. Symptoms can range from neck pain to shoulder and arm pain to serious neurologic complications including paralysis.

### **How Is Spinal Stenosis Diagnosed?**

Diagnosis is made by noting the history of illness, a physical examination by the treating physician, and imaging of the spine. If simple treatments such as postural changes or anti-inflammatory medications do not relieve the problem, special imaging studies may be needed to determine the cause of the problem. X-Rays of the spine will provide limited information about spinal instability and the presence of stenosis but do not give detailed information about the source or degree of stenosis. An MRI of the spine is the gold standard in diagnosing most abnormal spine conditions, including stenosis. In patients with any type of implantable device (pacemaker, defibrillator, spinal cord stimulator, morphine pump) a CT scan of the spine is an acceptable alternative.

### **How Is Spinal Stenosis Treated?**

- **Changes in posture:** People with spinal stenosis may find that flexing the spine by leaning forward while walking relieves their symptoms. Lying with the knees drawn up to the chest also can offer some relief. These positions enlarge the space available to the nerves and may make it easier for people with stenosis to walk longer distances.
- **Physical Therapy:** Strengthening of the muscles in front of and behind the spine (core strengthening) as well as weak leg muscles can reduce the pain of spinal stenosis.
- **Medications:**
  1. Anti-inflammatory medications such as Motrin (Ibuprofen) or Celebrex (Celecoxib) may help relieve symptoms.
  2. Anti-Convulsant medications such as Lyrica (Pregabalin) or Neurontin (Gabapentin) can reduce nerve pain symptoms including pain or numbness radiating into the extremities.
  3. Anti-Depressant medications may also improve nerve pain symptoms and can improve sleep.
  4. Opioid Analgesics (pain killers) are occasionally necessary to reduce pain and prevent unnecessary suffering. Although treatment must be closely monitored, there is plenty of precedent in the medical literature to use this option safely to treat chronic non-cancer related pain.

- **Rest:** Rest, followed by a gradual resumption of activity, can help. Aerobic activity such as bicycling or swimming is often recommended.
- **Weight Loss:** Obesity can be associated with worsened pressure on the spinal discs, which will worsen spinal stenosis. A structured diet with the assistance of a nutritionist or dietician AND exercises that are low impact on the spine are usually recommended.
- **Injection Therapy:** Depending on the presence of axial pain (neck/back pain) or extremity pain (arm/leg pain), patients may benefit from Epidural Steroid Injection or treatments for Facet Syndrome.
- **Surgery:** This is generally a measure of last resort that is reserved for patients who have failed all other treatment options. In addition surgery may be necessary for patients who have a neurologic deficit due to spinal cord or nerve compression.