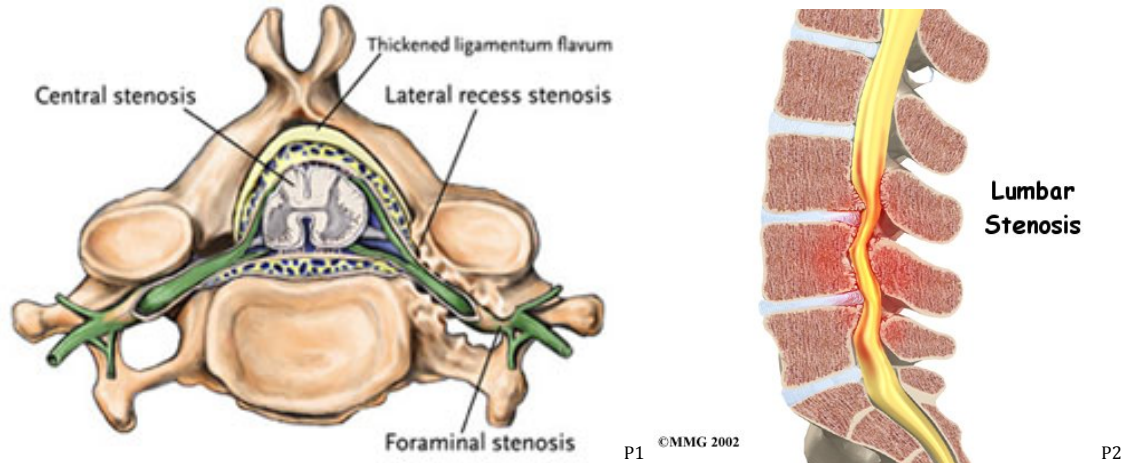


Lumbar Spinal Stenosis

What is Lumbar Spinal Stenosis?

Spinal Stenosis is a narrowing of the spinal canal that is caused by injury or degeneration of the joints, ligaments, and discs in the spine. Lumbar spinal stenosis occurs in the low back.

When the spinal canal is narrowed, compression can occur on the nerves and arteries around the spine, causing pain down the legs, “sciatica,” or cramping in the leg muscles.¹



Types of Lumbar Spinal Stenosis: Lateral (narrowing of the intervertebral foramen) & Central (narrowing of the spinal canal)

In stenosis, the narrowing process can occur in the spinal canal (where the spinal cord is) or in the intervertebral foramen (where the nerves exit from the spinal cord), and is associated with degenerative changes of the structures around the spinal cord or the nerve root. Therefore, there are two types of lumbar spinal stenosis: central and lateral.²

Central stenosis is caused by a thickened ligamentum flavum, a bulging intervertebral disc, bony hypertrophic changes at the facet joint, or a spondylolisthesis.

Lateral stenosis is caused by narrowing of the intervertebral foramen, due to intervertebral disc degeneration, disc bulging, or facet joint hypertrophy.¹

How does stenosis happen?

Stenosis is a degenerative condition, meaning it happens gradually over time. Previous back injuries or arthritic changes can lead to stenosis.

Suggestions for Clinical Diagnosis of Lumbar Spinal Stenosis

Patient's History

- Previous injuries: disc herniation, spinal instability, congenital stenosis, spinal degeneration.
- Onset of symptoms: Patients most often complain of a long history of low back pain and no specific event that brought on the pain.
- Location/Description of pain: low back pain, nerve pain in one or both legs, cramping in one or both legs after walking or standing for long periods

- Complaints of: Back pain, nerve pain, and leg cramping after standing, walking, or arching the back.
- Aggravating factors: An increased lumbar lordosis, or an arched low back, compresses the contents of the spinal canal; therefore movements and posture that involve an increased lordosis increases the symptoms.³ Conversely, a position of lumbar flexion relieves the patient's symptoms.⁴
- Dance specific movements: cambre-back, arabesque

Clinical Presentation

For a clinician, the patient may present with these common findings associated with lumbar spinal stenosis:

- Palpation: increased muscle tone in thoracic paraspinals, decreased muscle tone in lumbar stabilizers
- ROM: decreased all directions, especially extension
- Muscle length imbalances: short & weak gluteus maximus & hamstrings, short quads & hip flexors
- Muscle strength imbalances: weak spinal stabilizers, abdominals, hip muscles
- Postural alignment: decreased lumbar lordosis
- Special tests: Vertical compression test, 2 stage treadmill walking test for neurogenic claudication.⁵

Differential Diagnosis

Degenerative spinal stenosis is a type of acquired stenosis; other types of acquired stenosis include spondylolisthesis, iatrogenic, posttraumatic, and metabolic. Stenosis can also be congenital, which can be idiopathic or achondroplastic in origin.⁶

The following diagnoses must be ruled out during the evaluation. Other causes of low back pain include: disc pathology, spondylolysis or spondylolisthesis, facet dysfunction, lumbar muscle strain, and referred pain from internal organs or cancer. Other causes of leg cramping include dehydration, peripheral vascular disease, or muscle weakness. Other causes of nerve pain include neural tension, nerve root impingement and peripheral neuropathy.¹

Lumbar Spinal Stenosis Management

Physical Therapy Management

At Performing Arts Physical Therapy (PAPT), we can provide a comprehensive examination and evaluation to determine the most effective treatments to accomplish a patient's goals and treat underline symptoms. Physical Therapy is often the initial step for conservative care to treat and manage spinal stenosis. Physical Therapy can produce clinically meaningful results for pain and function in as few as 12 visits in 6 weeks. However depending on the individual, more or less visits may be required to see improvement. All patients are strongly encouraged to actively participate in the home exercise program and modify activities/rest as suggested by their supervising therapist to ensure the best results. Table 1 provides an example of a multimodal treatment program at PAPT to address common findings in an individual with spinal stenosis.

Table 1: PAPT Sample Lumbar Spinal Stenosis Treatment Options

Modalities	Manual Therapy	Therapeutic Exercises	Neuromuscular Re-education
<ul style="list-style-type: none"> • Electrical stimulation • Moist heat pack 	<ul style="list-style-type: none"> • Joint mobilizations (lumbar & thoracic spine, hips) • Soft tissue mobilization • Myofascial release • Trigger point release 	<ul style="list-style-type: none"> • Strengthening <ul style="list-style-type: none"> ○ Core strengthening ○ Clamshells ○ Hip abduction ○ Bridges • Stretching <ul style="list-style-type: none"> ○ Thoracic extension ○ Hamstrings ○ Quadriceps ○ Gastroc/soleus • Self trigger point release <ul style="list-style-type: none"> ○ Foam roller ○ PT ball 	<ul style="list-style-type: none"> • Skeletal alignment • Static & Dynamic Balance • Gait & functional activity training • Postural re-ed • Pilates <ul style="list-style-type: none"> ○ Leg springs ○ Footwork

Medical Management

If physical therapy treatment does not provide relief from your pain, your physician may recommend a series of epidural steroid injections or non-steroidal anti-inflammatory drugs (NSAIDs).⁷ If your symptoms persist and are severe enough, your physician may recommend surgery to decompress your spine. The most common type of surgery for stenosis is a lumbar laminectomy, and some may require fusion surgery as well.⁸ However, no surgical intervention should be taken lightly, and especially in the case of spinal surgeries, serious complications and adverse events can occur. After surgery, a long and possibly complicated recovery period should be expected.⁸ Therefore, it is important to discuss your options with your physician.

Self-Report Outcome Measures

To help measure a patient’s progress in terms of pain, function, disability and advancement towards goals, the following outcome measures are implemented to inform both patient and therapist:

- Visual analog scale(VAS)
- Patient Specific Functional Scale (PSFS)
- Back Disability Index (BDI)

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