

pt connection

by Orthopedic & Sports P.T. Assoc. OSPTA
and Valley Outpatient Rehabilitation VOR

Lumbar Spinal Stenosis

I**NTRODUCTION** Lumbar spinal stenosis (LSS) has been defined as any narrowing of the spinal canal or the various tunnels through which nerves and other structures communicate through the spine. The narrowing of the canals creates a gradual compression of the lumbar nerve roots, spinal cord, and/or the cauda equina. There are typically two types of LSS: primary or secondary. Primary arises from congenital or developmental changes that alter the shape of the canal of the vertebrae. Secondary occurs from degenerative changes, such as osteoarthritis, degenerative disc disease, etc. within the spine. This newsletter will discuss secondary LSS, since it is the most common form. (10:1 ratio of secondary to primary cases.)

The fastest growing age group in the United States is the elderly and these people are remaining more active to a later age. Since degenerative LSS is most frequently seen in men that are greater than 60 years of age, it's important to understand this condition in order to provide proper treatment.

E**TIOLOGY** LSS is caused by degeneration occurring at the vertebral facet joints and the intervertebral disc. This creates biomechanical changes within the spinal column and a decreased disc height between the vertebrae. Decreased disc height is due to

changes in the disc including decreased number of cells and decreased water content in the nucleus. There is also a progressive decline in blood supply to the periphery of the disc, which leads to decreased nutrition delivery to the disc, and therefore further cell death.

Following this breakdown in structure, loads once handled by this joint can no longer withstand the stress. These excessive loads can cause further damage and accelerate the degeneration process. This decreased disc height causes the ligaments in the spine to become lax and "buckle" inward into the spinal canal causing narrowing. The continued loss of disc height leads to instability of the spinal segment and erosion of the articular surfaces. In response to these changes, the body tries to stabilize the spine through hypertrophy (becoming larger) of the ligaments and bony structures. This hypertrophy causes even more narrowing of the vertebral canals and decreased area for the neural and vascular elements to exit vertebra.

S**YMPOMS** Some people with spinal stenosis may not experience any symptoms; however, those who do can have a multitude of symptoms. Generally, because there is pressure applied to a nerve root or the spinal cord, neurological symptoms such as numbness/tingling, pain, weakness, "cramps", and stiffness can be present in

the low back and extend into one lower extremity or both. More severe cases can lead to cauda equina syndrome causing “saddle” (groin) paresthesias (burning/prickling sensation) and loss of bowel and bladder control.

HISTORY Since spinal extension causes the spinal foramen (canals) to “close”, or become narrower, activities requiring extension of the spine causes a person with LSS to have worsened symptoms. The classic complaint of people with LSS is increased leg pain with activities such as prolonged standing and/or walking that goes away, sometimes immediately, after sitting. Since flexion of the lumbar spine causes the neural foramen to “open”, or become more widened, flexion activities such as sitting, forward bending, walking up-hill, and walking bent over a shopping cart, can improve a person’s pain due to the pressure of the impinged nerve root being relieved.

DIAGNOSIS Typically the diagnosis of lumbar spinal stenosis is made from information achieved during a thorough history, a physical exam, and imaging such as an x-ray, CT scan, and/or MRI. Common physical signs include: Decreased lumbar lordosis (flattening of the spine), lower extremity weakness in one or multiple muscle groups (myotomes), altered or absent deep tendon reflexes, lumbar spine range of motion deficits (usually extension more limited than flexion), lower extremity flexibility deficits, and gait and/or balance dysfunctions.

TREATMENT Most cases of lumbar stenosis are treated successfully with a conservative approach including medicine and physical therapy. Typically, NSAID’s (nonsteroidal anti-inflammatory drugs) are prescribed and in more chronic or persistent cases epidural steroid injections (EPI) are performed.

Physical therapy has shown to improve the condition of those suffering from LSS. Physical therapy includes an examination and treatment with a specifically designed program that is appropriate for the person with LSS. This will typically include different modalities such as moist heat, ice, ultrasound, and electrical stimulation to assist with pain and inflammation; along with a designed exercise program to restore normal range of motion, strength, flexibility, and functional levels; and manual therapy such as soft tissue massage, myofascial release, and mobilizations to also aid in improving the patient’s condition.

In more severe cases, surgery may be considered. The typical surgery for LSS is called a decompressive laminectomy. This surgery is designed to remove part of the vertebrae and/or other areas of the spine, that are causing the narrowing of the canals. Removal of this tissue removes the pressure off the nerve root and can eliminate or reduce pain, weakness, disability.

CONCLUSION Since lumbar spinal stenosis usually occurs with a slow, gradual onset, many people do not know they have the condition until symptoms occur. Sometimes, symptoms occur insidiously (unknown cause) or after some type of injury. It is suggested, that if symptoms occur gradually and you have low back pain accompanied by intermittent (occasional) lower extremity tingling that does not go away within 1-2 weeks, you should see your doctor. If the pain is significant and severe and does not vary, you should see your doctor within 1-3 days. If the symptoms occur due to a traumatic injury, and there is paralysis, or numbness/tingling into any extremities, or loss of bowel and/or bladder control; this is considered a medical emergency and 911 should be contacted immediately.

***Do Not Begin An Exercise Program Without Consulting
With Your Physician And Physical Therapist***



Pull one knee toward your chest
Mild comfortable stretch lower back and buttocks
Repeat with other knee
Hold 3-5 seconds. Repeat _____ times
Do _____ sessions/day



Pull both knees toward your chest
Mild comfortable stretch lower back and buttocks
Hold 3-5 seconds. Repeat _____ times
Do _____ sessions/day



Hands back of thigh
Attempt to straighten knee with mild stretch
behind thigh
Repeat with other knee
Hold 3-5 seconds. Repeat _____ times



Keep back flat and feet together
Rotate knees to one side
Repeat to other side
Hold 3-5 seconds. Repeat _____ times
Do _____ sessions/day



Flatten back by hollowing stomach muscles
Hold 3-5 seconds. Repeat _____ times
Do _____ sessions/day



Bend forward to floor
Comfortable stretch in back
Hold 3-5 seconds. Repeat _____ times
Do _____ sessions/day



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NEWS *briefs*

OSPTA would like to thank Mr. Daniel Higgins, PT, ATC, OCS for his contribution to the newsletter.

For the 2nd quarter of 2007, OSPTA's patient satisfaction rating was 99%. Clinical pathways were met 65% of the time with an average of 10 visits/diagnosis.

Please call any of the locations below to schedule an appointment that is convenient to you. OSPTA and VOR provide day and evening hours.

In addition, OSPTA@Home provides home health services consisting of nursing, physical therapy, occupational therapy, speech therapy.

Belle Vernon	724-929-5774
Bethel Park	412-835-2259
Brownsville	724-785-5262
California	724-938-0310
Carmichaels	724-966-2709
Carnegie	412-279-7700
Charleroi	724-483-4886
Clairton/ Jefferson Medical	412-466-8811
Connellsville	724-626-3320
Elizabeth	412-751-0040
North Huntingdon	724-864-4410
Perryopolis	724-736-7415
Uniontown	724-439-6294
Upper St. Clair/ Mt. Lebanon	412-276-6637
Washington	724-223-1207
White Oak	412-672-2352
OSPTA@Home	724-483-4859
Valley Outpatient Rehabilitation	
Monongahela	724-258-6211
Rostraver	724-379-7130
Speers	724-489-8111