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Physical Therapy 101 Section 5: Therapeutic Exercises for Lumbar Spinal Stenosis

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Therapeutic Exercises For Lumbar Spinal Stenosis

SOURCE: Bodak, M, and Monteiro: Therapeutic Exercise in the Treatment of Patients With Lumbar Spinal Stenosis. Clinical Orthopaedics and Related Research, Number 384 March 2001, pages 144 -152.

ABSTRACT: As the population of the United States ages, there is an increasing recognition of lumbar spinal stenosis. It is reported to be the most common diagnosis associated with lumbar spinal surgery in patients over the age of 65. Although most causes of lumbar spinal stenosis are degenerative in nature, it is not necessarily progressive deterioration. As conservative therapy for mild to moderate presentations of spinal stenosis is a possible alternative to surgery, this article reviews the pathoanatomy, clinical presentation and outlines therapeutic recommendations.

Lumbar spinal stenosis is classified as either central (narrowing of the spinal canal) or lateral (encroachment of the spinal nerve in the lateral recess of the spinal canal or intervertebral foramen). The majority of lateral stenosis is considered acquired and related to degenerative changes, spondylolisthesis, post surgical scarring, or intervertebral disc herniations.

Symptoms related to spinal stenosis are not directly proportional to the amount of stenosis found. In fact, many people with spinal stenosis are asymptomatic. Common presenting symptomatology includes:

1. Unilateral or bilateral leg pain - 90%
 - a. most patients report it distal to the knee



2. Neurogenic claudication - 65%
 - a. poorly localized pain, paresthesias, or cramping of one or both lower extremities brought on by walking, relieved by sitting.
3. Symptoms worse with extension or weightbearing and improved with sitting, standing with lumbar flexion or lying down
4. Easier to walk uphill than downhill.
5. Will use walker or lean on grocery cart to put spine into flexion.
6. Lower extremity sensory or motor disturbances or balance disturbances are less frequent.

Clinical findings are often minimal and nonspecific and may not help rule in or out spinal stenosis. The following should be considered:

1. Most common finding is decreased spinal extension.
2. Decreased or absent ankle reflexes in approximately 50% of patients.
3. Reports of objective weakness vary from 23% to 51%
4. Sensory deficits in 51% of patients
5. Positive straight leg raise in approximately 50%

It is noted that in light of the importance of postural and mechanical factors of spinal stenosis, lower extremity musculature should routinely be evaluated. Also, the proper exercises need to be chosen for therapeutic intervention based upon physical examination findings. Specific analysis of hip flexors and extensors should be performed for their flexibility. Reduced flexibility of the hip flexors leads to excessive anterior tilt of the pelvis and causes extension of the lumbar spine. Hip extensor weakness should be evaluated secondary to this and is recommended to be done in the prone position with the knee flexed to 90 degrees. Assessment of abdominal musculature is also very important as weakness can produce anterior pelvic tilt and a lordotic posture. Be sure to watch for the ability of the spine to flex without substitution by the hip flexors.

Therapeutic exercises needs to be prescribed based upon history, physical examination findings and the patients ability to utilize the program based on co-existing factors such as cardiovascular or pulmonary disease as well as being sure it does not exacerbate pre existing conditions. Therapeutic exercises to address lumbar spinal stenosis is summarized from the source article as listed:



I. Stretching Exercises

- a. hip flexor stretching
 - 1. supine, side-lying, half-kneeling, unilateral standing
- b. hamstring stretching
 - 1. supine
- c. lumbar paraspinal stretching

II. Strengthening exercises

- 1. abdominal strengthening: pelvic tilt, trunk raises
- 2. gluteal strengthening: bridging

III. Conditioning exercises

- 1. inclined treadmill
- 2. stationary bicycle
- 3. aquatic exercises

IV. Education in proper posture and body mechanics.

Some important things to note include that a general warm-up period and the application of heat should be considered as well as proper patient instruction and training should occur to be sure that the stretch is isolated to the muscle intended upon being stretched. Precautions should be made whereby any stretch or exercise that produces symptoms should be discontinued.

COMMENTS: This is an excellent article that has great and immediate clinical applicability to all Chiropractors. Low back and leg pain is the primary presenting symptom in most Chiropractic offices. Considering that the population in the United States is aging, it only makes sense that Chiropractors will see a proportionally higher degree of cases involving spinal stenosis. The article did a good job summarizing the presenting clinical signs and symptoms as well as offering a very applicable program of exercise that can be started in office and progress to a self administered home program.

The primary emphasis of the exercise protocol is that of increasing lumbar flexion and reducing the lumbar lordosis. Consideration of overweight patients needs to be balanced in this program, as increased weight tends to increase the lumbar lordosis. So, a cooperative effort with appropriately trained weight loss individuals is very important in the management of lumbar spinal stenosis.

This article also reminds us to be sure and ask appropriate questions to help delineate if spinal stenosis may be present. If the history, physical examination and radiological studies lead to the diagnosis of lumbar spinal stenosis, manipulative techniques should be cautiously applied with the spine in a flexed position and extension should be kept to a minimum.