

Screening Tests for Lumbar and Cervical Nerve Root Compression

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With a busy schedule, you often have to arrive at a quick impression as to the possibility a presenting condition may be a cervical or lumbar nerve root compression disorder. The potential causes can be DJD, disc bulging, disc prolapse or anything causing compression. There may be a presentation of cervical or lumbar pain, but no pain in the extremities; or there may be any combination of cervical, lumbar and extremity complaints.

I start with the understanding that the nerve root has a sensory portion and a motor portion. There may be an absence of peripheral sensory signs with just local pain, but there may be compromise of the motor portion of the nerve, showing compression; and you often need a quick screening test to show this. Let's discuss a few simple screening procedures that can demonstrate to you, your patient and any reviewers (MRI approval, court attorneys, etc.) whether cervical or lumbar nerve root compression is present.

Procedure #1: The Hamstring Test for the Lumbar Spine

Let's start with the lumbar spine. I direct my testing to the most common roots affected, L5 and S1. I call this the hamstring test. The hamstrings are predominantly innervated by L5 and S1 roots. The discs that frequently impact the L5 and S1 roots are the L4 and L5 discs. So, the hamstring test will test the motor capacity of the L5 and S1 roots, possibly reflecting influences from L4 and L5 discs. Naturally, in many elderly patients, degenerative arthritis with stenosis is also influential.

To test the hamstring, the patient is prone and the leg is flexed 45-60 degrees (less than 90 degrees) to evaluate strength. Ask the patient if they experience any cramping (they should not). The leg also should not test "shaky." If the leg is weak, shaky, spongy or cramps, the test is positive (tentatively) for compression of a nerve root.

Next, place a 2 inch or thicker foam pad or pillow under the abdomen to decrease the lumbar lordosis (and create decompression). Test the hamstring muscles again on both sides. If the leg is stronger during the test (less shaky, less spongy, less cramping, stronger), it shows the presence of compression in the lumbar spine. You may use varying thicknesses of pillow or foam under the abdomen.

The hamstring test is tricky. Weakness may not show at 45 degrees, but then show at 35 degrees. You have to be creative. If the hamstring test reveals a nerve root compression disorder, the following steps have to be considered:

- Eliminate extension activities.
- Promote lumbar flexion exercises, pelvic tilts and knee-to-chest exercises.
- Coordinate lumbar MRI.

- Introduce decompression traction to the lumbar spine.
- Manipulate other hypomobile spinal levels that may be stressing the lower lumbar spine.
- Stress patience. Dr. Cox says a three-month recuperation period may be in order.

Procedure #2: The Hamstring Test for the Cervical Spine

The cervical spine and the L5 / S1 nerve root complex also should be tested for possible compression. When you have a chronic or acute cervical condition in the presence of low back or leg symptoms, or the absence of overt low back or leg symptoms, and you want to know if the neck may be influencing the low back or L5 / S1 roots, try this procedure:

1. Place the patient prone, head and neck in neutral position. Test the hamstrings. If one or both sides are weak, spongy, etc., it suggests the presence of lumbar compression.
2. Lower the head piece, placing the neck into flexion, and retest the hamstrings. If the hamstrings have increased strength, it suggests neck compression is affecting descending spinal tracks and the low back.
3. Check hamstring strength with the head in extension. If one or both hamstrings are weak, it suggests the presence of cord compression and the danger of cervical extension.

The remedy here is to reverse the scenario. Extension hurts, flexion helps:

- Reduce neck extension activities.
- Introduce neck flexion or traction.
- Manipulate cervical hypomobile levels with minimal extension.
- In my practice, I also introduce gentle cervical traction, appropriate to the case.

Play around intuitively with this procedure. If there are unexplainable reasons for neck, chest, upper back or leg symptoms, check hamstring strength with the head in extension - headpiece up. It can show you why the neck, upper back or low back is symptomatic.

Note: I do not excuse the need for manipulation in non-disc areas to decrease compensation at disc regions. For example, the C1/2 complex is responsible for 50 percent of the cervical spine. If blocked, it transfers more stress and motion to the mid- and lower cervical spine. Cautious release of the C1 or C2 fixations by manual or instrument manipulation can complete the deal.

Procedure #3: Opposition Test

This test is applicable if the patient presents with upper extremity symptoms, just neck symptoms or both, and you want to verify / rule out the presence of nerve root compression. I call this test the "opposition test" because you are testing the opposition strength of the thumb and 5th finger, digits not flexed straight. Perform the test as follows:

1. If there is acute or chronic cervical pain, you want to see if there is any motor impairment. Test the strength of the 1st and 5th fingers with the head in neutral position. If weak, test in flexion.
2. Place the head and neck into flexion. If the fingers were weak in neutral, it signified the presence of root compression. If the fingers strengthened with the neck in flexion (chin to chest), it shows the need for decompression.
3. If there are odd symptoms in the neck, upper chest or back, or the extremities, place the head and neck into extension and retest the grip. If it weakens, it shows the presence of cervical compression during extension.
4. This test is diagnostic as well as predictive of the type of care needed. If cautious manipulation

does not change the test results or symptoms, you should introduce cervical traction. (I use a decompression unit.)

You can get creative and test the grip with the head and neck in other anatomical positions, such as rotation and lateral bending. You also can evaluate different muscles in relation to head and neck positions, checking for compression.

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