Straight Leg Raising Test

Definition

- A passive test used to evaluate for lumbar nerve root (L4-S1) impingement/irritation (lumbosacral radiculopathy) and sciatic neuropathy
    - Compression of the spinal nerve root as it passes through the vertebral foramen causes a painful radiculopathy with associated muscle weakness and dermatomal sensory loss, usually from a herniated disc

Indications

- Patient presents with low back pain and nerve pain that radiates down the leg

Contraindications

- Presence of hip disease

Mechanism of Action

- The maneuvers stretch the affected nerve roots and sciatic nerve

Technique

Lying Straight Leg Raise Test:

1. Have the patient lay supine with legs extended
2. Place your hand beneath the lumbar spine to ensure there is no compensatory lordosis
    a. Observe the lumbar spine during the exam because a change in the curve invalidates the test results
    b. Also make sure the pelvis does not rise from the table
3. Ask the patient to relax their leg
4. Grasp the ankle of the leg and place your other hand on the front of the thigh to maintain the knee in full extension
5. Slowly raise the leg until the patient complains of pain or maximal flexion has been achieved (60-120 degrees)
    a. Assess the degree of elevation at which pain occurs, the quality and distribution of pain, and the effects of dorsiflexion
    b. Note whether the end-feel is abrupt or gradual; if gradual, continue gently as long as the pain is slight so as not to miss a painful arc, beyond which motion can continue without pain
    c. The presence of a painful arc suggest a protrusion so small that the nerve root merely catches against it and slips over
6. Return the leg to the table carefully
7. Results
    a. Positive: inducing/reproducing the patients pain down the leg
        i. Changing the back pain is not a positive test

    Negative: no pain is felt by the patient upon maximal flexion of the leg
8. Notes:
    a. The test has a sensitivity of 91% and specificity of 26%
    b. Observe the patient for confirming ipsilateral calf wasting and weak ankle dorsiflexion, which makes the diagnosis of sciatica 5 times more likely

Crossed Straight Leg Test:

1. The test is the same as the straight leg test, the difference being that it is performed on the leg not affected by pain
2. Results
    a. Positive: while performing the straight leg test on the unaffected leg the symptoms/pain are reproduced on the opposite (affected leg)
    b. Negative: no symptoms/pain are felt on the opposite leg
3. Note: the test has a sensitivity of 28%-29% and a specificity of 88%-90% for nerve root impingement

Seated Straight Leg Raise Test:

1. Patient is seated on the exam table with knees bent to 90° and legs hanging freely
2. The examiner slowly extends one knee from the 90° starting position
3. Continue passively extending the knee until pain/reproduction of symptoms is achieved in the tested leg or full extension reached
    a. Results
        i. Positive: reproduction of symptoms prior to reaching full extension
        ii. Negative: no pain is felt by the patient upon maximal extension of the leg

Differential Diagnosis of a Positive Test

- Ankylosing spondylitis
- Disc protrusion impinging on nerve roots below L4
- Fractured sacrum
- Hematoma in the hamstrings
- Instraspinal lesions (e.g. tumor below L4)
- Ischiorectal abscess
- Malignant disease
- Meningismus
- Osteomyelitis of the ilium/upper femur
- Tight hamstrings resulting from short leg/sacroiliac displacements

Notes

- Painless straight-leg raising does not exclude a disc lesion
- The discriminative power of the straight leg raise test seemed to decrease as age increased; thus, positive and negative results may be less conclusive in older patients

References

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