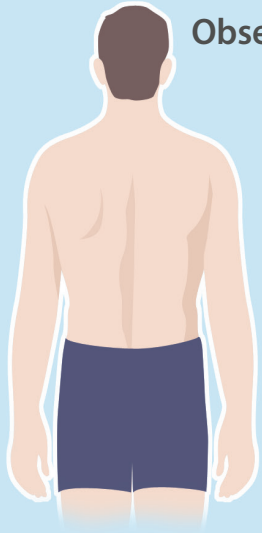


Physical Examination to Assess Low Back Pain

1 Observation



1



Normal



Abnormal

Hip Abduction (Trendelenburg) Test (L5 Nerve Root Conduction)

2 Standing



Movement to Reproduce Pain

Extension

Flexion



Toe Walking Test (S1 Nerve Root Conduction)

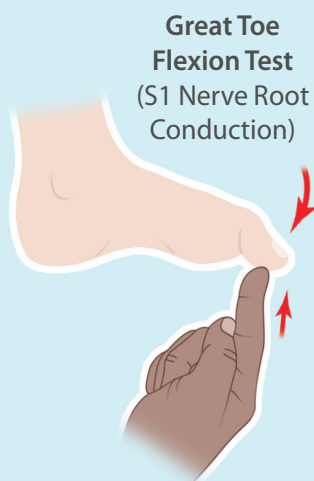


Heel Walking Test (L4-L5 Nerve Root Conduction)

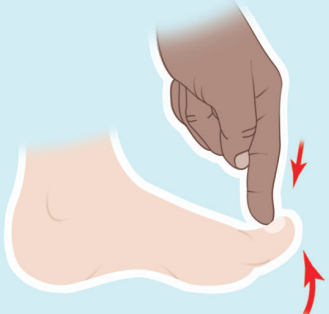
Gait

* 5 steps at maximum elevation

3 Sitting

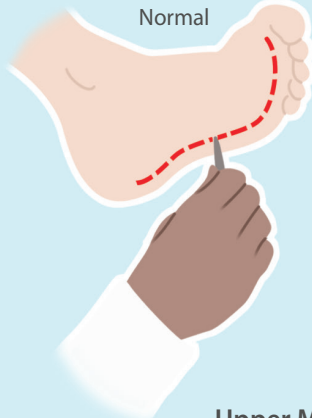


Great Toe Flexion Test (S1 Nerve Root Conduction)

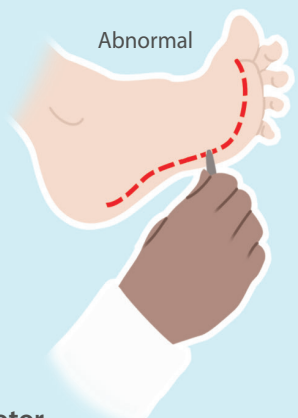


Great Toe Extension Test (L5 Nerve Root Conduction)

Ankle Dorsiflexion Test (L4 and L5 Nerve Root Conduction)



Normal

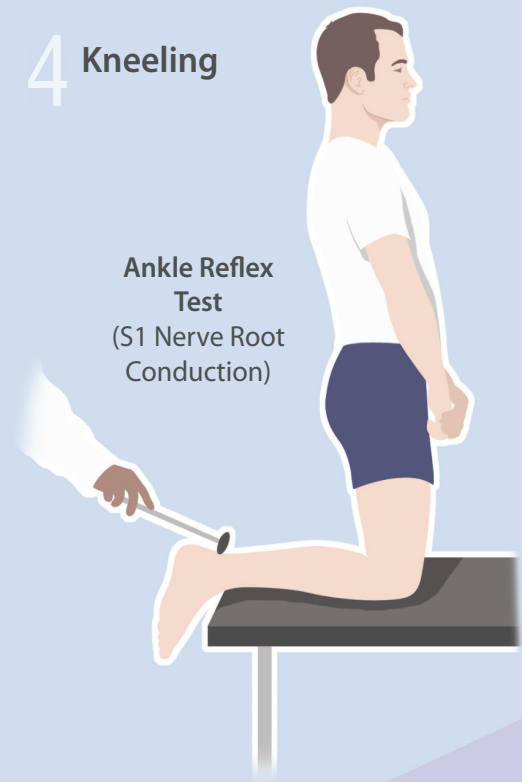


Abnormal

Upper Motor Test

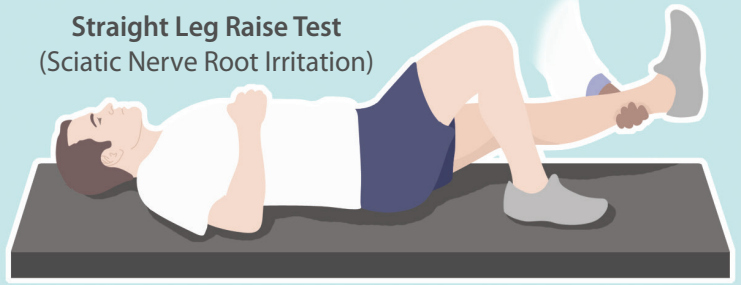
4 Kneeling

Ankle Reflex Test
(S1 Nerve Root Conduction)



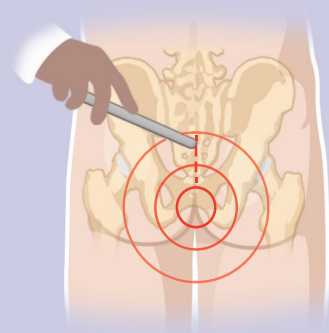
5 Lying Supine

Straight Leg Raise Test
(Sciatic Nerve Root Irritation)



6 Lying Prone

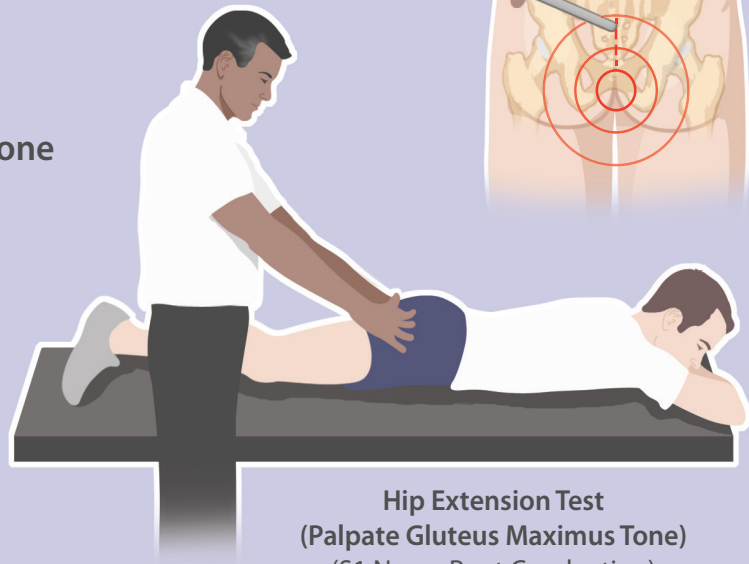
Saddle Sensation Test
(Lower Sacral Nerve Roots)



Femoral Stretch Test
(Femoral Nerve Root Irritation)



Hip Extension Test
(Palpate Gluteus Maximus Tone)
(S1 Nerve Root Conduction)



Classification of Mechanical Patterns of Low Back Pain

| | Reported Pain Location | Pain Constancy | Pain Improved | Pain Worsened | Neurological Findings | Pain Origin |
|---|-------------------------------|--------------------------|--|---|--|--|
| 1 | Back, buttocks or around hips | Constant or intermittent | One of 2 cohorts will improve on extension | Forward flexion, one of the 2 cohorts' pain also worsens on extension | Normal | Most likely discogenic |
| 2 | Back dominant | Intermittent | Unaffected or may be improved on flexion | Worsens on extension | Normal | Most likely posterior spinal elements |
| 3 | Leg dominant | Constant | By immobility and recumbent rest | By all back movement, usually more by flexion | Positive irritative test and/or conduction loss | Sciatic (or occasionally femoral) nerve root irritation |
| 4 | Leg dominant | Intermittent | Relieved by rest in flexion (sitting) | Activity in extension (walking) | May have positive conduction test; no irritative test. | Neurogenic claudication, often mislabelled spinal stenosis |

Mechanical Management of Back Dominant Pain



Postural Support
For patients with pain on flexion, maintain lumbar lordosis when sitting using large foam roll

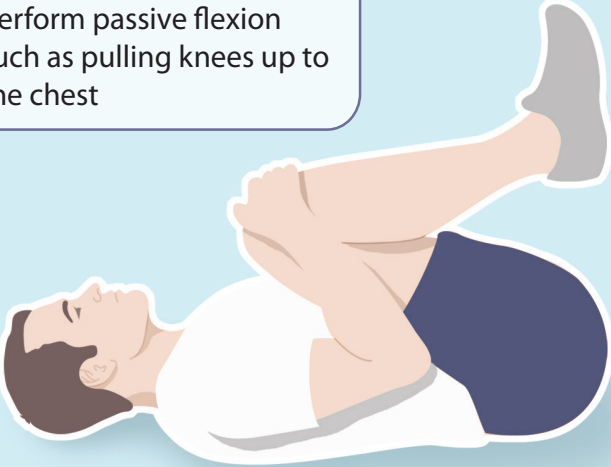


Lean Forward While Seated
For patients with pain only on extension, gain relief by sitting in chair and slumping forward with arms hanging between legs

"Z" Position
Patient lies down with a pillow under head and legs resting on a chair. Hips can also be on a pillow



Recumbent and Flexed
For the patient without obvious means of symptom relief and who has pain on both flexion and extension, begin by lying supine and perform passive flexion such as pulling knees up to the chest

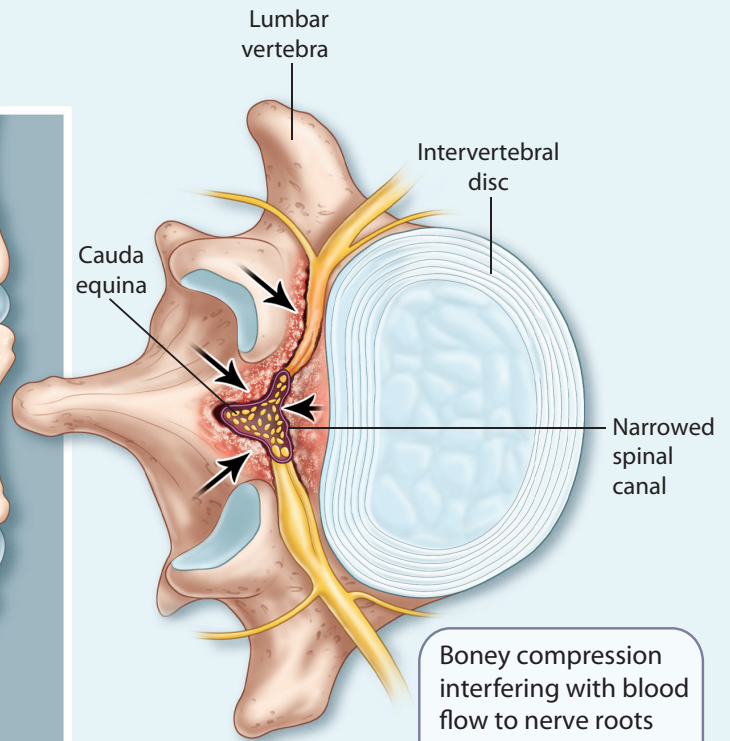
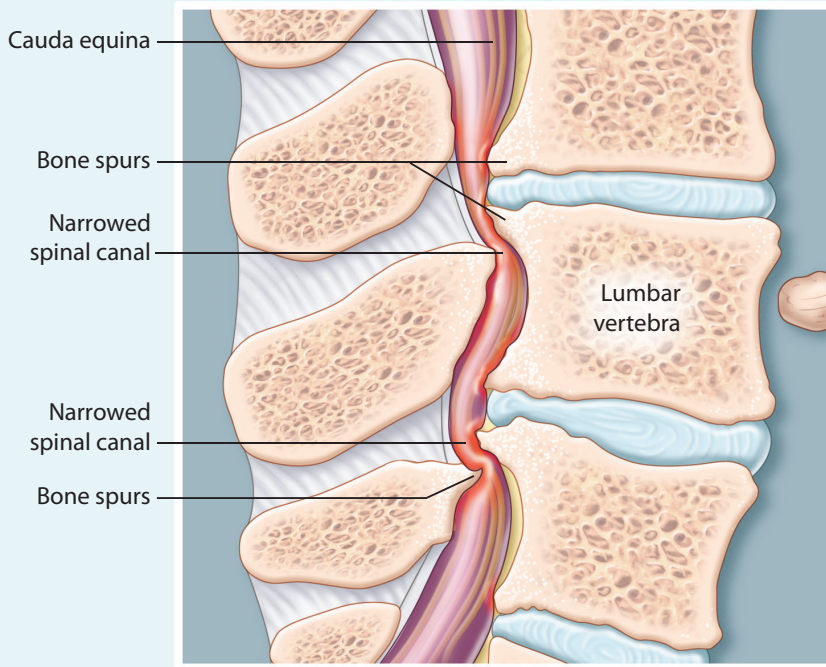


Passive Lumbar Extension
For patients with pain on flexion and relief on extension, lie prone and use arms to slowly raise and lower upper body while hips remain on floor



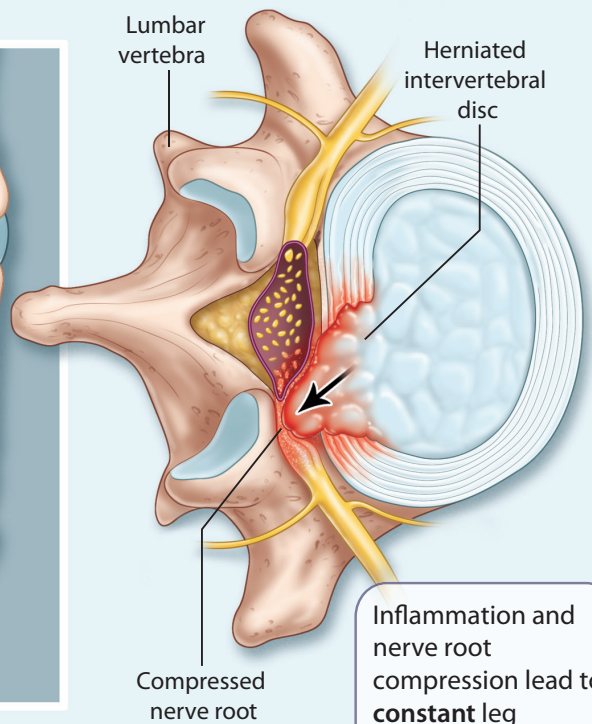
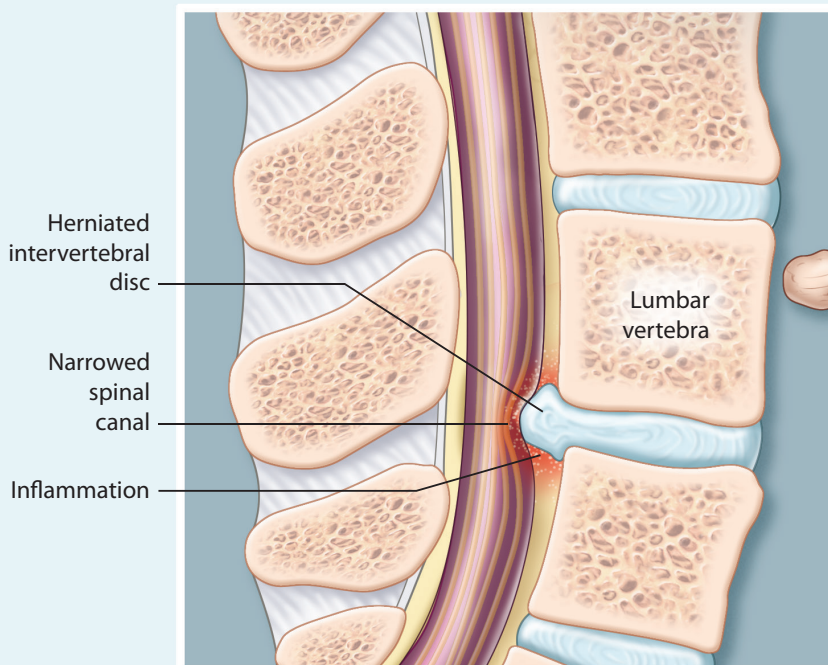
Pathological Basis of Leg Dominant Pain

Lumbar Spinal Stenosis



Bony compression interfering with blood flow to nerve roots leads to **intermittent** leg dominant pain termed "**neurogenic claudication**"

Intervertebral Disc Herniation



Inflammation and nerve root compression lead to **constant** leg dominant pain designated as **radiculopathy** or "**sciatica**"