The University of Texas at Austin
UT Health Austin

Lumbar Spine Exam

Position	Test type	Test	Significance	Observations/Tips
Standing	Neuro / motor	Neuro strength screen: Heel walk	L5 (L4) nerve function	Observe for full lift/excursion and symmetrical ability or weakness
	Neuro / motor	Neuro strength screen: Toe walk or unilateral heel raise	S1 nerve function	Observe for full lift/excursion and symmetrical ability or weakness
	Neuro / motor	Unilateral rise from sitting or squat while resting back on wall/door	L2-4 radiculopathy	Observe for symmetrical ability or weakness. Be prepared to support patient if they are weak.
	Spine range of motion	Flexion	Flexion aggravation common with disc, compression fracture - both more likely to create acute pain and worsen with further motion/load. Increased pain during motion but better at endrange more likely myofascial.	With both flexion and extension, note extent of motion (to floor, lower leg, knee, or thigh) - normal for patient or restricted?. Note changes to baseline pain during motion and/or at end range.
		Extension	Extension aggravation noted in facet syndrome, spondylolisthesis, +/- stenosis. Similarly, increased pain during motion but better at endrange more likely myofascial.	
	Advanced - ROM	Extension with rotation/LF (Kemp's)	Position increases load on facet joints and narrows lateral foramen	Note change in baseline pain and distribution of pain (local vs leg/radicular pain)
Seated	Neuro / motor	Resisted hip flexion	L2-4 nerve function	Patient can brace with hands on seat/table for maximum effort Motor grading scale from 0 - 5 0: no contraction 1: contraction but no movement 2: movement, but not full range against gravity 3: full range against gravity only, but not against resistance 4: movement against resistance - very examiner dependent (4-, 4, 4+) 5: normal strength
	Neuro / motor	Resisted knee extension	L3-4 nerve function	
	Neuro / motor	Resisted ankle dorsiflexion	L4-5 nerve function	
	Neuro / motor	Resisted big toe extension (EHL)	L5-S1 nerve function	
	Neuro / sensation	Bilateral touch - "Does this feel equal from side to side?"	Note loss of sensation, versus altered sensation e.g. hyperalgesia, dysesthesia	Observe for correlation to lumbar dermatomes
	Neuro / deep tendon reflex	Knee / patellar tendon reflex	L4 nerve function	Bounce technique. Look for symmetry / asymmetry, consider Jendrasik/distraction manuevers
	Neuro / deep tendon reflex	Ankle / Achilles tendon reflex	S1 nerve function	*Achilles reflex commonly unobtainable bilateraly in the older age group as well as in diabetes
	Circulation	Pulses: dorsalis pedis or posterior tibial (as indicated with claudicatory symptoms)	Vascular claudication	If pulses bilaterally nonpalpable, test capillary refill and/or note symmetry of skin temperature (as clinically indicated)
	Nerve root tension corroboration	Seated SLR, can be assessed contemporaneous with circulation; assesses nerve tension with patient inattention.	Nerve root tension assessed seated vs supine	Seated SLR testing corroborates the supine SLR. Negative seated SLR in context of a positive supine SLR may suggest symptom magnification.

** Exams in green can be performed "as needed".*

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Seated	Measurement / observe for atrophy		L2-4 nerve function	Thigh - mark the thigh 10 cm proximal to the superior head of the patella, and then measure circumferentially
	Measurement / observe for atrophy		L5 nerve function	EDB - small muscle at the dorsal foot, frequently atrophic bilaterally. Look for symmetry / asymmetry.
	Measurement / observe for atrophy		S1 nerve function	Calf - most easily estimated with "hand calipers" at point of maximal girth; formal measurements at point of maximal girth as needed if asymmetric.
	Edema		DVT or other proximal mass e.g. pelvis	
Supine	Hip range of motion	Hip ROM - knee to chest and FABER	Hip versus spine for inguinal/anterior thigh differentiation	Hip and knee flexion to 90 degrees; complaints of radicular pain in neutral 90/90 suggest symptom magnification. Tip: test hip first, then SLR.
	Nerve root tension	Straight leg raise (SLR) - Sciatic nerve tension test	L5, S1 radiculopathy	Reproduction of RADICULAR pain, between 30-70 degrees typically. Acute pain with withdrawal response more indicative of positive finding vs ability to tolerate maintained stretch load. Radicular findings should aggravate with passive ankle dorsiflexion, cervical flexion; and relieve with knee flexion.
	Nerve root tension	Supine Contralateral SLR	Contralateral SLR reproducing ipsilateral radicular symptoms is thought to be more specific, but less sensitive, than ipsilateral SLR	
	Neuro / motor	Resisted SLR	L2-4 radiculopathy	Corroborating motor exams for suspected radiculopathy
Seated	Neuro / motor	Resisted ankle plantarflexion/eversion	S1 nerve function	
Sidelying	Neuro / motor	Resisted hip abduction	L5 radiculopathy	
Prone	Neuro / motor	Resisted knee flexion	S1 radiculopathy	
Prone	Nerve root tension	Femoral nerve tension test	L2-4 radiculopathy	*Reproduction of RADICULAR pain anterior thigh
Prone, Seated or Standing	Palpation	Palpation	Most commonly nonspecific from a diagnostic standpoint, however, important from a patient perspective.	

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