

Lumbar Spine and Related Lower Limb Pain

ICD-9-CM code: 722.10 Displacement of lumbar intervertebral disc without myelopathy

ICF codes: Activities and Participation Domain code: **d4153** Maintaining a sitting position (Staying in a seated position, on a seat or the floor, for some time as required, such as when sitting at a desk or table.)

Body Structure code: **s76002** Lumbar vertebral column

Body Functions code: **b28013** Pain in back

b28015 Pain in lower limb

Common Historical Findings:

Recurring episodes of low back pain (> one year)

Recent episode precipitated by bending/twisting or lifting strain

Symptoms worse with prolonged sitting or repetitive forward bending activities

Common Impairment Findings - Related to the Reported Activity Limitation or Participation Restrictions:

"Flat" back (reduction in normal lumbar lordosis)

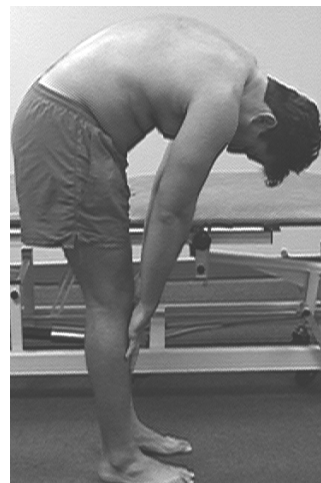
May have lateral shift of thorax

Location of symptoms peripheralize or centralize following a specific repeated movement

Physical Examination Procedures:



Right Lateral Shift



Repeated Forward Bending

Performance Cues:

Establish baseline location of symptoms - remember to ask "Anywhere else?"

Demonstrate as you say "Slide your hands down your thigh and bend forward as far as you comfortable can and return"

After returning to the standing position inquire, "Did that motion cause a change in your pain (or symptoms?)"

If yes, "At this moment, *WHERE* is your pain (or symptoms)? Anywhere else?"

If the location of symptoms moves peripherally - perform one more repetition to verify

If the location of symptoms moves centrally - perform five more repetitions to verify

If the location of symptoms does not change - perform five more repetitions to verify



Repeated Backward Bending

Performance Cues:

Re-establish baseline

Demonstrate and say "Spread your feet apart, place your hands on your buttocks, and bend backward as far as you comfortable can then return back up."

Utilize standard inquires (above in forward bending cues) to determine if the location of symptoms peripheralized or centralized *following completion of the motion(s)*

Lumbar Spine and Related Lower Limb Pain:
Description, Etiology, Stages, and Intervention Strategies

The below description is consistent with descriptions of clinical patterns associated with the vernacular term "Lumbar Disc Disorder"

Description: As the degeneration of the intervertebral disc progresses the outer layers of the disc (annulus fibrosus) becomes weak and allow protrusion or extrusion of the inner portion of the

disc (nucleus pulposus). The bulging disc can produce low back and leg pain. The bulging disc may also put pressure on the spinal cord or any of the nerve roots that branch from it – thus producing a lumbar radiculopathy

Etiology: Traumatic onset such as with awkward and/or heavy lifting using poor body mechanics may initiate the slow process of disc degradation – which may take years before symptoms are noted. Non-traumatic onset, associated with prolonged sitting and repetitive flexion/bending activities, may also create degenerative changes in the disc over time.

Acute Stage / Severe Condition: Physical Examinations Findings (Key Impairments)

ICF Body Functions codes: **b28013.3** SEVERE pain in back; and **b28015.3** SEVERE pain in lower limb

- Reduced lumbar lordosis
- May have a lateral trunk shift
- Repeated flexion movement worsen or peripheralize the patient's symptoms
- Central posterior-to-anterior pressures on the involved segment reproduce the reported symptoms
- Limited straight leg raise (SLR) due to mobility deficits in the sciatic nerve or hamstrings

Sub Acute / Moderate Condition: Physical Examinations Findings (Key Impairments)

ICF Body Functions codes: **b28013.2** MODERATE pain in back; and **b28015.2** MODERATE pain in lower limb

- As above
- Specific repeated movements, commonly extension or lateral shift movements, may centralize or reduce the patient's symptoms

Settled Stage / Mild Condition: Physical Examinations Findings (Key Impairments)

ICF Body Functions codes: **b28013.1** MILD pain in back; and **b28015.1** MILD pain in lower limb

- As above

Intervention Approaches / Strategies

Acute Stage / Severe Condition

Goals: Decrease pain
Centralize symptoms

- Physical Agents
 - Ice
 - Electrical stimulation (e.g., interferential or TENS)
- Re-injury Prevention Instruction
 - Educate patient to avoid activities (typically flexion activities) that aggravate the low back or leg pain – especially avoid movements and positions that peripheralize the patient's symptoms
- External Devices (Taping/Splinting/Orthotics)
 - Consider using taping or a brace to remind the patient to maintain his/her lumbar lordosis during daily activities and limit forward bending
- Therapeutic Exercise
 - Instruct in positions or exercises (typically lumbar extension postures or exercises) that centralize the symptoms
- Manual Therapy
 - Lateral shift procedures, manual traction, or mechanical traction may allow centralization of symptoms when positions/exercises are ineffective in centralizing the symptoms

Sub Acute Stage / Moderate Condition

Goals: As above

Improve activity tolerance for performing normal ADL's

- Approaches / Strategies listed above
- Therapeutic Exercise
 - Initiate lumbar stabilization exercises (i.e., trunk flexor and extensor strengthening to maintain the lumbar spine in its neutral positions during performance of daily activities
 - Initiate stretching exercises to myofascia with flexibility deficits (e.g., hamstrings)
 - Initiate nerve mobility exercises the nerve with mobility limitations (e.g., sciatic nerve)
 - Promote daily performance of low-stress aerobic activity (e.g., walking)
- Neuromuscular Re-Education
 - Provide verbal, proprioceptive and manual cues for maintenance of neutral lumbar spine positions during daily activities

Settled Stage / Mild Condition

Goals: Improve activity tolerance for performing normal ADL's

Return to desired level of activity, including occupational and recreational activities.

Intervention for Higher Performance / High Demand Function in Workers or Athletes

Goal: Return patient to optimal activity level for performance of desired occupational and recreational activities

- Avoid re-injury Approaches / Strategies listed above
- Therapeutic Exercise
 - Progress stretching, strengthening, and proprioception and nerve mobility exercises
 - Maximize muscle performance of the relevant lower quadrant (hip, knee, ankle and lumbar) muscles or upper quadrant (scapular, shoulder, elbow, forearm) required to perform the desired occupational or recreational activities
- Ergonomic Instruction
 - Provide job/sport specific training to lessen strain on the lumbar spine and to maximize activity tolerance

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Exercise and Movement Re-Education Interventions for Patients with Lumbar Spine Impairments

Body Function Label	Critical Impairments	Other Supportive Criteria	Interventions
Lumbar Spine Mobility Deficits Other vernacular terms: “Facet Syndrome” Mobilization Exercises	End-range pain ROM limitations	Acute low back pain Minimal/no previous history of LBP	End-range stretching to maintain segmental ROM gained from manipulative procedures. Ergonomic instruction, trunk & pelvic girdle strengthening & stretching, as indicated, to prevent future disability.
Lumbar Spine Stability Deficits Other vernacular terms: “Ligamentous Instability” Stabilization Exercises	Symptoms reproduced with sustained end range positions Symptoms eased with neutral positions and midrange movements	Long history of progressively worsening symptoms (i.e., less tolerance to end range positions – such as sitting)	Isometric mobilizations to normalize pelvic girdle symmetry. Ergonomic cuing to maintain mid-range lumbar and pelvic girdle positions. Proprioceptive training and trunk/pelvic girdle strengthening to improve ability to stay in mid-range positions. Taping or bracing as indicated.
Lumbar Spine and Related Lower Limb Pain Other vernacular terms: “Disc Derangement” Extension Exercise, or Specific Exercise Group	Location of symptoms move centrally with repeated lumbar extension or with repeated lateral trunk shifts	Difficulty with sitting and forward bending Multiple previous episodes of LBP (progression of “Ligamentous Instability”) Observable reduced lumbar lordosis – may have lateral trunk shift	Manual procedures, postures, or exercises that centralize the symptoms. Ergonomic cuing to maintain lumbar lordosis prevent peripheralization. Progress to treatment of underlying segmental instability.
Lumbar Spine and Related Lower Extremity Radicular Pain Other vernacular terms: “Nerve Root Adhesion” or “Dural Adhesion” Nerve Mobility Exercises	Narrow band of lancinating pain Symptoms reproduced with SLR and/or slump testing	Nerve mobility deficits with lower limb tension testing	Dural and nerve mobility exercises as indicated to address the patient’s key impairments Soft tissue and/or joint mobilization to areas of potential spinal and peripheral nerve entrapments

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