

Lumbar Muscle Power Deficits

ICD-9-CM codes: 847.2 Lumbar sprains and strains

ICF codes: Activities and Participation Domain codes:

d4105 Bending (Tilting the back downward or to the side, at the torso, such as in bowling or reaching down for an object)

d4305 Putting down objects (Using hands, arms or other parts of the body to place an object down on a surface or place, such as when lowering a container of water to the ground.)

Body Structure code: **s7601** Muscles of trunk

Body Functions code: **b7300** Power of isolated muscles and muscle groups

Common Historical Findings

Recent unaccustomed, repetitive bending or lifting activities (e.g., shoveling)

Sudden or unexpected strain – usually while lifting or pushing

Direct, blunt trauma to low back

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

Pain with contraction of lumbar extensors (e.g., "torturous" return from forward bending)

Symptoms reproduced with palpation of erector spinae, quadratus lumborum, or psoas trigger points

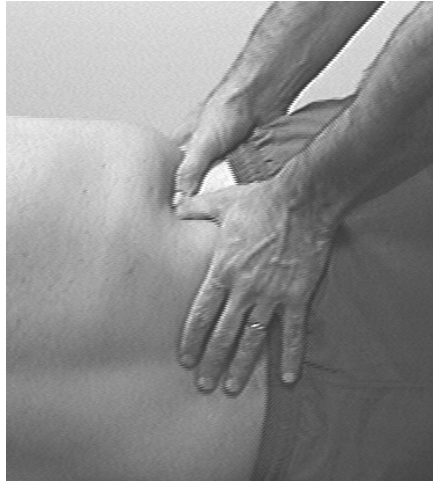
Physical Examination Procedures:



Painful Contraction of Lumbar Extensors

Performance Cues:

Assess ability to return to erect standing from full forward bending - e.g., use of hands on bent knees and thighs; expressions and vocalizations of discomfort



Quadratus Lumborum Palpation

Performance Cues:

Palpate for symptomatic taut bands superior to iliac crest, anterior to erector spinae myofascia, and inferior to 12th rib



Psoas Palpation

Performance Cues: To palpate psoas:

Fully flex hip to relax abdominals.

Sink slowly

Use a "flat" hand

Extend hip to allow the patient's foot to rest on table

Palpate for psoas contraction when asking patient to "raise knee a quarter inch toward the ceiling and relax"

Palpate from L1 to L4 for taut bands which reproduce the symptomatic complaints

If it does not contract with hip flexion - it is not psoas myofascia

Lumbar Muscle Power Deficits: Description, Etiology, Stages, and Intervention Strategies

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

Description: Injury to the muscles of the low back. The muscles that commonly produce lumbar pain are quadratus lumborum, psoas major, iliocostalis lumborum, and the multifidi.

Etiology: Lumbar muscle strain occurs with a trauma to the low back region that is a result of a contusion, stretching or tearing of the musculature. Lumbar muscle strain can also occur secondary to micro tears in muscle and fascial tissue caused by repetitive stress. This typically occurs when an unaccustomed activity is performed – such as shoveling snow for the first time in winter, gardening for the first time in spring, or moving furniture and boxes during a home improvement project.

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

ICF Body Functions codes: **b7300.3** SEVERE impairments of muscle power

- Pain with activities that require contraction of lumbar musculature (e.g., when returning to upright from a bent over position)
- Pain with activities that stretch the involved lumbar musculature
- Palpatory provocation of the involved muscles reproduce the reported symptoms

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

ICF Body Functions codes: **b7300.1** MILD impairments of muscle power

- As above – but symptoms are less intense and more difficult to provoke
- Muscle flexibility and strength deficits in the hip, pelvis and lumbar regions

Intervention Approaches / Strategies

Acute Stage / Severe Condition

Goals: Decrease pain

Limit further tissue injury

- Physical Agents
 - Ice packs, ice massage
 - Ultrasound
 - Electrical stimulation
 - Whirlpool

- **Manual Therapy**
Soft tissue mobilization and gentle manual stretching to the involved myofascia and myofascial trigger points
- **Therapeutic Exercises**
Active mobility exercises to involved muscle – i.e., midrange painfree contractions of the involved muscles
Gentle stretching of the involved muscles
- **Re-injury Prevention Instruction**
Provide instructions in proper body mechanics for lifting, bending or other potentially injurious activities routinely performed by the patient

Sub Acute Stage / Moderate Condition

Goals: As above
Return to near-normal activities

- Approaches / Strategies listed above
- **Therapeutic Exercises**
Increase intensity and duration of the mobility and stretching exercises

Settled Stage / Mild Condition

Goals: Normalize muscle flexibility
Normalize pelvic girdle and trunk strength
Return to normal activities

- Approaches / Strategies listed above
- **Therapeutic Exercises**
Increase intensity and duration of the mobility and stretching exercises
Stretching exercises for relevant tight musculature
Strengthening exercises for relevant weak musculature

Intervention for High Performance / High Demand Functioning in Workers or Athletes

Goal: Return to desired occupational or recreational activities

- Approaches / Strategies listed above

- Therapeutic Exercises
Add muscular and cardiovascular endurance activities to the current exercise program
- Ergonomic Instruction
Provide job/sport specific training to lessen strain on the lumbar spine and to maximize activity tolerance

Selected References

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Schenk RJ, Doran RL, Stachura JJ. Learning effects of a back education program. *Journal of Manipulative & Physiological Therapeutics*. 1997;20:(7)

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