

The Lumbar Lament: Decoding Low Back Pain



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Image Courtesy of John's Hopkins

Disclosures

- I have no conflicts and no disclosures

Objectives


- Apply evidence-based assessment tools to accurately diagnose the underlying causes of low back pain in diverse patient populations, enhancing their diagnostic precision and informing targeted treatment plans.
- Employ osteopathic manipulative treatment (OMT) techniques as an integral component of a multimodal approach to managing low back pain, improving patient outcomes and promoting the integration of OMT into their clinical practice.

Objectives

- Evaluate the potential risks and benefits associated with various pharmacological and non-pharmacological interventions for low back pain, allowing them to make informed decisions and provide patient-centered care tailored to individual needs and preferences.
- Communicate effectively with patients experiencing low back pain, utilizing strategies such as shared decision-making and patient education, to empower patients in self-management, enhance adherence to treatment plans, and optimize overall patient satisfaction and well-being.

Facts

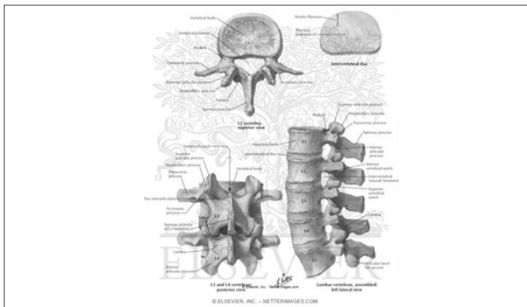
- 85-90% of pts seen in primary care have “nonspecific low back pain.”
 - The pain cannot reliably be attributed to a specific disease or spinal pathology.



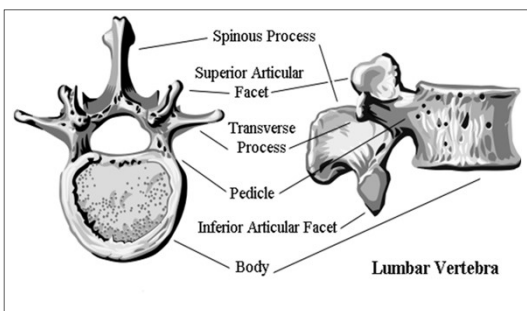
Non specific low back pain = Somatic Dysfunction

- An impaired or altered function of related components of the somatic system.
 - Disturbance of the normal function of somatic structures.
 - Possesses characteristics identifiable means of palpation.
 - Based on a neurophysiological phenomenon

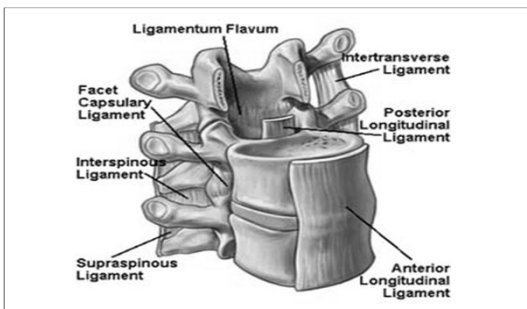
Anatomy



Anatomy



Anatomy



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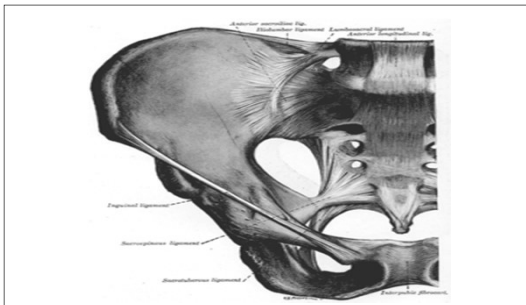
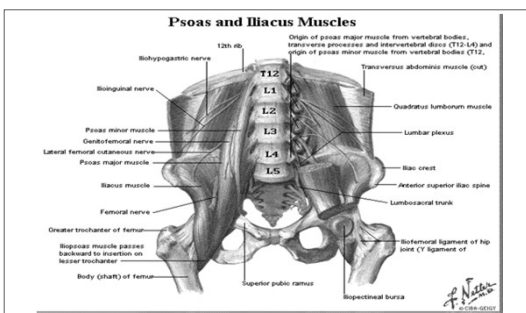
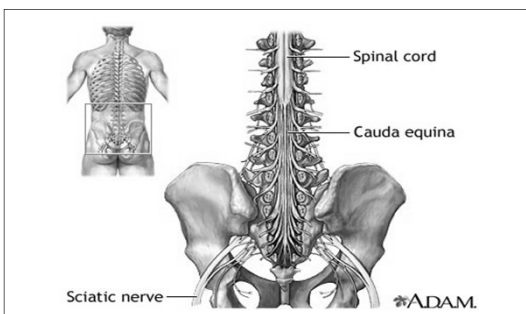


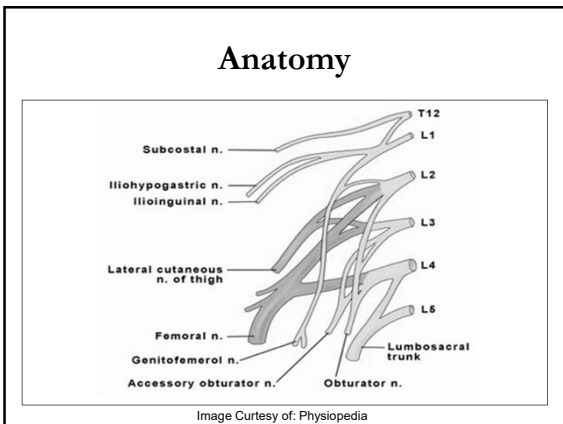
Image Courtesy of: Radiopaedia

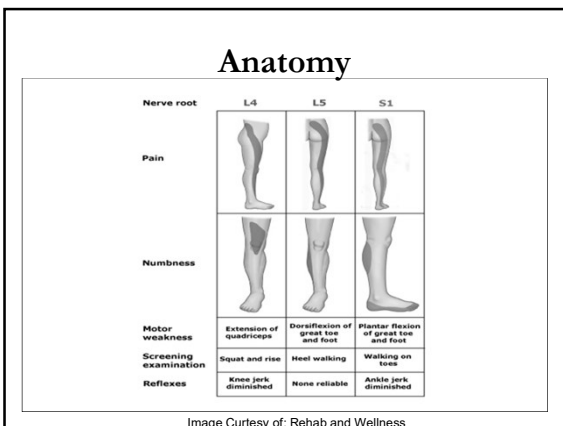
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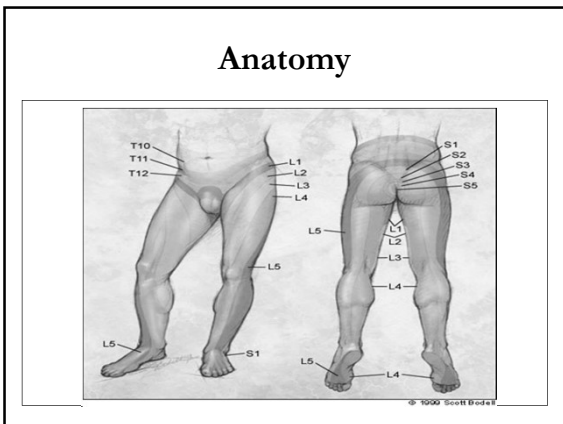


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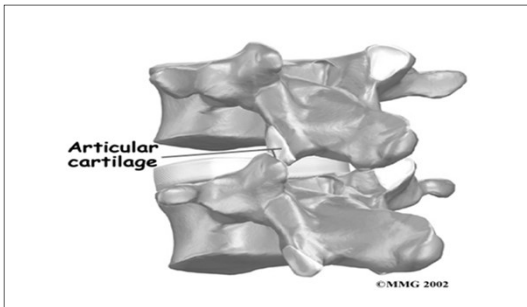




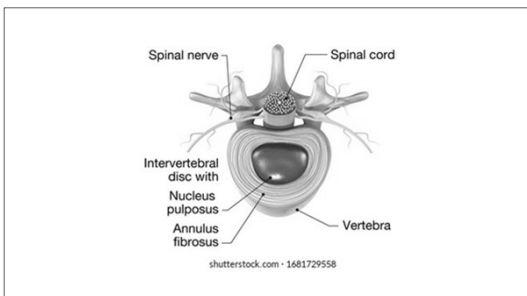




Anatomy



Anatomy



Risk Factors for Low Back Pain

- Previous h/o LBP
- Smoking
- Obesity
- Age >50
- Physically strenuous work
- Sedentary work
- Psychologically strenuous work
- Workers' compensation insurance
- Job dissatisfaction
- Anxiety/Depression

Terminology

- Acute low back pain
 - ≤ 4 weeks
- Subacute low back pain
 - 4-12 weeks
- Chronic low back pain
 - > 12 weeks



Image Courtesy of: Virtua Health

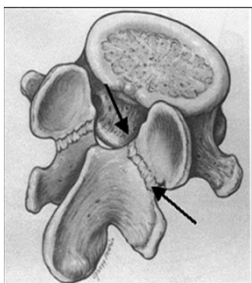
Spondylosis

- Arthritis of the spine. Seen radiographically as disc space narrowing and arthritic changes of the facet joint.



Spondylolysis

- A fracture in the pars interarticularis where the vertebral body and the posterior elements, protecting the nerves are joined. In a small percent of the adult population, there is a developmental crack in one of the vertebrae, usually at L5.

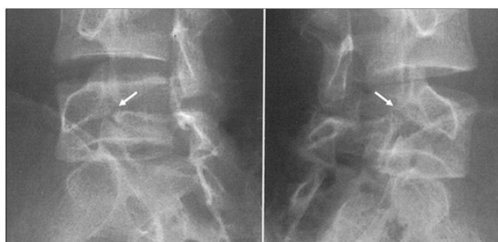


Spondylolysis



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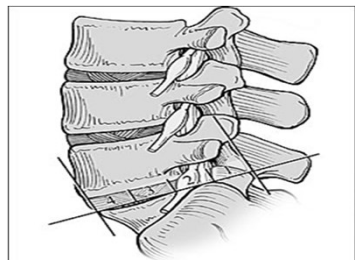
Spondylolysis



Spondylolisthesis

- Anterior displacement of a vertebra on the one beneath it. A radiologist determines the degree of slippage upon reviewing spinal x-rays. Slippage is graded I through IV:
 - Grade I - 1 percent to 25 percent slip
 - Grade II - 26 percent to 50 percent slip
 - Grade III - 51 percent to 75 percent slip
 - Grade IV - 76 percent to 100 percent slip

Spondylolisthesis



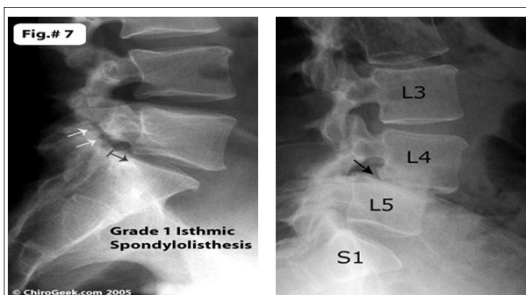
The sacral base is divided into four equal divisions.

Spondylolisthesis



Image Courtesy of: Wordpress.com

Spondylolisthesis



Spondylolisthesis

- Generally, Grade I and Grade II slips do not require surgical treatment and are treated medically. Grade III and Grade IV slips might require surgery if persistent, painful, slips are present.

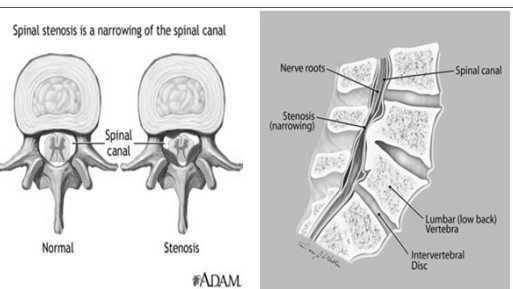


Spinal Stenosis

- Local, segmental, or generalized **narrowing of the central spinal canal** by bone or soft tissue elements, usually bony hypertrophic changes in the facet joints and by thickening of the ligamentum flavum.
- Pseudoclaudication/Neurogenic claudication- **Pain with walking, relieved with rest.** Normal arterial pulses.



Spinal Stenosis



Spinal Stenosis



Spondyloarthropathies

- Ankylosing Spondylitis
 - Inflammatory arthritis
 - Chronic pain, morning stiffness lasting greater than 30min, sacroiliac joint tenderness.
 - Not all pts are HLA B27 positive.

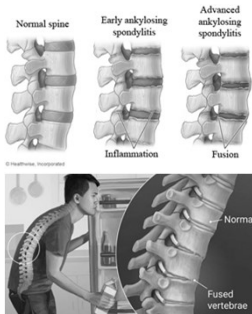
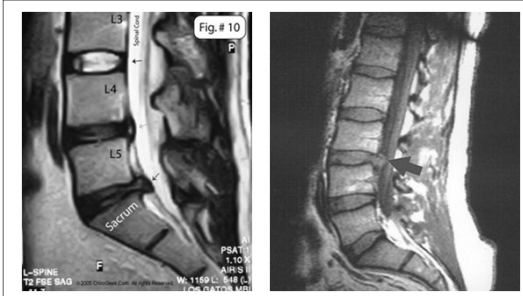


Image Courtesy of: spinesurgeon.in

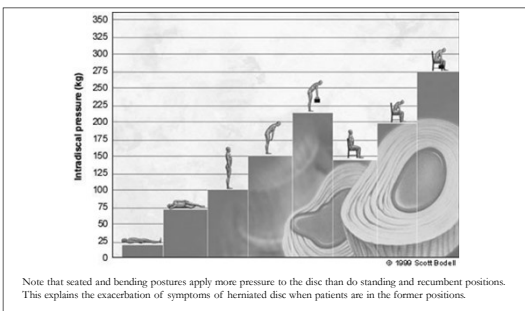
Terminology

- Disc Bulge
 - Disc bulges out from between two vertebrae without rupturing its surrounding annulus fibrosis.
- Disc Herniation
 - Tear in the annulus, allowing the nucleus pulposus to prolapse through the annulus.

Discs



Relative increases and decreases in intradiscal pressure in relation to different body positions



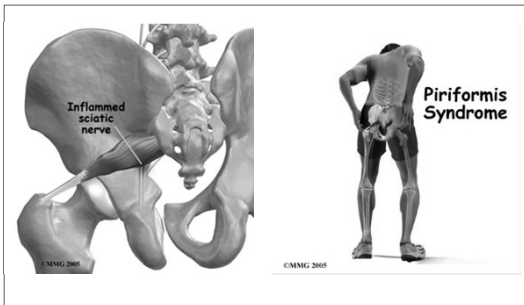
Note that seated and bending postures apply more pressure to the disc than do standing and recumbent positions. This explains the exacerbation of symptoms of herniated disc when patients are in the former positions.

Nguyen, T. Nonspecific Low Back Pain and Return to Work. *American Family Physician* 2007;76:1497-502

Terminology

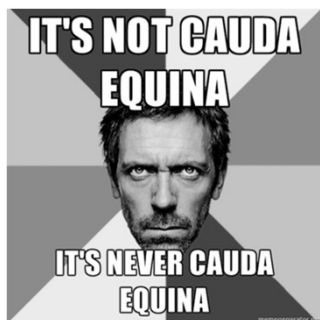
- **Radiculopathy**
 - Impairment of a nerve root, usually causing radiating pain, numbness, tingling or muscle weakness that corresponds to a specific nerve root.
- **Sciatica**
 - Pain, numbness, tingling in the distribution of the sciatic nerve, radiating down the posterior or lateral aspect of the leg, usually to the foot or ankle.

Sciatica

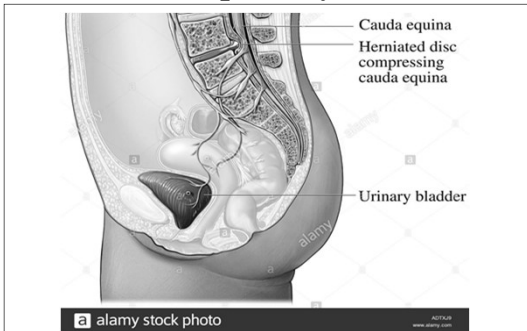


Cauda Equina Syndrome

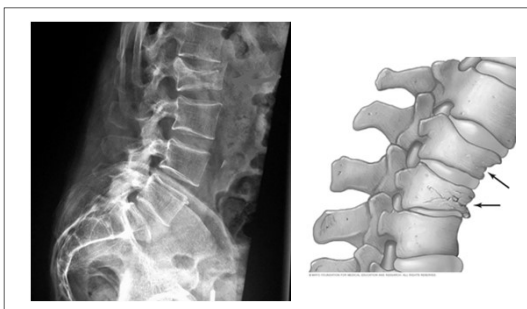
- Loss of bowel and bladder control and numbness in the groin and saddle area of the pelvis, associated with weakness of the lower extremities. This condition can be caused by abnormal pressure on the bottom-most portion of the spinal canal and spinal nerve roots, related to either bony stenosis or a large herniated disc.



Cauda Equina Syndrome



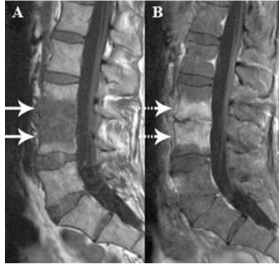
Lumbar Vertebral Compression Fracture



Discitis

- Discitis is an inflammation of the vertebral disk space often related to infection.
- Infection of the disk space must be considered with vertebral osteomyelitis.
- Localized pain (severe)
- h/o recent spinal surgery
- Fever
- UTI, wound, IVDA, Immunosuppression

Discitis



Hyperintensity of the disc on T2-weighted imaging (sensitivity 93%); the presence of paraspinous or epidural inflammation/abscess, (sensitivity 98%); and contrast enhancement of the disc and adjacent bone marrow (sensitivity 95%).

Differential Diagnosis

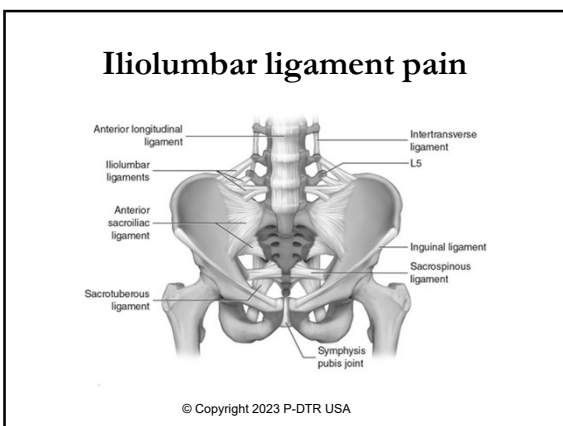


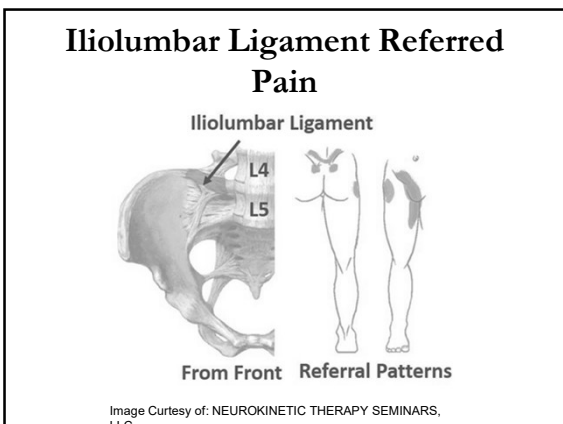
TABLE 1
Differential Diagnosis of Acute Low Back Pain

Diagnosis	Key clinical clues
Intrinsic spine	
Compression fracture	History of trauma (unless osteoporotic), point tenderness at spine level, pain worsens with flexion, and while pulling up from a supine to sitting position and from a sitting to standing position
Herniated nucleus pulposus	Leg pain is greater than back pain and worsens when sitting; pain from L1-L3 nerve roots radiates to hip and/or anterior thigh; pain from L4-S1 nerve roots radiates to below the knee
Lumbar strain/sprain	Diffuse back pain with or without buttock pain, pain worsens with movement and improves with rest
Spinal stenosis	Leg pain is greater than back pain; pain worsens with standing and walking, and improves with rest or when the spine is flexed; pain may be unilateral (foraminal stenosis) or bilateral (central or bilateral foraminal stenosis)
Spondylolisthesis	Leg pain is greater than back pain; pain worsens with standing and walking, and improves with rest or when the spine is flexed; pain may be unilateral or bilateral
Spondylolysis	Can cause back pain in adolescents, although it is unclear whether it causes back pain in adults; pain worsens with spine extension and activity
Spondylolysis (degenerative disk or facet joint arthropathy)	Similar to lumbar strain; disk pain often worsens with flexion activity or sitting, facet pain often worsens with extension activity, standing, or walking

Am Fam Physician. 2012 Feb 15;85(4):343-350.

Systemic	
Connective tissue disease	Multiple joint arthralgias, fever, weight loss, fatigue, spinous process tenderness, other joint tenderness
Inflammatory spondyloarthropathy	Intermittent pain at night, morning pain and stiffness, inability to reverse from lumbar lordosis to lumbar flexion
Malignancy	Pain worsens in prone position, spinous process tenderness, recent weight loss, fatigue
Vertebral diskitis/osteomyelitis	Constant pain, spinous process tenderness, often no fever, normal complete blood count, elevated erythrocyte sedimentation rate and/ or C-reactive protein level
Referred	
Abdominal aortic aneurysm	Abdominal discomfort, pulsatile abdominal mass
Gastrointestinal conditions: pancreatitis, peptic ulcer disease, cholecystitis	Abdominal discomfort, nausea/vomiting, symptoms often associated with eating
Herpes zoster	Unilateral dermatomal pain, often allodynia, vesicular rash
Pelvic conditions: endometriosis, pelvic inflammatory disease, prostatitis	Discomfort in lower abdomen, pelvis, or hip
Retropatellar conditions: renal colic, pyelonephritis	Costovertebral angle pain, abnormal urinalysis results, possible fever
Am Fam Physician. 2012 Feb 15;85(4):343-350.	

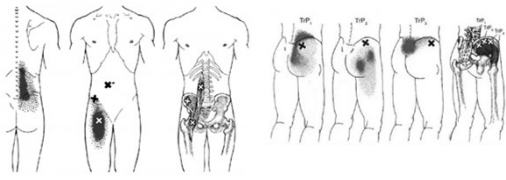




Trigger Points

Hyperirritable spot, usually within a taut band of skeletal muscle, which is painful on compression and can give rise to characteristic referred pain, motor dysfunction, and autonomic phenomena.

Iliopsoas **Gluteus Medius**



Images courtesy of: Triggerpoints.net

History and Physical Exam

- Goal
 - Identify patients who require immediate surgical evaluation and those whose symptoms suggest a more serious underlying condition (malignancy/infection).

History and Physical Exam

- Questions
 - Is there evidence of systemic disease?
 - Is there evidence of neurologic compromise?
 - Is there social or psychological distress that may contribute to chronic pain?

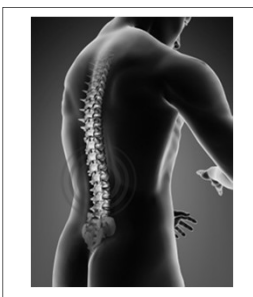


Image Courtesy of: Consultant 360

History and Physical Exam

- Gait evaluation
- Inspect
- Palpate
- Range of motion
- Evaluate for malignancy (breast, prostate, LAD)

History and Physical Exam

■ Neurologic assessment

Table 3. Physical Examination Findings in Nerve Root Impingements

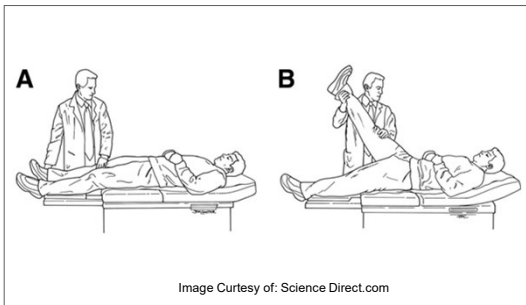
Herniation	Nerve root affected	Sensory loss	Motor weakness	Screening examination	Reflex
L3-L4 disk	L4	Medial foot	Knee extension	Squat and rise	Patellar
L4-L5 disk	L5	Dorsal foot	Dorsiflexion ankle/great toe	Heel walking	None
L5-S1 disk	S1	Lateral foot	Plantarflexion ankle/toes	Walking on toes	Achilles

Am Fam Physician. 2012 Feb 15;85(4):343-350

History and Physical Exam

- Straight leg raising
 - Helps to confirm radiculopathy.
 - Positive test between 10-60 degrees of elevation.
 - Positive SLR is sensitive, but not specific for herniated disc. The crossed straight leg test (elevation of contralateral leg) is less sensitive, but 90% specific.

Straight Leg Raise



Low Back Physical Exam

- <https://www.youtube.com/watch?v=q1gX9hORtLY>
- Stanford Medicine

Diagnostic Testing Facts

- Studies suggest that around 60-90% of people with acute low back pain tend to experience significant improvement within six weeks.
- Given favorable prognosis, imaging studies are infrequently needed.

Diagnostic Testing Facts

- Disc herniations on MRI are seen in 22-40% of asymptomatic adults.
- Spinal stenosis is present in up to 21% of studies in pts over age 60.
- **Imaging studies are infrequently needed within the first four to six weeks of symptoms,**
UNLESS:

Red Flags!

- Progressive neurological findings
- Constitutional symptoms
- History of traumatic onset
- History of malignancy
- Unexplained weight loss
- Urinary Retention
- Saddle Sensation Disturbance
- Age ≤ 18 or ≥ 70 yrs (may suggest systemic disease)
- Trauma
- Infectious risk
 - IVDA, immunosuppression, indwelling catheter
- Osteoporosis
- Nighttime pain

TABLE 1
Red Flag Findings in the Evaluation of Low Back Pain

Finding	Suggested condition
New urinary retention	Cauda equina
Saddle sensation disturbance	Cauda equina
Bladder fullness	Cauda equina
Abnormal neurologic examination	Serious or progressive neurologic deficit
Fever or other signs	Infection
Hemoglobin < 10 g per dL (100 g per L)	Cancer, epidural hematoma
History of intravenous drug use and previous infection	Epidural abscess (LR+ = 14)
Indwelling vascular catheter	Epidural abscess (LR+ = 16)
Recent spine fracture	Epidural abscess (LR+ = 10)
Trauma and neurologic deficit	Vertebral fracture (LR+ = 31)
History of cancer and clinical suspicion of cancer	Cancer (LR+ = 28)
Older than 75 years and recent trauma, osteoporosis, pain ≥ 7 out of 10, or thoracic pain	Vertebral fracture: if more than one finding in an older patient, risk of fracture is at least 42%

LR+ = positive likelihood ratio.

Diagnostic Testing

- Laboratory Studies
 - ESR
 - CRP
 - WBC
 - Useful in detecting pts who may have infection or malignancy and may be considered in pts with unexplained low back pain who have not improved within four weeks.
 - Urinalysis
 - HLA B27 Antigen

Diagnostic Testing

- Radiographic Testing
 - Plain Radiography
 - Anteroposterior
 - Lateral
 - Oblique
 - Flexion/Extension (for post-surgical pts)



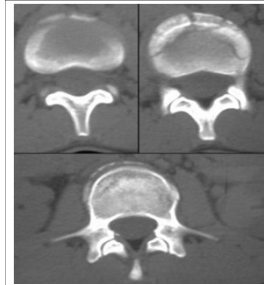
Diagnostic Testing

- Magnetic Resonance Imaging
 - Without contrast
 - Contrast allows the distinction of scar from disc in pts with prior back surgery.



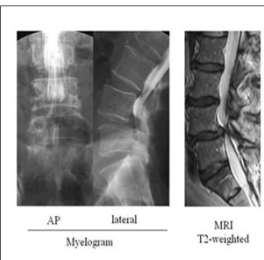
Diagnostic Testing

- CT Scan
 - Superior to MRI for demonstrating bony abnormalities.
 - Fractures, unstable fusions, abnormal facet joints
 - Distinguishing disc from scar is difficult.



Diagnostic Testing

- Myelogram
 - Involves injection of nonionic water-soluble contrast agent into the spinal canal, followed by x-rays or a CT scan.
 - May be beneficial in pts who have already had surgery.
 - Not a test usually ordered by the PCP.



Diagnostic Testing

- EMG
 - The value in assessing radicular symptoms is highly variable.
- Bone Scan
 - Limited value in evaluating back pain.
- Discography
 - Contrast injected into the nucleus of a disc; not reliable.

Prognosis (Acute LBP/non-radicular)

- Excellent
- Patients who have high expectations for recovery have better outcomes.
- Up to 90% of pts seen within three days of onset recover within the first two weeks.
- Recurrences are common and may affect up to 40% of pts within six months.
- Symptom improvement from sciatic pain is typically slower.

Treatment

- Multiple randomized trials have demonstrated that recovery from pain is equally rapid and complete **without bed rest**.
- Systematic review from Cochrane Database (2004) concluded that patients advised to rest in bed may even have slightly more pain and less functional recovery than those advised to remain ambulatory.

Treatment

- There is no advantage to bed rest!



Treatment

- NSAIDs
- Muscle Relaxants
 - Two meta-analyses provide strong evidence that non-benzo muscle relaxants (Cyclobenzaprine, Metaxalone) are helpful in the acute treatment of nonspecific low back pain.
- Duloxetine
- Opioids
 - Some studies have shown **no significant advantage** of opioid use in symptom relief or return to work when compared with NSAIDs or acetaminophen.
- Corticosteroids
 - No studies support the use of oral steroids in pts with acute low back pain.

Evidence-Based Practice

ELECTRONIC VERSION • VOLUME 19 NUMBER 7 JULY 2016

In patients with acute radiculopathy due to a herniated lumbar disk, do oral steroids improve pain compared with placebo?

Evidence-Based Answer
 No. In patients with acute radiculopathy, oral steroids do not decrease pain or need for surgery compared with placebo (SOR: **B**, single high-quality RCT and single low-quality RCT).

A double-blind, placebo-controlled RCT including 269 patients with acute lumbar radiculopathy from a herniated disk confirmed by magnetic resonance imaging (MRI) compared the effect on pain of a 15-day course of tapered oral prednisone (60-40-20 mg x 5 days each; n=181) versus matching placebo (n=88).¹ Below-waist pain averaged over the prior 3 days was reported on a 0 to 10 pain scale at 3 and 52 weeks. Below-waist pain did not differ between therapies

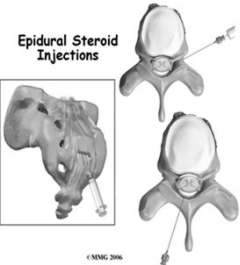
Prednisone significantly decreased pain from baseline at all follow-up visits. Placebo decreased pain from baseline at all visits except weeks 1 and 3. No difference was noted between the placebo and prednisone group pain scores at any of the follow-up visits. Study limitations included different initial pain scores at baseline (3.9 vs 3.1 for prednisone and placebo groups, respectively, estimated from a graph), small sample size, and lack of MRI confirmation of lumbar disc herniation.²

Rahul Khaptek, DO
 Gina Schaeferman, DO
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1. Gillingham JC, Fricks W, Nussbaum M, et al. Oral steroids for acute radiculopathy due to a lumbar disc herniation: a randomized clinical trial. *JAMA*. 2015; 313(19):2115-2123. (STEP 2)
 2. Hulse JH, Barkan H. Oral steroids in initial treatment of acute sciatica. *J Am Board Fam Med*. 2008; 21(5):669-674. (STEP 3)

Treatment

- Epidural Steroid Injection
 - Based on 4 randomized trials, the American Academy of Neurology concluded that for radicular low back pain, epidural injections are more effective than placebo for improvement of pain through 6 weeks after injection.



Epidural Steroid Injections

© NMG 2006

Do epidural corticosteroid injections provide any benefit in patients with lumbar radiculopathy?

- **Evidence-Based Answer:**
 - **Minimally.** Epidural steroid injections do result in a small benefit of questionable clinical significance for short-term (<6 months) pain relief, but studies have had inconsistent effects on disability. The injections have no long-term (≥12 months) benefit for pain relief, disability, or subsequent surgery (SOR: A, meta-analyses of RCTs).
 - Serious complications of epidural glucocorticoid injections are rare and may include dural puncture, infection, and bleeding.

Downs, Michael R, MD; Verma, Cheryl MD; Bennett, Brent MD; Pace, Phillip MD
Evidence-Based Practice: August 2015 - Volume 18 - Issue 8 - p 11-12doi:
10.1097/01.EBP.0000541033.94135.83 HelpDesk Answers

Epidural Corticosteroid Injections for LumboSacral Radicular Pain
Alan L. Williams, MD, FAAFP, and Jeffrey C. Leggit, MD, CAQSM, Uniformed Services University of the Health Sciences, Bethesda, Maryland

- **Clinical Question**
 - Are epidural corticosteroid injections safe and more effective than other injections for the treatment of lumboSacral radicular pain?
- **Evidence-Based Answer**
 - Epidural corticosteroid injections for the treatment of lumboSacral radicular pain may offer modest short-term (two weeks to three months) benefit compared with placebo injection for radicular leg pain (mean difference [MD] = -4.93/95% CI, -8.77 to -1.09 on a scale of 0 to 100) and disability (MD = -4.18; 95% CI, -6.04 to -2.17 on a scale of 0 to 100). After three months, there does not appear to be any added benefit with the use of corticosteroid. (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.) Minor adverse effects from corticosteroid injection are no more common than with placebo injection, based on very low-quality data.

Cochrane for Clinicians
Putting Evidence into Practice
AAFP
April 1, 2021 • Volume 103, Number 7

Treatment

- **Intradiscal Injection**
 - No convincing evidence that this is effective for low back pain.
- **Local or Trigger Point Injections**
 - No clear difference between local or trigger point injections and control interventions.
 - May be beneficial in pts with myofascial pain syndrome and fibromyalgia.

Treatment

- Facet Joint Injections
- Prolotherapy
- Spinal Manipulation
- Exercise
- Massage
- Heat/Ice
- Physical Therapy
- PENS/TENS

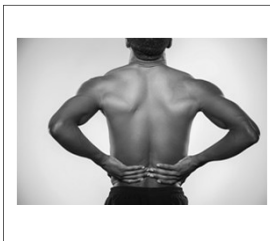


Image Courtesy of: Harvard Health

Treatment

- Acupuncture
 - One trial found no difference between acupuncture versus sham therapy for acute low back pain.
 - A high quality trial of acupuncture versus Naproxen found no difference in pain relief, although the acupuncture group used less pain medication.



Image Courtesy of: Power Health
Chinook

Treatment

- Review of spinal manipulative therapy in acute low back pain
 - Based upon the available evidence, spinal manipulation appears to confer modest improvements in pain and function. A 2017 systematic review and meta-analysis of spinal manipulative therapy for acute low back pain examined 26 randomized controlled trials. Fifteen trials (1711 patients) provided moderate-quality evidence of improvement in visual analog pain scale, and 12 trials (1381 patients) showed moderate-quality evidence of improvement in function. Comparator groups were heterogeneous and included analgesics, exercise, and physical therapy.
 - Some evidence that pt's receiving OMT use less NSAIDs.

JAMA. 2017 Nov 28;318(20):2048. doi: 10.1001/jama.2017.16766.PMID: 29183047

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EVIDENCE-BASED PRACTICE
A Peer-Reviewed Journal of the Family Physicians Inquiries Network

Is osteopathic manipulative treatment more effective for low back pain than standard osteopathic care?

EVIDENCE-BASED ANSWER
Osteopathic manipulative treatment (OMT) is an effective intervention for reducing medication, physical therapy, and other resources for treating pain and improving function in low back pain. However, nonsteroidal anti-inflammatory drugs (NSAIDs) are prescribed less frequently when back pain is treated with OMT than with the standard of care (SOC). OMT and control (SOC) OMT is also associated with reduced use of opioids, oral steroids, and other analgesics as well as fewer days of missed work and days on limited duty (LD).

Abstract
A 2008 RCT of 524 patients evaluated the use of OMT for treating subacute low back pain compared with standard osteopathic, care programs, and osteopathic manipulative treatment (OMT) including Aquaphor, naproxen, and physical therapy. The primary endpoint was the number of visits to a primary care or osteopathic physician or nurse practitioner. Patients were followed for 20 to 30 years with low back pain lasting between 3 weeks and 6 months. Exclusion criteria included presence of acute low back pain, compression, systemic inflammatory disorders, scoliosis, spinal tumor, recent surgical infection, tuberculous osteomyelitis, nontraumatic fracture, alcohol or drug abuse, and recent psychiatric disorder. There were also exclusions if no reason was provided to OMT. Treatment for OMT group patients was reproduced over 2 weeks.

Key Messages
OMT is an effective intervention for reducing medication, physical therapy, and other resources for treating pain and improving function in low back pain. However, NSAIDs are prescribed less frequently when back pain is treated with OMT than with the standard of care (SOC). OMT and control (SOC) OMT is also associated with reduced use of opioids, oral steroids, and other analgesics as well as fewer days of missed work and days on limited duty (LD).

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FPIN's Clinical Inquiries

Physical Therapy for Low Back Pain

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Clinical Question
Is early physical therapy an effective treatment for low back pain?

Evidence-Based Answer
There is no evidence to support the use of physical therapy for low back pain. However, physical therapy can reduce the use of opioids, NSAIDs, and oral steroids. Physical therapy can also reduce the number of visits to a primary care or osteopathic physician or nurse practitioner. Patients were followed for 20 to 30 years with low back pain lasting between 3 weeks and 6 months. Exclusion criteria included presence of acute low back pain, compression, systemic inflammatory disorders, scoliosis, spinal tumor, recent surgical infection, tuberculous osteomyelitis, nontraumatic fracture, alcohol or drug abuse, and recent psychiatric disorder. There were also exclusions if no reason was provided to OMT. Treatment for OMT group patients was reproduced over 2 weeks.

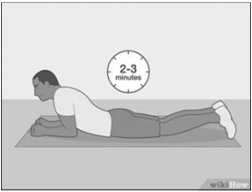
Evidence Summary
A 2008 RCT of 524 adults presenting to the emergency department for acute nonspecific low back pain evaluated the effectiveness of osteopathic manipulative treatment (OMT) compared with standard of care (SOC). Treatment for OMT group patients was reproduced over 2 weeks.

Key Messages
OMT is an effective intervention for reducing medication, physical therapy, and other resources for treating pain and improving function in low back pain. However, NSAIDs are prescribed less frequently when back pain is treated with OMT than with the standard of care (SOC). OMT and control (SOC) OMT is also associated with reduced use of opioids, oral steroids, and other analgesics as well as fewer days of missed work and days on limited duty (LD).

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Physical Therapy

- McKenzie Method
 - Spine stabilization exercises
- <http://www.youtube.com/watch?v=wBOp-ugJbTQ>
- <http://youtu.be/wBOp-ugJbTQ>



Surgical Treatment

- Indications for Spinal Surgery
 - Severe progressive weakness
 - Cauda Equina
 - Elective for pts with chronic LBP and significantly impaired quality of life.
- There is no evidence that early referral for surgery improves outcome in pts with lumbar disc herniation and radiculopathy who do not have neurologic deficits.

Surgical Treatment

- Spinal Fusion
- Lumbar Disc Replacement
- Discectomy
- Microdiscectomy

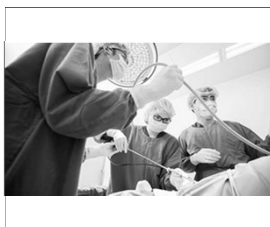


Image Courtesy of: Johns Hopkins

MILD Procedure

- MILD (Minimally Invasive Lumbar Decompression) procedure is a relatively new minimally invasive surgical technique used to treat lumbar spinal stenosis.

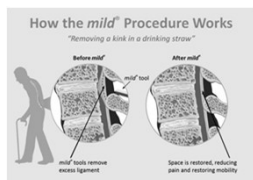


Image Courtesy of: Augusta Health

2017 ACP Guideline: Start with Nonpharmacologic Treatments for Low Back Pain

- The American College of Physicians now recommends nonpharmacologic therapies — including **superficial heat, massage, acupuncture, and spinal manipulation** — as first-line treatment for patients with acute or subacute low back pain (lasting 12 weeks or less).
 - The new guideline, published in the *Annals of Internal Medicine*, is a major change from the group's 2007 guidance.
- The ACP emphasizes that most low back pain is self-limited, with many patients showing considerable improvement within the first 4 weeks.

2017 ACP Guideline: Start with Nonpharmacologic Treatments for Low Back Pain

- Acute or subacute pain:
 - When drug therapy is considered, **nonsteroidal anti-inflammatory drugs or skeletal muscle relaxants** should be used.
 - Acetaminophen is no longer recommended, given new evidence indicating a lack of benefit.

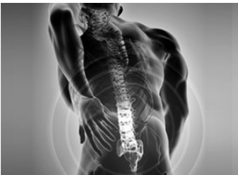


Image Courtesy of: Premier Pain Institute

2017 ACP Guideline: Start with Nonpharmacologic Treatments for Low Back Pain

- Chronic pain (i.e., beyond 12 weeks): Clinicians should start with nonpharmacologic approaches, such as **exercise, multidisciplinary rehabilitation, acupuncture, and mindfulness-based stress reduction.**
- Chronic pain: If non-drug therapies aren't sufficient, **NSAIDs should be tried first, then tramadol or duloxetine.** *Opioids may be considered only when prior treatments fail, the potential benefits for the patient outweigh the risks, and the benefits and risks are discussed with the patient.*

From the AFP Editors

Am Fam Physician. 2023;107(4):435-437

■ Key Points for Practice

- Because no treatments for low back pain are clearly superior, patients should be engaged in shared decision-making about whether to consider nonpharmacologic, pharmacologic, or watchful waiting approaches to managing acute or chronic low back pain.
- Cognitive behavior therapy modestly improves pain and function in chronic low back pain.
- Although medications have limited benefit in low back pain, NSAIDs and duloxetine have the strongest evidence for benefit.
- Acetaminophen does not improve pain or function in low back pain compared with placebo.

OMT Techniques

- Lumbar soft tissue/articulation
- Lumbosacral Release (MFR)
- Psoas Muscle Energy
- Iliolumbar ligament counterstrain

Lumbar Soft Tissue/Articulation



Image Courtesy of: CCOM
OMT Manual

- Place your thenar eminences or thumbs in the groove between the paraspinal musculature and the lumbar spinous processes on the side opposite you.
- Apply force slowly in an anterolateral direction.
- Stop applying force when a barrier is reached (limit of muscle stretching or patient's tolerance).
- Gently and slowly release and repeat steps 2-4 working cephalad and caudad.
- Repeat this procedure on the other side.
- Reassess

Lumbar Soft Tissue/Articulation



Image Courtesy of: Osteopathic Clinical Skills

- Standing to the side of your patient at the level of their pelvis.
- Place your hand on the patient's lumbar paraspinous musculature.
- Grasp the patient's innominate at the Anterior Superior Iliac Spine (ASIS).
- Using your hand as a stabilizing force, lift the pelvis slowly and roll it toward you with your left hand.
- Localize forces with your hand and introduce rotation and extension of the vertebral column.
- Release slowly.
- Reposition your right hand segmentally moving cephalad to the next vertebral segment and repeat steps 2-5, until you reach the thoracolumbar junction.
- Step to the other side of the table and repeat the procedure to introduce left segmental rotation to the lumbar spine.
- Reassess.

Lumbosacral Release (MFR)



Image Courtesy of: Osteopathic Clinical Skills

- Place the heel of your hand over the base of the patient's sacrum.
- Place the palm of your other hand over the lumbar spinous processes with the fingers pointing to the head.
- Engage the tissue with a gentle anteriorly directed force, then introduce a distraction force in the directions of your fingers (cephalad with one hand, caudad with the other).
- Apply deep sustained pressure for 5-10 seconds.
- Tissue tension is reevaluated to assess effectiveness of the technique

Psoas Muscle Energy



Image Courtesy of: Dr. Gruyter

- Place your hand over the lumbar paravertebral area.
- Grasp the patient's thigh just superior to the patella with your right hand. Lift the patient's leg slowly with your right hand, thereby inducing extension of the hip. Continue lifting until the barrier is reached.
- For greater stability, place your right knee on the table under the patient's left thigh.
- While maintaining a counterforce, instruct the patient to gently push their knee down toward the table for 3-5 seconds and then to relax. Allow the patient to relax for a short time (2 seconds) before engaging the new barrier.
- Lift the patient's knee again with your hand until the new barrier is reached. Do not lift the patient's pelvis off the table.
- Repeat the entire sequence two times or until no further improvement is appreciated.
- Reassess.

Iliolumbar ligament counterstrain



Image Courtesy of: Jones Institute Europe

- Stand on the side of the tender point of the iliolumbar ligament.
- Elevate the leg on the same side of the tender point and extend and abduct the leg toward you.
- Hold all positions for 90 seconds, slowly and passively return to neutral and reassess.

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