Pain Management for Primary Care

DoD/VHA
JOINT INCENTIVE FUND (JIF)
PROJECT

Series: Ten

Spine Pain Conditions

Module 10-2

Acute Low Back pain

Module 10-2

Acute Low Back pain

By the end of the module, you will be able to:

- Describe lumbo-sacral anatomy and the exam of the back and lower extremities
- Discuss the differential diagnosis of acute low back pain and identify Red Flag conditions
- Know how to treat and when to refer patients with acute low back pain

We will review:

Topic One: Anatomy and Physical Exam

Topic Two: Differential Diagnosis and Red Flags

Topic Three: How to Treat and When to Refer

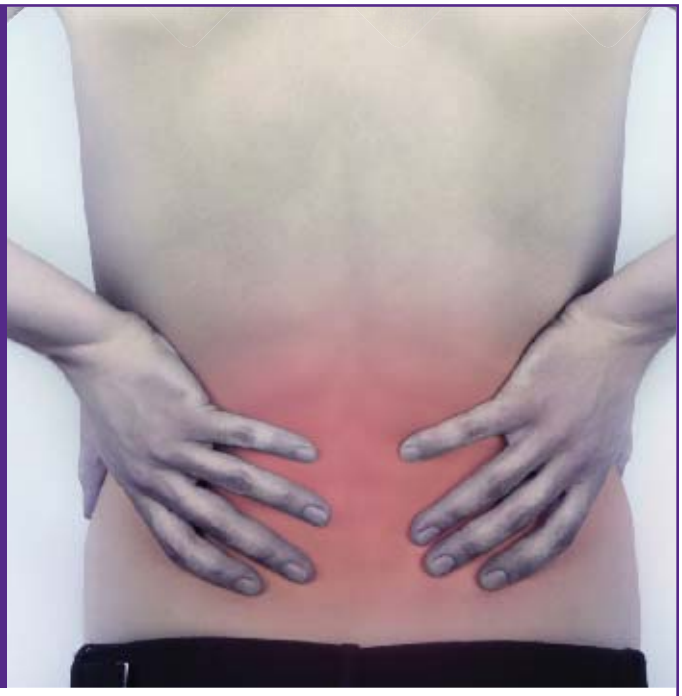
Lead Authoring Subject Matter Experts

Veterans Health Administration
Dr. Beth Murinson

Department of Defense
LCDR Ian Fowler, USN

Topic One

Anatomy and Exam



Emphasis that a careful history taking (to exclude red flags) and a careful physical exam (to distinguish referring low back pain and radiating low back pain) are key.

Low back pain is anywhere between the tip of the last thoracic spinous process to the tip of the sacro- coccygeal joints.

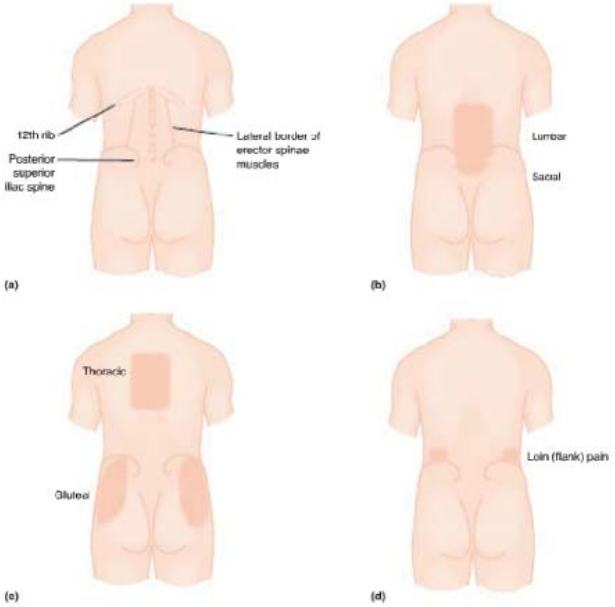


FIGURE 71.2 The definition of what is back pain and what is not. A. Landmarks for the definition of lumbar spinal pain. B. The topographical location of lumbar spinal pain and sacral spinal pain, any combination of which amounts to low back pain. C. Thoracic spinal pain and gluteal pain. D. Loin pain.

Notes

It is important to define the perimeters of low back pain.
Distinguish between lumbar, lumbo-sacral and sacral pain from thoracic and flank pain

Back pain can refer to the lower extremity above and below the knee.

Notes

Bony Structures
Spine
Iliac crests
Hip jt
Muscles
- Quadratum lomborun
- Multifidus
- Psoas
- Gluteaus max, med, minimus
- Piriformis
- Nerves
  - Lumbo-scasral plexus
  - Sciatic Nerve
  - Dermatomes
  - Motor innervation and reflexes

Topic Two

Differential Diagnosis and Red Flags

Never forget the OPQRSTU mnemonic

Onset of pain

Provocation/Palliation

Quality/Character

Region/Radiation

Severity/Intensity

Timing (continuous, intermittent)

U/you (impact on activities)

Notes

This is important because the cost of pain is more than cardio vascular disease, diabetes, and cancer combined.

Never forget the OPQRSTU mnemonic.

- Onset of pain
- Provocation/Palliation
- Quality/Character
- Region/Radiation
- Severity/Intensity
- Timing (continuous, intermittent)
- U/you (impact on activities)

Notes

Repeat this mnemonic often

To rule out Red Flag conditions look for:

- Recent significant trauma (any age)
- Osteoporosis, use of steroids
- Age over 70
- Weight loss, pain at night
- Fever, immunosupression
- Neurological deficit
- History of cancer or IV drug abuse

Notes

It is important to underline that the only urgent thing in patients presenting acute low back pain is to rule out red flags.

Red Flag conditions to consider are:

- Tumors – lung, breast, GI, prostate, lymphoma, myeloma
- Infections – myelitis, abscess, cauda equina, conus medullaris, Guillian-Barre
- Fractures – osteoporotic compression
- Visceral referral – aortic aneurysm, pelvic or retroperitoneal disease

Notes

Remind them these conditions are mostly diagnosed through a careful history and exam.

To detect these conditions use a checklist:

Name:						LOW BACK PAIN		
Date of birth:			Medical Record No.					
Trauma	Y	N	**Cardiovascular**			**Endocrine**		
Sports injury	Y	N	Risk factors?	Y	N	Diabetes?	Y	N
Fever, night sweats	Y	N	**Respiratory**			Corticosteroids?	Y	N
Recent surgery	Y	N	Cough?	Y	N	Parathyroid	Y	N
Catheterization	Y	N	**Urinary**			**Musculoskeletal**		
Venipuncture	Y	N	Infection?	Y	N	Pain elsewhere?	Y	N
Illicit drug use	Y	N	Hematuria?	Y	N	**Neurological**		
Weight loss	Y	N	Retention?	Y	N	Symptoms/signs?	Y	N
Past history of cancer	Y	N	Stream problems?	Y	N	**Skin**		
Occupational exposure	Y	N	**Reproductive**			Infection?	Y	N
Hobby exposure	Y	N	Menstrual?	Y	N	Rashes?	Y	N
(Overseas) travel	Y	N	**Hemopoietic**			**GIT**		
	Y	N	Problems?	Y	N	Diarrhea?	Y	N
Comments:						**Signature:** **Date:**		

Notes

Go over the list and underline how the questions reveal red flags

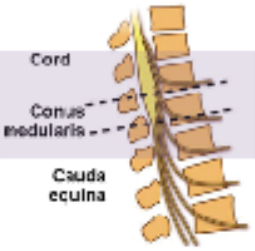
Tumor (fever, night sweats, history of cancer, weight loss)

Infection (fever, recent surgery, illicit drug use, immunosupression, catheterization, travel)

Fracture (trauma, recent surgery, manipulation, corticosteroids)

Aneurysm (visceral, abdominal pain as well)

Features	Cauda Equina Syndrome	Conus Medullaris
Vertebral level	L2-sacrum	L1-L2
Spinal level	Injury to the lumbosacral nerve roots	Injury of the sacral cord segment (conus and epiconus) and roots
Severity of symptoms and signs	Usually severe	Usually not severe
Symmetry of symptoms and signs	Usually asymmetric	Usually symmetric
Pain	Prominent, asymmetric, and radicular	Usually bilateral and in the perineal area
Motor	Weakness to flaccid paralysis	Normal motor function to mild or moderate weakness
Sensory	Saddle anesthesia, may be asymmetric	Symmetric saddle distribution, sensory loss of pin prick, and temperature sensations (Tactile sensation is spared.)
Reflexes	Areflexic lower extremities; bulbocavernosus reflex is absent in low CE (sacral) lesions	Areflexic lower extremities (If the epiconus is involved, patellar reflex may be absent, whereas bulbocavernosus reflex may be spared.)
Sphincter and sexual function	Usually late and of lesser magnitude; lower sacral roots involvement can cause bladder, bowel, and sexual dysfunction	Early and severe bowel, bladder, and sexual dysfunction that results in a reflexic bowel and bladder with impaired erection in males
EMG	Multiple root level involvement; sphincters may also be involved	Mostly normal lower extremity with external ana sphincter involvement
Outcome	May be favorable compared with conus medullaris syndrome	The outcome may be less favorable than in patients with CES



Notes

This an important red flag differential diagnosis where the level of injury and presentation is slightly different

Another mnemonicfor Red Flag conditions is: N SWIFT PICS

Neuro – Progressive Neurological Deficit

Steroids – Prolonged Use

Weight Loss – Unexplained

Immunosuppression

Fever – Unexplained

Trauma – Even mild if over 50

Porosis – Osteoporosis/Osteopenia

IVDU – Intravenous Drug Abuse

Cancer – History of Cancer

Severity – of Pain

Notes

Another way to remember Red Flag conditions are

Acute low back pain is pain that is present for less than 3 months.

- The prognosis of acute low back pain is favorable
- Following an acute low back pain episode, 80% can expect to recover rapidly
- Stress at work, previous injuries, and litigation are risk factors for developing chronic low back pain

Notes

Emphasize acute low back pain is common and although may be severe is self limiting.

It is important to identify and treat psycho-social risk factors for chronification.

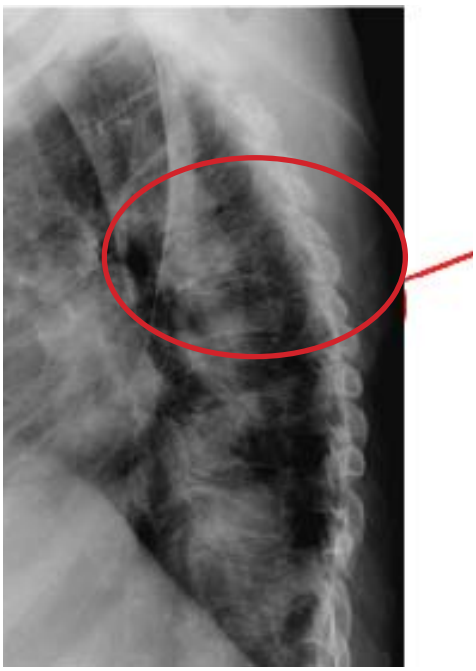
When a red flag is present, these are the preferred tests:

CLINICAL INDICATORS AND PREFERRED INVESTIGATIONS FOR POSSIBLE SERIOUS CAUSES OF SPINAL PAIN			
Suspected Pathology	**Clinical indicators**		**Preferred test**
Fracture	Severe trauma	1st line	X-ray
Stress fracture	Sporting activity involving spinal extension, rotation, or both	1st line 2nd line	Bone scan or MRI X-ray
Infection	Osteoporosis Prolonged use of corticosteroids Past history of cancer	1st line 2nd line	X-ray MRI
Pathological fracture	Fever, sweating Risk factors for infection; (invasive medical procedure, injection, illicit drug use, trauma to skin or mucous membrane, immunosuppression, diabetes mellitus, alcoholism)	1st line 2nd line	ESR, FBC, CRP MRI
Tumor	Past history of malignancy Age greater than 50 Failure to improve Weight loss Pain not relived by rest	All cases 1st line 2nd line Prostate Myeloma	1: ESR, CRP 2: MRI PSA IEPG, serum protein Electrophoresis
Aortic aneurysm	Cardiovascular risk factors Anticoagulants No musculoskeletal signs	1st line	Ultrasound

Notes

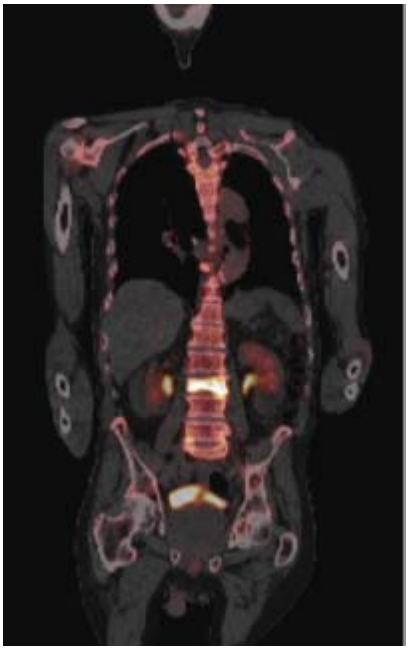
CRP, C-reactive protien, ESR, erythrocyte sedimentation rate, FBC, full blood count, IEPG, immuno-electrophoretogram; MRI, magnetic resonance imaging; PSA, prostate specific antigen

Example One



Osteopenia, note radiolucency of vertebral bodies, in this 59 year old Hispanic male is a risk factor for vertebral fracture.

Example Two



This PET study, performed to rule out metastases in this 78 year old male with prostate cancer illustrates increased activity at the sight of an L3 vertebral fracture.

Notes

Note osteopenia should be suspected in all patients over 50

Advanced imaging is used when there is a suspicion for a red flag condition. The fracture was diagnosed with x-ray and further assessed for stability with CT.

Knowledge Check

When treating a patient with a osteopenic vertebral collapse who is experiencing severe back pain, _____ is(are) the most recommended medication to alleviate symptoms.

a. Acetaminophen
b. Opioids
c. Tramadol
d. NSAIDs

Knowledge Check – Answer

When treating a patient with a osteopenic vertebral collapse who is experiencing severe back pain, _____ is(are) the most recommended medication to alleviate symptoms.

a. Acetaminophen
b. Opioids
c. Tramadol
d. NSAIDs

Notes

Read question aloud

Knowledge Check

Low back pain red flags include Bowel or bladder dysfunction, _____, Leg/trunk symptoms, Fever/chills, Immunosuppression/cancer/IVDA, and _____.

a. Weight loss; gait problems
b. Weight gain; gait problems
c. Weight loss; fibroids
d. Weight loss; migraines

Knowledge Check – Answer

Low back pain red flags include Bowel or bladder dysfunction, _____, Leg/trunk symptoms, Fever/chills, Immunosuppression/cancer/IVDA, and _____.

a. Weight loss; gait problems
b. Weight gain; gait problems
c. Weight loss; fibroids
d. Weight loss; migraines

Notes

Read question aloud

Knowledge Check

When treating patients with back pain, one may often encounter common neurosurgical emergencies such as Spinal Epidural Abscess, _____, and _____.

a. Hematoma; Vein Thrombosis
b. Conus Medullaris; Focal vasculitis
c. Cauda Equina Syndrome; Conus Medullaris
d. Focal vasculitis; Vein Thrombosis

Knowledge Check – Answer

When treating patients with back pain, one may often encounter common neurosurgical emergencies such as Spinal Epidural Abscess, _____, and _____.

a. Hematoma; Vein Thrombosis
b. Conus Medullaris; Focal vasculitis
c. Cauda Equina Syndrome; Conus Medullaris
d. Focal vasculitis; Vein Thrombosiss.

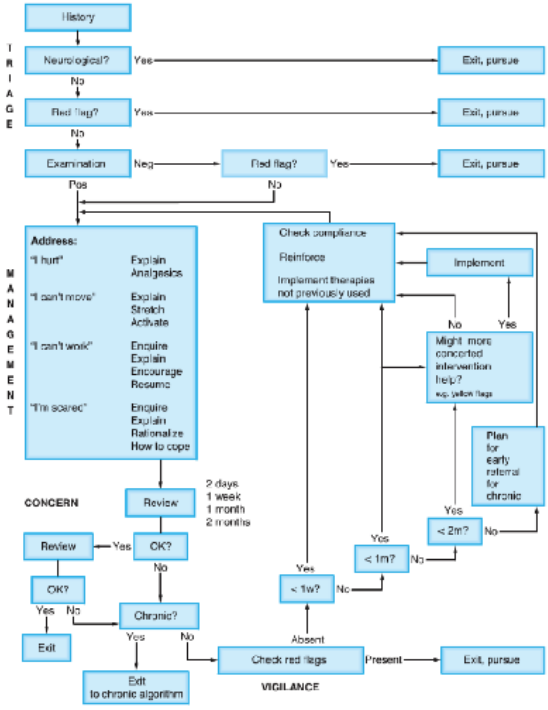
Notes

Read question aloud

Topic Three

How to Treat and When to Refer

This is the algorithm of acute low back pain:



Notes

Emphasize the importance of explanation and reassurance to avoid chronification.

In general, symptom management provides very minimal to modest relief.

- Bed rest should not be prescribed
- Encourage activity
- Acupuncture, stretch and spray, and heat packs are low risk and may offer some symptom relief
- NSAIDS and muscle relaxants are not particularly effective
- Opioids are not indicated

Notes

Note that these measure may help and emphasize that the risk of chronic opioid therapy outweighs the benefits.

Confidently assure that progressive light activity will not cause harm.

- Not every patient with acute low back pain will necessarily need a work place assessment
- Any workplace intervention designed to accelerate return to work should involve the employer

Summary

Be confident when performing physical exams while determining the differential diagnosis.

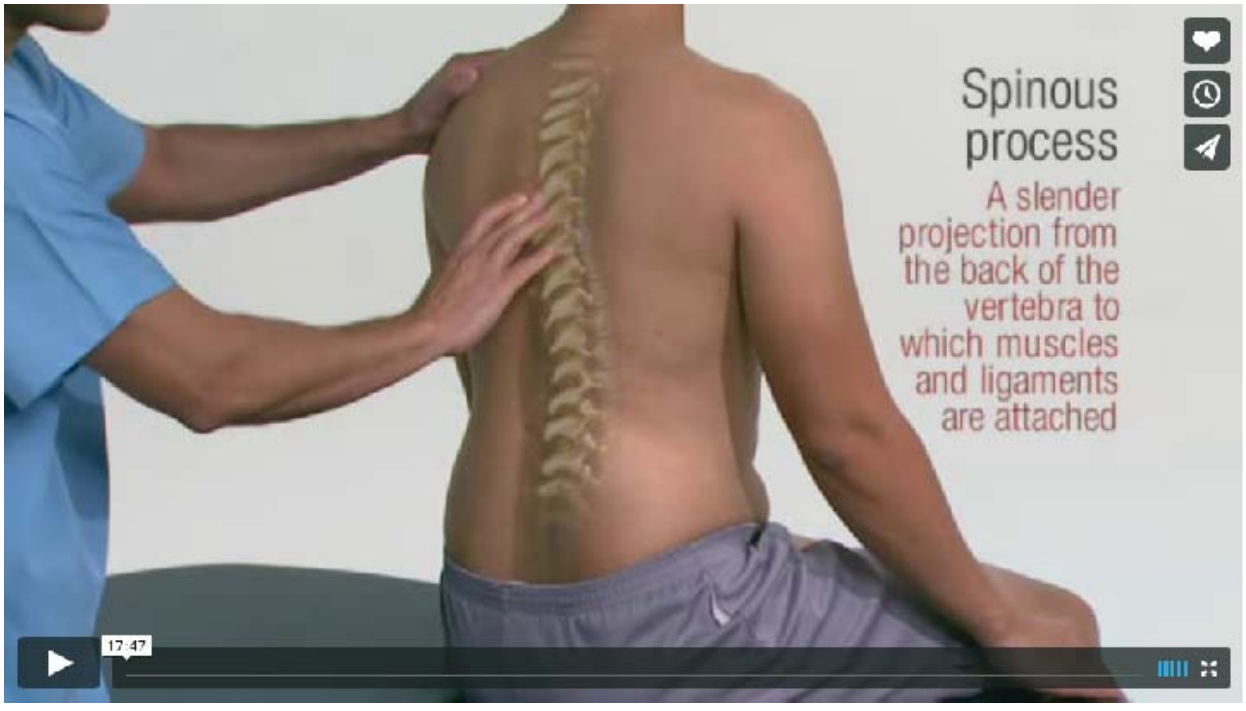
Look for signs and symptoms of red flag low back pain conditions during routine visits and clinical examinations. When found, refer to specialists immediately.

Avoid unnecessary imaging.

Reducing fears and resuming activities are key.

Back Clinical Examination

https://vimeo.com/115659957



References

Bonica, J. J. (2010). Bonica's management of pain. S. Fishman, J. Ballantyne, & J. P. Rathmell (Eds.). Lippincott Williams & Wilkins.

Notes

JPEP

Joint Pain Education Program