AMPLIFY

Evidence-based management of non-traumatic lumbar pain in UC: It's not what you think!

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EVIDENCE-BASED
URGENTOLOGY
With Dr. Tracey Davidoff
and Dr. Joe Toscano
PODCAST

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Evidence-Based Urgent Care

High-Yield Clinical Education • Practical Application

CLINICAL CHALLENGES:

- What are the most common etiologies of low back pain seen in urgent care?
- How do red-flag findings determine management?
- What are the best treatment options for patients with low back pain?

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Prior to beginning this activity, see "CME Information" on page 2.

Acknowledgement

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Urgent Care Management of Acute Low Back Pain: A Review of Current Evidence

Abstract

Low back pain is a common presentation in the urgent care setting, and determining whether the cause is benign, serious, or even life-threatening can be challenging. A systematic strategy for the history and physical examination can help reduce unnecessary imaging, and an evidence-based approach will inform safe and effective pain management recommendations. This issue reviews the evidence on red-flag signs and symptoms for low back pain, current diagnostic studies recommendations, and best-practice treatment and disposition strategies.

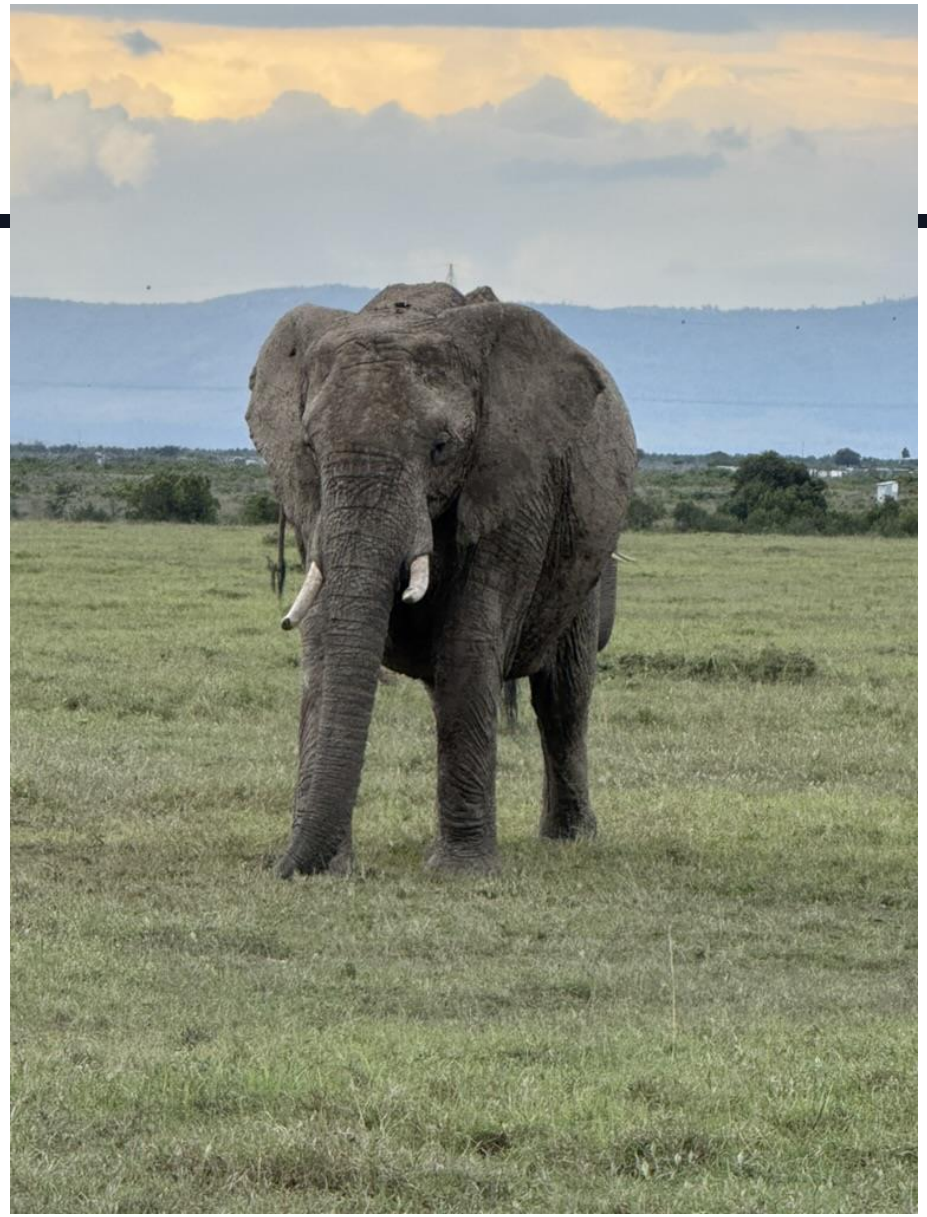
EB MEDICINE

Davidoff TQ. Urgent Care Management of Acute Low Back Pain: A Review of Current Evidence. *Evidence-Based Urgent Care*. 2025. 4(9): 1-28.

“Non-specific Low Back Pain (NSLBP)”

We are NOT talking about trauma here, that’s a whole other animal

Species: *Spinae tormentus*



Fact: Modern medicine stinks at managing back pain.

Ok, it’s really just my opinion. I have no reference for this.


Some background first.
Then the heart of the matter.

Back pain is common

- 4.5% of all ED visits
- Incidence of serious pathology in primary care only 0.9%
- Patients with serious pathology tend to self-select for ED

Edwards J, Hayden J, Asbridge M, et al. Prevalence of low back pain in emergency settings: a systematic review and meta-analysis. *BMC Musculoskelet Disord.* 2017;18(1):143.

“Sinister” causes of back pain are uncommon

- But devastating if missed
- They are the “worst-case scenario”
- Can be identified with red flags in history and physical

Worst Case Scenario

- Cauda equina, conus medullaris
- Spinal epidural hematoma
- Spinal epidural abscess (SEA) and other infections
- Transverse myelitis
- Referred pain
  - AAA
  - Retrocecal appendix
  - Penetrating perforated ulcer
  - Retroperitoneal hemorrhage

*Not an exhaustive list, please see issue.

Less life-threatening but also don't miss

- Metastatic disease
- Spontaneous compression fracture
- Referred pain
  - Prostatitis
  - UTI/pyelonephritis
  - PID
  - Pancreatitis
  - Herpes zoster

*Not an exhaustive list, please see issue.

Most common

- Non-specific low back pain (NSLBP)
- Muscle strain
- Disc herniation/sciatica
- Spondylolysis/spondylolisthesis
- Degenerative joint disease/osteoarthritis
- Poor posture and body mechanics

So how do we tell the difference in UC?

Assess for red flags in history and physical

Red flags in history

- Immunocompromised state
- Anticoagulation
- Known AAA
- Weakness
- Fever
- History of trauma or previous surgery
- History of cancer (especially if lost to follow-up)
- History of osteoporosis or previous spontaneous fracture
- Rapidly progressive symptoms

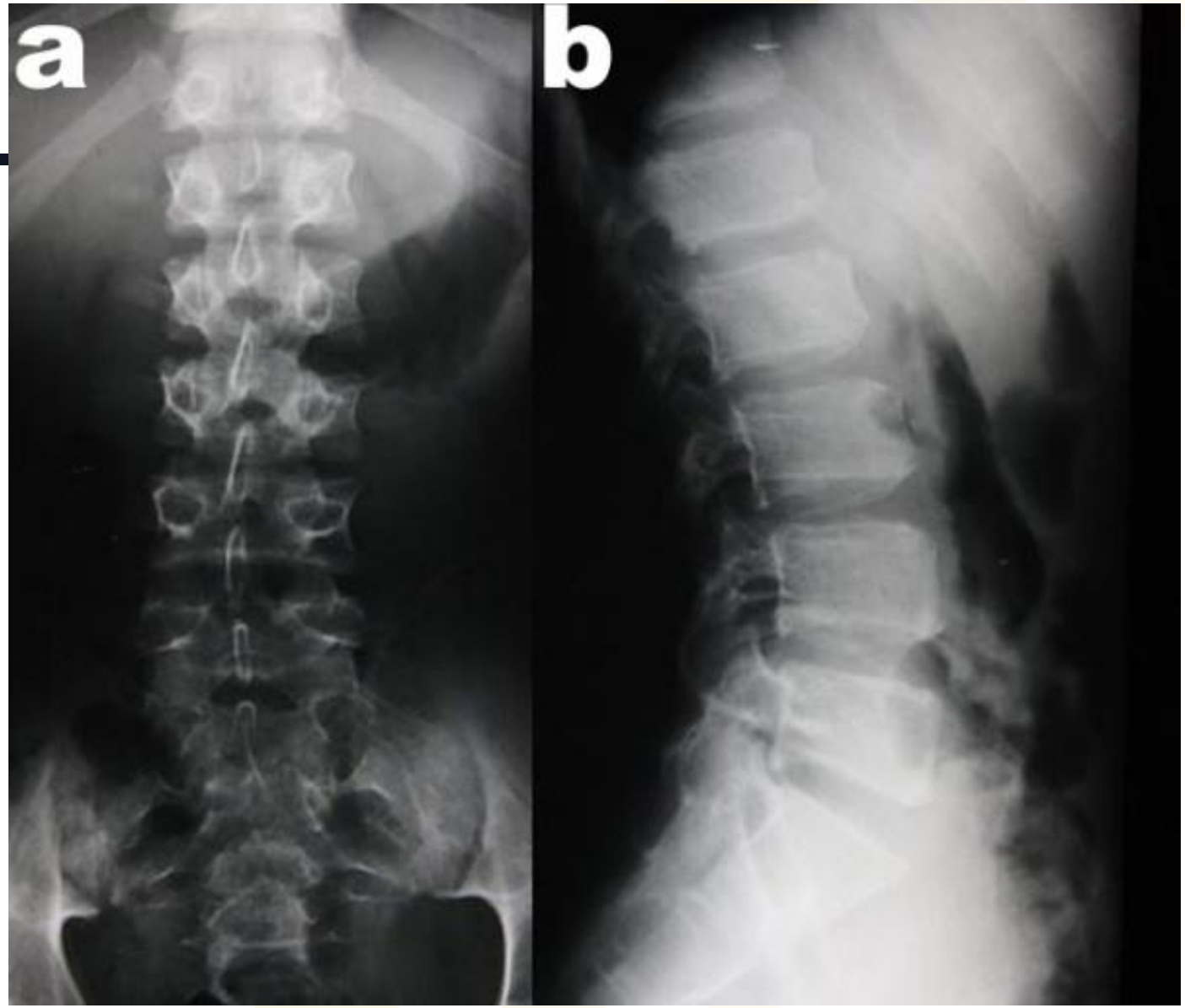
*Not an exhaustive list. See table in reference.

Red flags in physical

- Abnormal vital signs
- Abnormal appearance
- Abnormal neurologic exam
- Saddle anesthesia
- Decreased rectal tone
- Inability to ambulate
- Physical findings consistent with alternate disease processes

*Not an exhaustive list. See table in reference.

Let’s talk about x-rays in low back pain



Plain x-rays should be completed in most patients with non-traumatic low back pain.

Yes	No	Not sure
0	0	0

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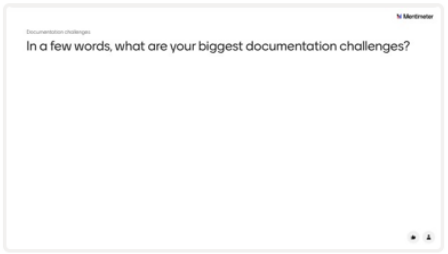
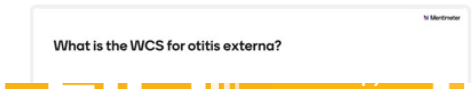
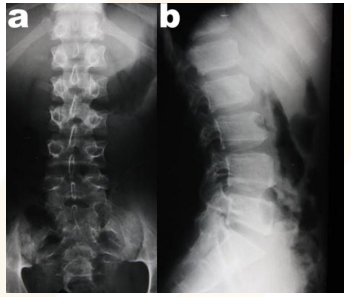
Menti
My first open-ended qu...

Select which slide to add





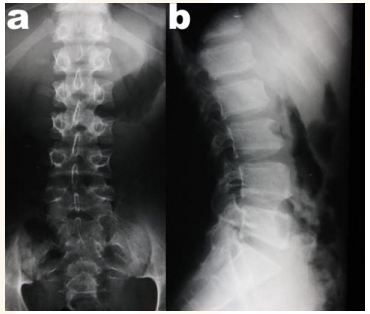
Plain x-rays in back pain



- Generally, **NOT** indicated in most patients
- Does not identify soft tissue disease which is the majority of what we see
- MAY be helpful for suspected osteoporotic fractures and metastatic disease, ***but still doesn't rule it out***
- DOES NOT rule out any of the bad stuff, including trauma
- If you think an image is emergently required to rule out the worst-case scenario, they need a CT or MRI

Jarvik JG, Deyo RA. Diagnostic evaluation of low back pain with emphasis on imaging. *Ann Intern Med.* 2002;137(7):586-597.

Plain x-rays in back pain



- Compression fractures
  - Sensitivity 49-82%, specificity 96-98%
  - Poor ability to distinguish between old vs. new
- Insensitive to herniations and cannot identify cord compression
- Metastatic disease
  - Must have 50% bone erosion to show on x-ray
- 75x more radiation than a chest x-ray
- According to ACR Appropriateness Criteria®
  - "Usually not appropriate" in acute, subacute, or chronic LBP with or without radiculopathy

Hutchins TA, Peckham M, Shah LM, et al. ACR Appropriateness Criteria® low back pain: 2021 update. *J Am Coll Radiol.* 2021;18(11s):S361-S379.

False positives

- **Clinically unimportant findings** are extremely common on lumbar spine x-rays, with **95% of x-ray reports containing at least one such finding**
- Additionally, **46% of lumbar x-rays show either normal findings or incidental findings unrelated to symptoms**, with another **31.8% showing findings of questionable clinical significance**.
- False positives result in unnecessary referrals, future invasive procedures, exposure to excess radiation, unnecessary advanced imaging, and increased cost

Farmer C, Haas R, Wallis J, O'Connor D, Buchbinder R. Are clinically unimportant findings qualified as benign in lumbar spine imaging reports? A content analysis of plain X-ray, CT and MRI reports. *PLoS One*. 2024 Mar 13;19(3):e0297911.
Scavone JG, Latshaw RF, Rohrer GV. Use of lumbar spine films. Statistical evaluation at a university teaching hospital. *JAMA*. 1981 Sep 4;246(10):1105-8.

For most patients, just don’t do it

- Cost
- Time
- Excessive, unnecessary radiation
- Results not helpful, most are normal, non-specific, or non-contributory
- May give false sense of security to both you and the patient
- May give incidental findings to chase that are not the cause of the patient’s symptoms

Why do it?

- According to ACR Appropriateness Criteria®
  - Plain films “may be appropriate” for patients with a history of cancer, infection, or immunosuppression
  - But remember, sensitivity and specificity is low
  - The gold standard is CT or MRI
    - Decide whether that is an emergency department visit, or an outpatient study based on clinical findings

Hutchins TA, Peckham M, Shah LM, et al. ACR Appropriateness Criteria® low back pain: 2021 update. *J Am Coll Radiol.* 2021;18(11s):S361-S379.

Should I order that MRI?

- Is it an emergency? If so, send to ED
- If not, can you follow up and act on the result?
- Same issue with false positives, radiologists hardly ever put a time frame on the findings
- Most patients with NSLBP will get better in 4-6 weeks
- In the absence of red flags, MRI lumbar spine is usually appropriate for patients who are **candidates for surgery or intervention with persistent or progressive symptoms during or following 6 weeks of optimal medical management**.

Hutchins TA, Peckham M, Shah LM, et al. ACR Appropriateness Criteria® low back pain: 2021 update. *J Am Coll Radiol.* 2021;18(11s):S361-S379.

MRI false positives

- **Degenerative findings are present in the vast majority of asymptomatic individuals** on lumbar MRI, with **only 36% having normal disks at all levels**.
- Among asymptomatic people, **52% have a disk bulge, 27% have a disk protrusion**, and these findings increase dramatically with age—disk degeneration rises from 37% in 20-year-olds to 96% in 80-year-olds.
- **99% of lumbar MRI reports contain at least one clinically unimportant finding**, yet **only 15% of these findings are explicitly qualified as benign**, creating substantial potential for misinterpretation and unnecessary concern.

Jenssen M, et. al. Magnetic Resonance Imaging of the Lumbar Spine in People without Back Pain, *NEJM,* 331:2, 69-73.
Brinjikji W, Luetmer PH, Comstock B, Bresnahan BW, Chen LE, Deyo RA, Halabi S, Turner JA, Avins AL, James K, Wald JT, Kallmes DF, Jarvik JG. Systematic literature review of imaging features of spinal degeneration in asymptomatic populations. *AJNR Am J Neuroradiol*. 2015 Apr;36(4):811-6. doi: 10.3174/ajnr.A4173. Epub 2014 Nov 27.

Mentimeter

Which of the following medications is the MOST effective for reducing pain and improvng function in acute low back. pain?

NSAID's	SMR's	Systemic steroids	APAP
0	0	0	0

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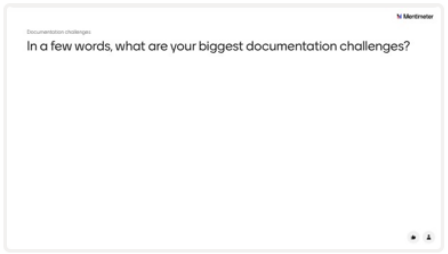
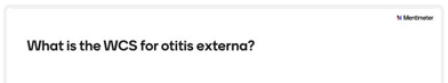
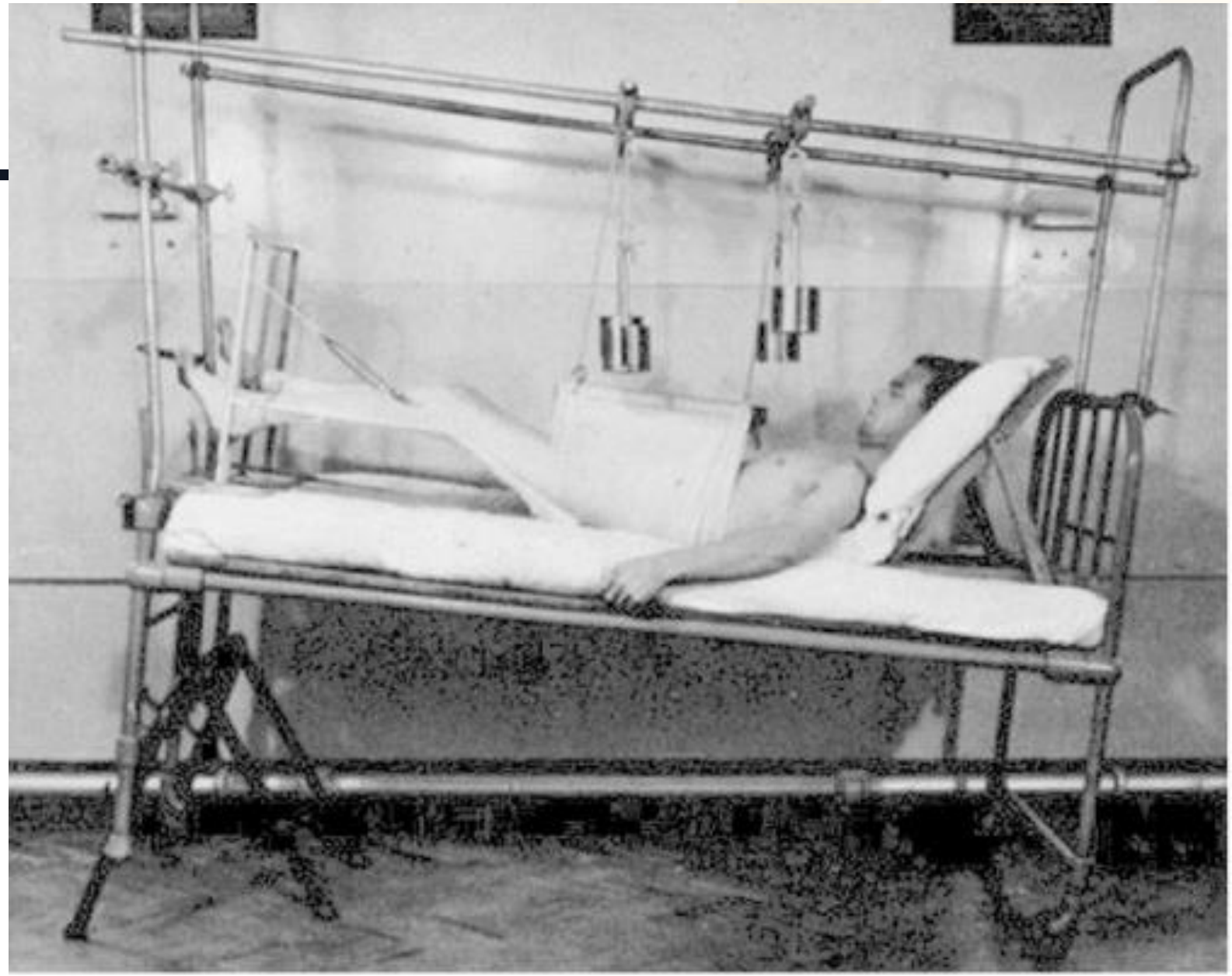




Treatment, circa 1960



Treatment

Many medications have been prescribed for LBP treatment; however, the evidence-based data supporting them is very limited. A 2023 Cochrane review of 103 studies evaluated various therapeutic modalities for LBP and found no high- or moderate-certainty evidence that ***any*** investigated pharmacological intervention provided more than a small effect on pain intensity for acute or chronic LBP compared to placebo.

Cashin AG, Wand BM, et al. Pharmacological treatments for low back pain in adults: an overview of Cochrane Reviews. *Cochrane Database Syst Rev*. 2023;4(4):CD013815

Topical Treatments

- NSAID's, diclofenac, ibuprofen, ketoprofen 👍
  - Slight improvement in pain scores over placebo
  - Not as good as oral
- Lidocaine 👎
  - No evidence to support use in acute low back pain
  - Very low evidence to support use in chronic low back pain
- Menthol containing products 👍
  - No high-quality evidence for or against

Qaseem A, Wilt TJ, McLean RM, et al. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. *Ann Intern Med.* 2017;166(7):514-530.
Higashi Y, Kiuchi T, Furuta K. Efficacy and safety profile of a topical methyl salicylate and menthol patch in adult patients with mild to moderate muscle strain: a randomized, double-blind, parallel-group, placebo-controlled, multicenter study. *Clin Ther.* 2010;32(1):34-43.

Skeletal muscle relaxants (SMRs)

- Small increase in temporary pain relief in select patients
- No change in functional impairment established
- No improvement in time to recovery
- No benefit after 2 weeks
- Side-effects likely outweigh benefits
- ***Routine use should be avoided and should only use on select patients***

Qaseem A, Wilt TJ, McLean RM, et al. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. *Ann Intern Med.* 2017;166(7):514-530.

Benzodiazepines 👎

- Slightly greater pain reduction than non-benzodiazepine SMR's
- No better than placebo when added to NSAIDs
- Adverse reactions such as drowsiness outweigh benefit
- Addictive potential
- ***Not recommended for UC or ED use***

Sharifi M, Abdorazzaghnejad A, Yazdchi M, et al. Methocarbamol versus diazepam in acute low back pain in the emergency department: a randomised double-blind clinical trial. *Emerg Med J.* 2023;40(7):493-498.

Acetaminophen

- ***No difference in pain or function vs. placebo***
- No benefit when added to ibuprofen for LBP
- May be an option in patients who cannot take NSAID's

Qaseem A, Wilt TJ, McLean RM, et al. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. *Ann Intern Med.* 2017;166(7):514-530.

Systemic corticosteroids

- **NO** improvement in pain scores
- Modest short-term improvement in function
- **NO** improvement in time to resolution
- **NO** different in patients with radiculopathy
- ***Side effects and contraindications far outweigh any perceived benefit***

Qaseem A, Wilt TJ, McLean RM, et al. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. *Ann Intern Med.* 2017;166(7):514-530.
Chou R, Pinto RZ, Fu R, et al. Systemic corticosteroids for radicular and non-radicular low back pain. *Cochrane Database Syst Rev.* 2022;10(10):CD012450.

Opioid pain medications

- ***Insufficient evidence to support their use***
- Not recommended due to addiction potential and side effects
- May be your only choice in patients with contraindications to NSAID's

Motov S, Strayer R, Hayes BD, et al. The treatment of acute pain in the emergency department: a white paper position statement prepared for the American Academy Of Emergency Medicine. *J Emerg Med.* 2018;54(5):731-736.

Tramadol 👎

- Consider this an opioid
- It does have addictive potential
- Efficacy similar to acetaminophen/codeine (minimal)
- Modest effect on pain for acute LBP
- Does not improve functional impairment
- No better than NSAIDs
- Side effects outweigh benefit
- ***Not recommended***

Hung KKC, Lam RPK, Lee HKH, et al. Comparison of diclofenac with tramadol, tizanidine or placebo in the treatment of acute low back pain and sciatica: multi-center randomized controlled trial. *Postgrad Med J.* 2024;100(1188):741-750.

Gabapentin (and other neuromodulators)

- No benefit vs. placebo in acute low back pain
- Increased adverse events vs placebo

Enke O, New HA, New CH, et al. Anticonvulsants in the treatment of low back pain and lumbar radicular pain: a systematic review and meta-analysis. *CMAJ.* 2018;190(26):E786-E793.

NSAID's

- Most studies done with ibuprofen, some with diclofenac, ketoprofen
- Moderate evidence to support their use
- Best balance of pain relief and side effects
- **ONLY** medication to reliably reduce pain scores, and it's still minimal
- **ONLY** medication to improve function and it's still minimal
- **Does not** improve time to resolution
- Only medication whose use is supported by most specialty society guidelines
- Be wary of contraindications and side effects

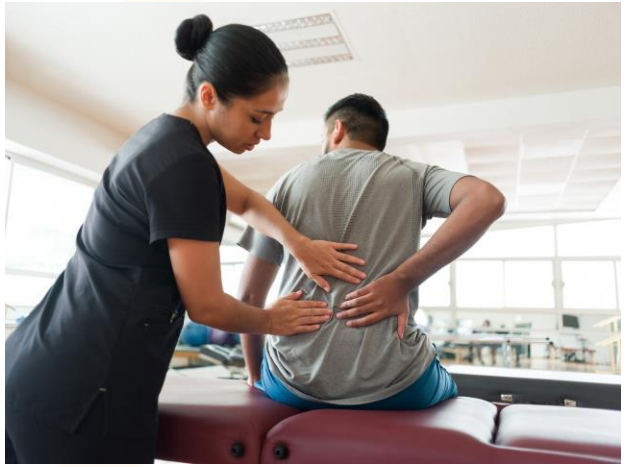
van der Gaag WH, Roelofs PD, Enthoven WT, et al. Non-steroidal anti-inflammatory drugs for acute low back pain. *Cochrane Database Syst Rev.* 2020;4(4):CD013581.
Irizarry E, Restivo A, Salama M, et al. A randomized controlled trial of ibuprofen versus ketorolac versus diclofenac for acute, nonradicular low back pain. *Acad Emerg Med.* 2021;28(11):1228-123

NSAID’s 👍🏻

- Review doses, make sure they are taking enough
- If one does not work, try another
- Make sure they know the effect is temporary
- Medication will need to be repeated

Non-pharmacologic management

- Encourage patients to maintain normal physical activity as possible
- Early physical therapy within 3 days is showing promise in reducing time to recovery and reducing need for advanced imaging
- Yoga, acupuncture, therapeutic stretching, and everything else, no proven benefit



Liu X, Hanney WJ, Masaracchio M, et al. Immediate physical therapy initiation in patients with acute low back pain is associated with a reduction in downstream health care utilization and costs. *Phys Ther.* 2018;98(5):336-347.

So let’s recap

- NSAID’s-----**YES**
- APAP-----**NO**
- SMR’s-----**MAYBE**
- Topical lidocaine-----**NO**
- Benzodiazepines-----**NO**
- Opioids, including tramadol-----**HARD NO**
- Systemic corticosteroids-----**NO**
- Topical menthol-----**MAYBE**

Bottom line:

Nothing significantly improves functional impairment

Nothing increases time to improvement

Only NSAIDs improve pain scores, and the improvement is only minimal

Patient education: realistic expectations

- Keep as active as possible
- NSAIDs should be the cornerstone of treatment
- Acute low back pain may last 4-6 weeks
- Plain x-rays are not helpful and may be harmful
- Advanced imaging not recommended for patients with pain < 6 weeks unless there are progressive or worrisome symptoms
- Early physical therapy may be beneficial
- Follow up with primary care is recommended

Take home points

1. Rule out complicated disease with red flags in history and physical
2. Plain x-rays in uncomplicated acute low back pain are rarely indicated
3. MRI's should not be ordered unless patients have progressing symptoms, persistent symptoms at >6 weeks, or are surgical candidates
4. NSAID's are the first line treatment of choice to improve pain and function (slightly)
5. Managing patient expectations is key to a successful outcome

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On the form in front of you, please score me and the content I shared with you today.

Thank you!

Happy to take any questions