The “Low Down” on Low Back Pain: Practical, Evidence-Based Updates for Conservative Management

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Objectives

1. Discuss the multifaceted nature of LBP, incorporating the interplay between biological, psychological, and social factors
2. Evaluate the most recent research on effective interventions for managing LBP
3. Review the most recent clinical practice guideline (CPG) for LBP to optimize outcomes
4. Define the different types of referred pain, including differentiation from radiculopathy, radicular pain, and somatic referred pain
5. Review the importance of tailoring interventions to individual patient needs, preferences, and expectations in managing LBP effectively

[VIEWPOINT]

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The Blind Men, the Elephant, and the Continuing Education Course: Why Higher Standards Are Needed in Physical Therapist Professional Development

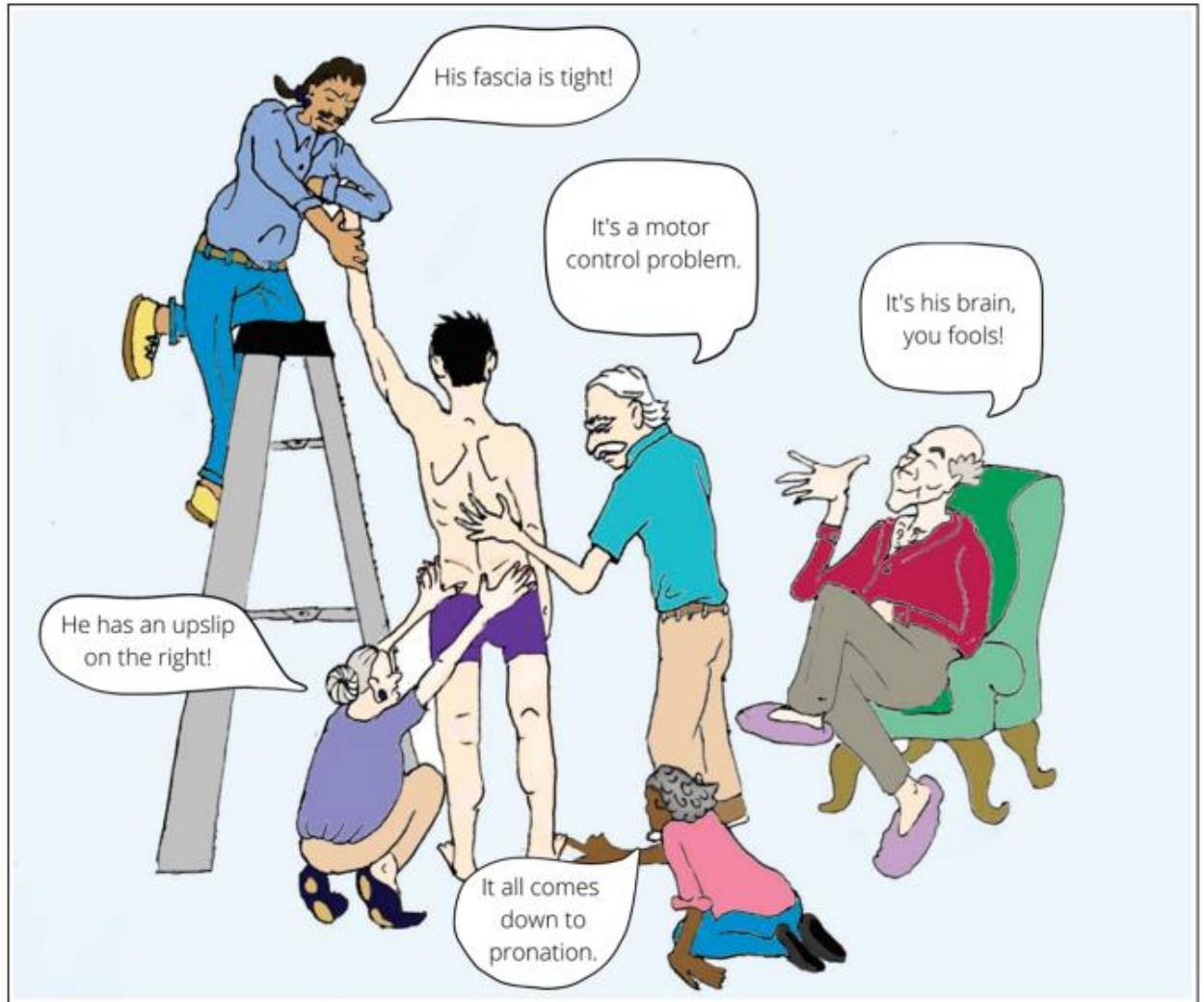


FIGURE 1. The blind physical therapists and the patient. Clinicians sometimes rely on outdated and divergent educational backgrounds that limit the consistent provision of high-quality clinical care.

- We spend more on healthcare compared to any country
  - Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/products/databriefs/db390.htm. Published November 2020. Accessed 29 July 2022.
- 43% of USA report chronic pain→ highest incidence of MSK pain in the world
  - Tsang A, Von Korff M, Lee S, et al. Common chronic pain conditions in developed and developing countries: gender and age differences and comorbidity with depression-anxiety disorders. *The Journal of Pain*. 2008;9(10):883-891
- Opioid epidemic
  - We consume prescription opioids at a greater rate than any other population in the world[2]
  - USA (4.6% of the world) consumes 80% of world's opioid supply, 99% of hydrocodone supply
    - Manchikanti L, Singh A. Therapeutic opioids: a ten-year perspective on the complexities and complications of the escalating use, abuse, and nonmedical use of opioids. *Pain Physician*. 2008;11(2 Suppl):S63-88.

THREE TYPES OF PAIN

Nociceptive

This pain is proportionate to an in injury

Typical musculoskeletal injury

Clear aggravating and easing factors

Peripheral Neuropathic

Nerve-related injury

“Sciatica”

Pain referring from peripheral nerve or nerve root

Nociplastic (Central Sensitization)

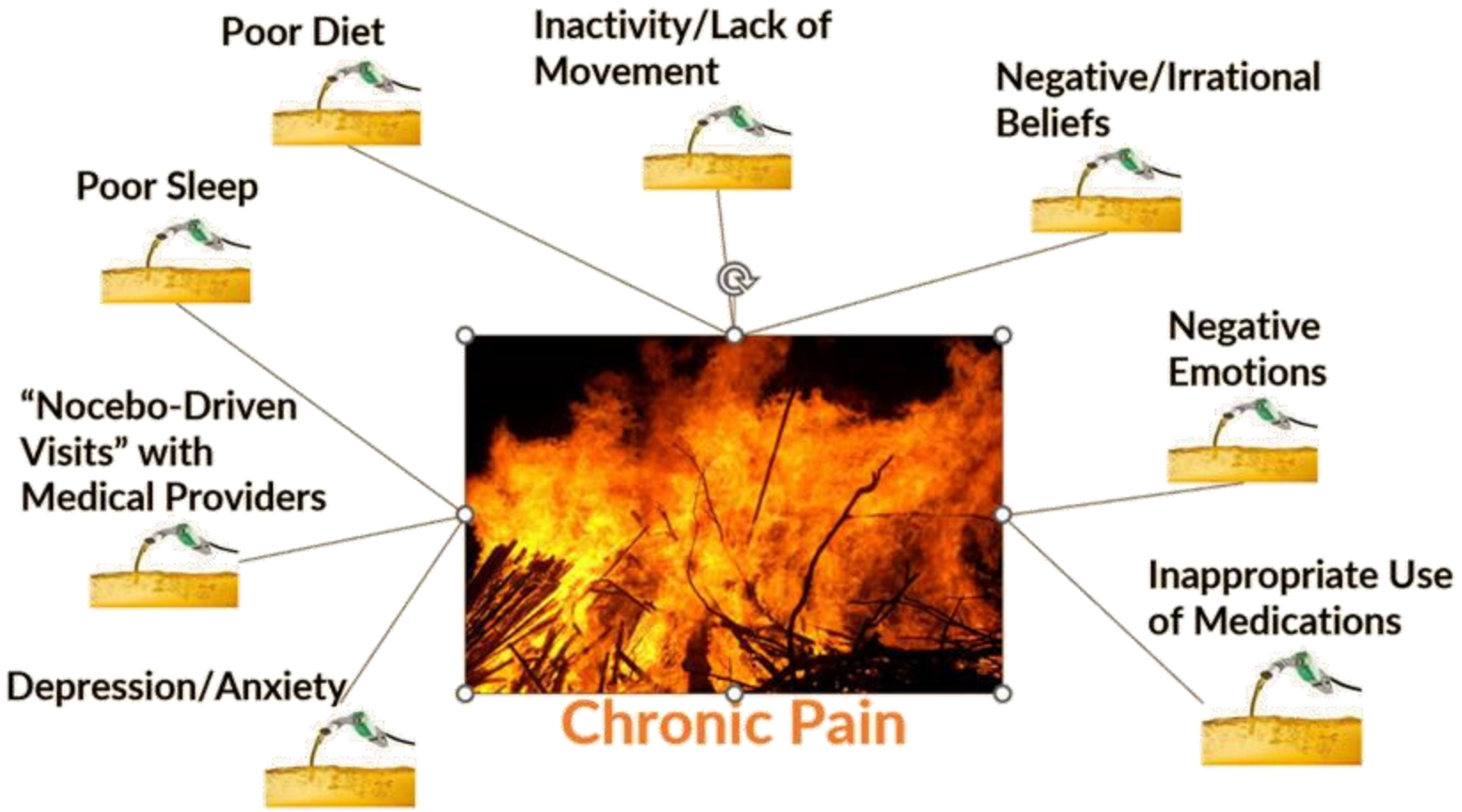
Disproportionate pain

Allodynia/hyperalgesia

No clear aggravating and easing factors

Typically, chronic in nature

Low Back Pain Can Be More Than Just a “Tissue Issue”



Evidence to Guide our Practice for Treatment of Low Back Pain

NOT ALL LOW BACK PAIN IS TREATED EQUAL...

Treatment-Based Classification System for Low Back Pain: Revision and Update

Muhammad Alrwaily, Michael Timko, Michael Schneider, Joel Stevans, Christopher Bise, Karthik Hariharan, Anthony Delitto

Manipulation

- Recent onset of symptoms (<16 days)
- No symptoms distal to the knee
- Hip IR is at least normal (>35 degrees) in one hip
- Low FABQ-W Score (<19)
- Hypomobility of the lumbar spine

Stabilization

- Younger age (<40 years of age)
- Greater flexibility (SLR > 90 degrees, postpartum)
- "Instability Catch" or aberrant motions coming up from flexion*
- (+) Prone Instability Test*
- Postpartum patients with TTP of pubic symphysis or long dorsal SI lig.

Directional Preference

- Extension
  - Symptoms distal to buttock
  - Centralize with EXT. and peripheralize with flexion
- Flexion
  - Older age (>50)
  - Directional Preference for flexion
  - Spinal Stenosis
- Lateral flexion*
  - Frontal plane deviation
  - Directional preference for lateral shift

Traction

- S/s of nerve root compression
- No movements centralize with specific movements

WHAT ABOUT IN OTHER PROFESSIONS?

CLINICAL GUIDELINES | Annals of Internal Medicine

Diagnosis and Treatment of Low Back Pain: A Joint Clinical Practice Guideline from the American College of Physicians and the American Pain Society

Roger Chou, MD; Amir Qaseem, MD, PhD, MHA; Vincenza Snow, MD; Donald Casey, MD, MPH, MBA; J. Thomas Cross Jr., MD, MPH; Paul Shekelle, MD, PhD; and Douglas K. Owens, MD, MS, for the Clinical Efficacy Assessment Subcommittee of the American College of Physicians and the American College of Physicians/American Pain Society Low Back Pain Guidelines Panel*

Recommendation 1: Clinicians should conduct a focused history and physical examination to help place patients with low back pain into 1 of 3 broad categories: nonspecific low back pain, back pain potentially associated with radiculopathy or spinal stenosis, or back pain potentially associated with another specific spinal cause. The history should include assessment of psychosocial risk factors, which predict risk for chronic disabling back pain (strong recommendation, moderate-quality evidence).

Recommendation 2: Clinicians should not routinely obtain imaging or other diagnostic tests in patients with nonspecific low back pain (strong recommendation, moderate-quality evidence).

Recommendation 3: Clinicians should perform diagnostic imaging and testing for patients with low back pain when severe or progressive neurologic deficits are present or when serious underlying conditions are suspected on the basis of history and physical examination (strong recommendation, moderate-quality evidence).

Recommendation 4: Clinicians should evaluate patients with persistent low back pain and signs or symptoms of radiculopathy or spinal stenosis with magnetic resonance imaging (preferred) or computed tomography only if they are potential candidates for surgery or epidural steroid injection (for suspected radiculopathy) (strong recommendation, moderate-quality evidence).

Recommendation 5: Clinicians should provide patients with evidence-based information on low back pain with regard to their expected course, advise patients to remain active, and provide information about effective self-care options (strong recommendation, moderate-quality evidence).

Recommendation 6: For patients with low back pain, clinicians should consider the use of medications with proven benefits in conjunction with back care information and self-care. Clinicians should assess severity of baseline pain and functional deficits, potential benefits, risks, and relative lack of long-term efficacy and safety data before initiating therapy (strong recommendation, moderate-quality evidence). For most patients, first-line medication options are acetaminophen or nonsteroidal anti-inflammatory drugs.

Recommendation 7: For patients who do not improve with self-care options, clinicians should consider the addition of nonpharmacologic therapy with proven benefits—for acute low back pain, spinal manipulation; for chronic or subacute low back pain, intensive interdisciplinary rehabilitation, exercise therapy, acupuncture, massage therapy, spinal manipulation, yoga, cognitive-behavioral therapy, or progressive relaxation (weak recommendation, moderate-quality evidence).

Ann Intern Med. 2007;147:478-491. www.annals.org
For author affiliations, see end of text.

ACR Appropriateness Criteria Low Back Pain

Nandini D. Patel, MD[a], Daniel F. Broderick, MD[b], Judah Burns, MD[c], Tejaswini K. Deshmukh, MB, BS[d], Ian Blair Fries, MD[e], H. Benjamin Harvey, MD[f], Langston Holly, MD[g], Christopher H. Hunt, MD[h], Bharathi D. Jagadeesan, MD[i], Tabassum A. Kennedy, MD[j], John E. O'Toole, MD[k], Joel S. Perlmutter, MD[l], Bruno Policeni, MD[m], Joshua M. Rosenow, MD[n], Jason W. Schroeder, MD[o], Matthew T. Whitehead, MD[p], Rebecca S. Cornelius, MD[q], Amanda S. Corey, MD[r]

Abstract

Most patients presenting with uncomplicated acute low back pain (LBP) and/or radiculopathy do not require imaging. Imaging is considered in those patients who have had up to 6 weeks of medical management and physical therapy that resulted in little or no improvement in their back pain. It is also considered for those patients presenting with red flags raising suspicion for serious underlying conditions, such as cauda equina syndrome, malignancy, fracture, and infection. Many imaging modalities are available to clinicians and radiologists for evaluating LBP. Application of these modalities depends largely on the working diagnosis, the urgency of the clinical problem, and comorbidities of the patient. When there is concern for fracture of the lumbar spine, multidetector CT is recommended. Those deemed to be interventional candidates, with LBP lasting for > 6 weeks having completed conservative management with persistent radiculopathic symptoms, may seek MRI. Patients with severe or progressive neurologic deficit on presentation and red flags should be evaluated with MRI.

The ACR Appropriateness Criteria are evidence-based guidelines for specific clinical conditions that are reviewed annually by a multidisciplinary expert panel. The guideline development and revision include an extensive analysis of current medical literature from peer-reviewed journals and the application of well-established methodologies (the RAND/UCLA Appropriateness Method and the Grading of Recommendations Assessment, Development, and Evaluation) to rate the appropriateness of imaging and treatment procedures for specific clinical scenarios. In those instances in which evidence is lacking or equivocal, expert opinion may supplement the available evidence to recommend imaging or treatment.

Key Words: Appropriateness Criteria, low back pain, radiculopathy, red flags

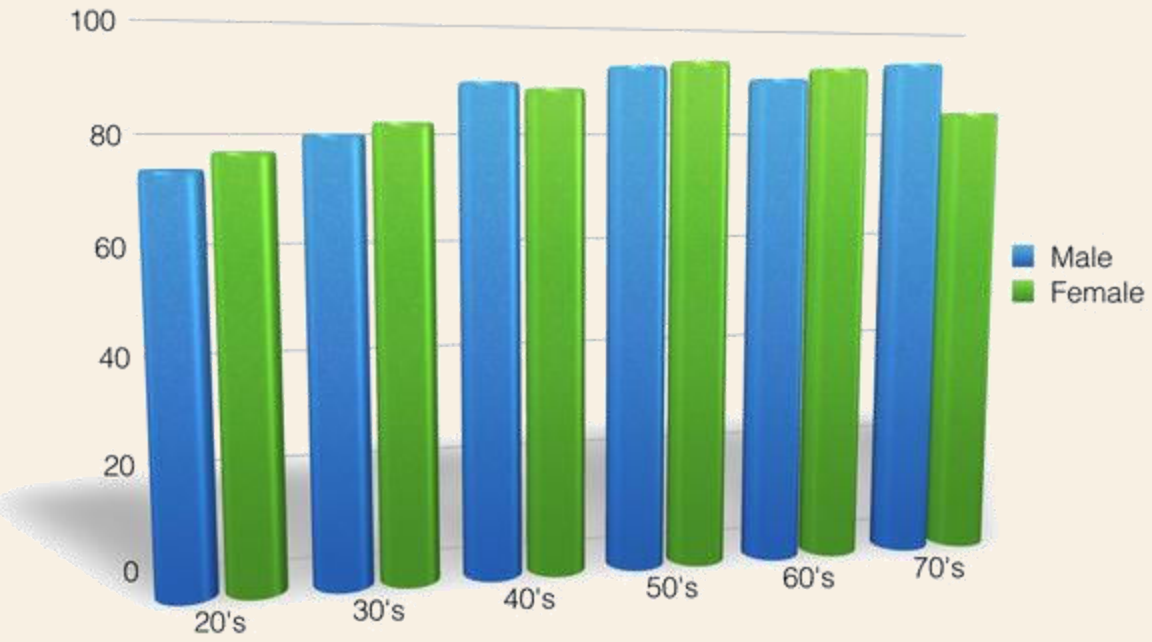
J Am Coll Radiol 2016;13:1069-1078.

IMAGING?

Percentage of neck disc bulges seen on MRI in 1,211 healthy normal pain free subjects

Nakashima et al : Spine (2015)

@adammeakins The Sports Physio

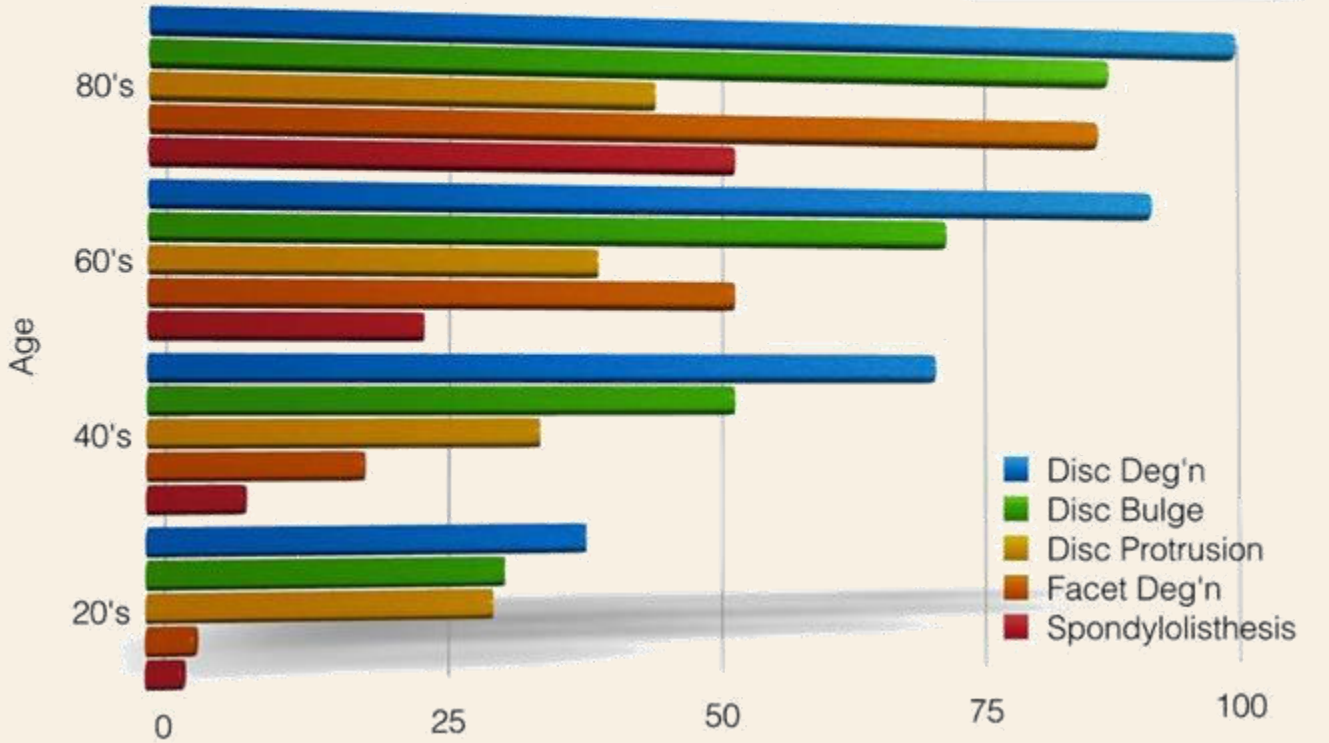


WRINKLES ON THE INSIDE ARE NORMAL

Percentage of 'abnormal' findings on lumbar spine MRI & CT images in healthy pain free subjects

Brinjikji et al : Am J Neuroradiol (2014)

@adammeakins The Sports Physio



IMAGING IN THE ABSENCE OF RED FLAGS?

Unintended consequences: quantifying the benefits, iatrogenic harms and downstream cascade costs of musculoskeletal MRI in UK primary care

Imran Mohammed Sajid ,[1,2] Anand Parkunan,[3] Kathleen Frost[4]

Conclusion Unfettered GP-MSK-MRI use has reached unaccceptable indication creep and disutility. Considerable avoidable harm occurs through ubiquitous misinterpretation and salient low-value referral cascades for two-thirds of imaged patients, for almost no change in treatment. Any marginally earlier procedural intervention for a tiny fraction of patients is eclipsed by negative consequences for the vast majority. Only 1–2 patients need to be scanned for one to suffer mismanagement. Direct-access imaging is neither clinically, nor cost-effective and deimplementation could be considered in this setting. GP-MSK-MRI fuels unnecessary healthcare utilisation, generating nocebic patient beliefs and expectations, whilst appropriate care is delayed and a high burden of psychosocial barriers to recovery appear neglected.

APTA LBP CLINICAL PRACTICE GUIDELINE

CLINICAL PRACTICE GUIDELINES

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Interventions for the Management of Acute and Chronic Low Back Pain: Revision 2021

Clinical Practice Guidelines Linked to the International Classification

TABLE 1 LEVELS OF EVIDENCE

I	Evidence obtained from high-quality diagnostic studies, prospective studies, randomized controlled trials, or systematic reviews
II	Evidence obtained from lesser-quality diagnostic studies, prospective studies, systematic reviews, or randomized controlled trials (eg, weaker diagnostic criteria and reference standards, improper randomization, no blinding, less than 80% follow-up)
III	Case-control studies or retrospective studies
IV	Case series
V	Expert opinion

TABLE 2 GRADES OF RECOMMENDATION

Grades of Recommendation		Strength of Evidence	Level of Obligation
A	Strong evidence	A preponderance of level I and/or level II studies support the recommendation. This must include at least 1 level I study	Should
B	Moderate evidence	A single high-quality randomized controlled trial or a preponderance of only level II studies support the recommendation. This included studies with short-term follow-up (eg, 3 months or less) and smaller sample sizes (eg, fewer than 100 participants)	May
C	Weak evidence	A single level II study supports the recommendation	Can
D	Conflicting or no evidence	Level I and/or level II studies disagree with respect to their conclusions or provide no evidence of benefit	Should not

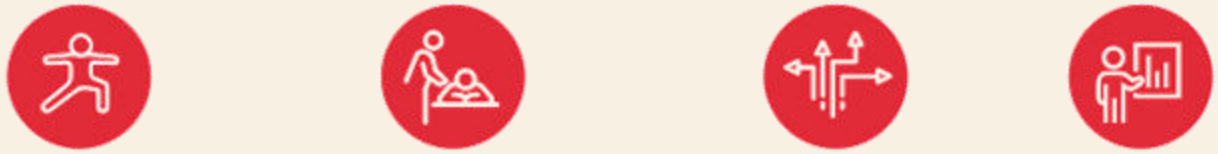
Evidence Maps

Acute Low Back Pain




Exercise	Manual and Other Directed Therapies	Classification Systems	Patient Education
Should Use (Level I and/or Level II RCTs)			
	• Thrust or nonthrust joint mobilization		
May Use (Single Level I RCT or Small-Sample Level II RCTs With Short Follow-up Times)			
With Leg Pain: • Muscle strengthening and endurance • Specific trunk activation	• Soft tissue mobilization • Massage	• Treatment-based classification	• Active education and advice • Biopsychosocial contributors to pain • Self-management techniques • Favorable natural history
Can Use (Single Level II RCT)			
• General exercise training		• Mechanical Diagnosis and Therapy	
Knowledge Gaps (Level I RCTs Needed)			
Movement Control: • Trunk mobility • Aerobic exercises • Multimodal exercises	• Neural tissue mobilization • Dry needling • Traction	• Cognitive functional therapy • Prognostic risk stratification • Pathoanatomic-based classification • Movement system impairment	• Pain neuroscience education

Chronic Low Back Pain



Exercise	Manual and Other Directed Therapies	Classification Systems	Patient Education
Should Use (Level I and/or Level II RCTs)			
• General exercise training • Muscle strengthening and endurance • Specific trunk activation • Aerobic • Aquatic • Multimodal --- **With Movement Control Impairment:** • Specific trunk activation • Movement control --- **For Older Adults:** • General exercise training	• Thrust or nonthrust joint mobilization		• Pain neuroscience education not as a stand-alone treatment • Active treatment (yoga, stretching, Pilates, and strength training)
May Use (Single Level I RCT or Small-Sample Level II RCTs With Short Follow-up Times)			
• Movement control • Trunk mobility --- **With Leg Pain:** • Specific trunk activation • Movement control	• Soft tissue mobilization • Massage --- **With Leg Pain:** • Thrust or nonthrust joint mobilization • Neural tissue mobilization	• Mechanical Diagnosis and Therapy • Prognostic risk stratification • Pathoanatomic-based classification	• Active education not as a stand-alone treatment --- **Postoperative:** • General education (following discectomy or decompression)

Can Use (Single Level II RCT)			
Postoperative: • General exercise training	• Dry needling	• Treatment-based classification • Movement system impairment • Cognitive functional therapy	
Knowledge Gaps (Level I RCTs Needed)			
• Comparisons of different approaches • Optimal dosing parameters • Targeted delivery	• Comparisons of manual therapy and active treatments • Value of manual therapy in multimodal approaches	• Direct comparisons of different classification systems	

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