General

Guideline Title

Low back pain: clinical practice guidelines linked to the International Classification of Functioning, Disability, and Health from the Orthopaedic Section of the American Physical Therapy Association.

Bibliographic Source(s)


Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Levels of evidence (I–V) and grades of recommendation (A–F) are defined at the end of the "Major Recommendations" field.

Risk Factors

Current literature does not support a definitive cause for initial episodes of low back pain. Risk factors are multifactorial, population specific, and only weakly associated with the development of low back pain. (Grade of Recommendation B)

Clinical Course

The clinical course of low back pain can be described as acute, subacute, recurrent, or chronic. Given the high prevalence of recurrent and chronic low back pain and the associated costs, clinicians should place high priority on interventions that prevent (1) recurrences and (2) the transition to chronic low back pain. (Grade of Recommendation E)

Diagnosis/Classification

Low back pain, without symptoms or signs of serious medical or psychological conditions, associated with clinical findings of (1) mobility impairment in the thoracic, lumbar, or sacroiliac regions, (2) referred or radiating pain into a lower extremity, and (3) generalized pain, is useful for classifying a patient with low back pain into the following International Statistical Classification of Diseases and Related Health Problems (ICD) categories: low back pain, lumbago, lumbosacral segmental/somatic dysfunction, low back strain, spinal instabilities, flatback syndrome, lumbago due to displacement of intervertebral disc, lumbago with sciatica, and the associated International Classification of Functioning, Disability, and Health (ICF) impairment-based category of low back pain (b28013 Pain in back, b28018 Pain in body part, specified as pain in buttock, groin, and thigh) and the following corresponding impairments of body function:
• Acute or subacute low back pain with mobility deficits (b7101 Mobility of several joints)
• Acute, subacute, or chronic low back pain with movement coordination impairments (b7601 Control of complex voluntary movements)
• Acute low back pain with related (referred) lower extremity pain (b28015 Pain in lower limbs)
• Acute, subacute, or chronic low back pain with radiating pain (b2804 Radiating pain in a segment or region)
• Acute or subacute low back pain with related cognitive or affective tendencies (b2703 Sensitivity to a noxious stimulus, b1522 Range of emotion, b1608 Thought functions, specified as the tendency to elaborate physical symptoms for cognitive/ideational reasons, b1528 Emotional functions, specified as the tendency to elaborate physical symptoms for emotional/affective reasons)
• Chronic low back pain with related generalized pain (b2800 Generalized pain, b1520 Appropriateness of emotion, b1602 Content of thought)

The ICD diagnosis of lumbosacral segmental/somatic dysfunction and the associated ICF diagnosis of acute low back pain with mobility deficits are made with a reasonable level of certainty when the patient presents with the following clinical findings:

• Acute low back, buttock, or thigh pain (duration of 1 month or less)
• Restricted lumbar range of motion and segmental mobility
• Low back and low back–related lower extremity symptoms reproduced with provocation of the involved lower thoracic, lumbar, or sacroiliac segments

The ICD diagnosis of spinal instabilities and the associated ICF diagnosis of subacute low back pain with mobility deficits are made with a reasonable level of certainty when the patient presents with the following clinical findings:

• Subacute, unilateral low back, buttock, or thigh pain
• Symptoms reproduced with end-range spinal motions and provocation of the involved lower thoracic, lumbar, or sacroiliac segments
• Presence of thoracic, lumbar, pelvic girdle, or hip active, segmental, or accessory mobility deficits

The ICD diagnosis of spinal instabilities and the associated ICF diagnosis of acute low back pain with movement coordination impairments are made with a reasonable level of certainty when the patient presents with the following clinical findings:

• Acute exacerbation of recurring low back pain and associated (referred) lower extremity pain
• Symptoms produced with initial to mid-range spinal movements and provocation of the involved lumbar segment(s)
• Movement coordination impairments of the lumbopelvic region with low back flexion and extension movements

The ICD diagnosis of spinal instabilities and the associated ICF diagnosis of subacute low back pain with movement coordination impairments are made with a reasonable level of certainty when the patient presents with the following clinical findings:

• Subacute exacerbation of recurring low back pain and associated (referred) lower extremity pain
• Symptoms produced with mid-range motions that worsen with end-range movements or positions and provocation of the involved lumbar segment(s)
• Lumbar segmental hypermobility may be present
• Mobility deficits of the thorax and pelvic/hip regions may be present
• Diminished trunk or pelvic-region muscle strength and endurance
• Movement coordination impairments while performing self-care/home management activities

The ICD diagnosis of spinal instabilities and the associated ICF diagnosis of chronic low back pain with movement coordination impairments are made with a reasonable level of certainty when the patient presents with the following clinical findings:

• Chronic, recurring low back pain and associated (referred) lower extremity pain
• Presence of 1 or more of the following:
  • Low back and/or low back–related lower extremity pain that worsens with sustained end-range movements or positions
  • Lumbar hypermobility with segmental motion assessment
  • Mobility deficits of the thorax and lumbopelvic/hip regions
  • Diminished trunk or pelvic-region muscle strength and endurance
  • Movement coordination impairments while performing community/work-related recreational or occupational activities

The ICD diagnosis of flatback syndrome, or lumbago due to displacement of intervertebral disc, and the associated ICF diagnosis of acute low back pain with related (referred) lower extremity pain are made with a reasonable level of certainty when the patient presents with the following clinical findings:
- Low back pain, commonly associated with referred buttock, thigh, or leg pain, that worsens with flexion activities and sitting
- Low back and lower extremity pain that can be centralized and diminished with positioning, manual procedures, and/or repeated movements
- Lateral trunk shift, reduced lumbar lordosis, limited lumbar extension mobility, and clinical findings associated with the subacute or chronic low back pain with movement coordination impairments category are commonly present

The ICD diagnosis of *lumbago with sciatica* and the associated ICF diagnosis of acute low back pain with radiating pain are made with a reasonable level of certainty when the patient presents with the following clinical findings:

- Acute low back pain with associated radiating pain in the involved lower extremity
- Lower extremity paresthesia, numbness, and weakness may be reported
- Symptoms are reproduced or aggravated with initial to mid-range spinal mobility, lower-limb tension/straight leg raising, and/or slump tests
- Signs of nerve root involvement (sensory, strength, or reflex deficits) may be present

It is common for the symptoms and impairments of body function in patients who have acute low back pain with radiating pain to also be present in patients who have acute low back pain with related (referred) lower extremity pain.

The ICD diagnosis of *lumbago with sciatica* and the associated ICF diagnosis of subacute low back pain with radiating pain are made with a reasonable level of certainty when the patient presents with the following clinical findings:

- Subacute, recurring mid-back and/or low back pain with associated radiating pain and potential sensory, strength, or reflex deficits in the involved lower extremity
- Symptoms are reproduced or aggravated with *mid-range* and worsen with *end-range* lower-limb tension/straight leg raising and/or slump tests

The ICD diagnosis of *lumbago with sciatica* and the associated ICF diagnosis of chronic low back pain with radiating pain are made with a reasonable level of certainty when the patient presents with the following clinical findings:

- Chronic, recurring mid-back and/or low back pain with associated radiating pain and potential sensory, strength, or reflex deficits in the involved lower extremity
- Symptoms are reproduced or aggravated with *sustained end-range* lower-limb tension/straight leg raising and/or slump tests

The ICD diagnosis of *low back pain/low back strain/lumbago* and the associated ICF diagnosis of acute or subacute low back pain with related cognitive or affective tendencies are made with a reasonable level of certainty when the patient presents with the following clinical findings:

- Acute or subacute low back and/or low back–related lower extremity pain
- Presence of 1 or more of the following:
  - Two positive responses to Primary Care Evaluation of Mental Disorders for depressive symptoms
  - High scores on the Fear-Avoidance Beliefs Questionnaire and behavior consistent with an individual who has excessive anxiety or fear
  - High scores on the Pain Catastrophizing Scale and cognitive processes consistent with individuals with high helplessness, rumination, or pessimism about low back pain

The ICD diagnosis of *low back pain/low back strain/lumbago* and the associated ICF diagnosis of chronic low back pain with related generalized pain are made with a reasonable level of certainty when the patient presents with the following clinical findings:

- Low back and/or low back–related lower extremity pain with symptom duration for longer than 3 months
- Generalized pain not consistent with other impairment-based classification criteria presented in these clinical guidelines
- Presence of depression, fear-avoidance beliefs, and/or pain catastrophizing

(Grade of Recommendation B)

Differential Diagnosis

Clinicians should consider diagnostic classifications associated with serious medical conditions or psychosocial factors and initiate referral to the appropriate medical practitioner when (1) the patient’s clinical findings are suggestive of serious medical or psychological pathology, (2) the reported activity limitations or impairments of body function and structure are not consistent with those presented in the diagnosis/classification section of these guidelines, or (3) the patient’s symptoms are not resolving with interventions aimed at normalization of the patient’s impairments of body function. (Grade of Recommendation A)
Examination

Outcome Measure

Clinicians should use validated self-report questionnaires, such as the Oswestry Disability Index and the Roland-Morris Disability Questionnaire. These tools are useful for identifying a patient's baseline status relative to pain, function, and disability and for monitoring a change in a patient's status throughout the course of treatment. (Grade of Recommendation A)

Activity Limitation and Participation Restriction Measures

Clinicians should routinely assess activity limitation and participation restriction through validated performance-based measures. Changes in the patient's level of activity limitation and participation restriction should be monitored with these same measures over the course of treatment. (Grade of Recommendation F)

Interventions

Manual Therapy

Clinicians should consider utilizing thrust manipulative procedures to reduce pain and disability in patients with mobility deficits and acute low back and back-related buttock or thigh pain. Thrust manipulative and nonthrust mobilization procedures can also be used to improve spine and hip mobility and reduce pain and disability in patients with subacute and chronic low back and back-related lower extremity pain. (Grade of Recommendation A)

Trunk Coordination, Strengthening, and Endurance Exercises

Clinicians should consider utilizing trunk coordination, strengthening, and endurance exercises to reduce low back pain and disability in patients with subacute and chronic low back pain with movement coordination impairments and in patients post-lumbar microdiscectomy. (Grade of Recommendation A)

Centralization and Directional Preference Exercises and Procedures

Clinicians should consider utilizing repeated movements, exercises, or procedures to promote centralization to reduce symptoms in patients with acute low back pain with related (referred) lower extremity pain. Clinicians should consider using repeated exercises in a specific direction determined by treatment response to improve mobility and reduce symptoms in patients with acute, subacute, or chronic low back pain with mobility deficits. (Grade of Recommendation A)

Flexion Exercises

Clinicians can consider flexion exercises, combined with other interventions such as manual therapy, strengthening exercises, nerve mobilization procedures, and progressive walking, for reducing pain and disability in older patients with chronic low back pain with radiating pain. (Grade of Recommendation C)

Lower-Quarter Nerve Mobilization Procedures

Clinicians should consider utilizing lower-quarter nerve mobilization procedures to reduce pain and disability in patients with subacute and chronic low back pain and radiating pain. (Grade of Recommendation C)

Traction

There is conflicting evidence for the efficacy of intermittent lumbar traction for patients with low back pain. There is preliminary evidence that a subgroup of patients with signs of nerve root compression along with peripheralization of symptoms or a positive crossed straight leg raise will benefit from intermittent lumbar traction in the prone position. There is moderate evidence that clinicians should not utilize intermittent or static lumbar traction for reducing symptoms in patients with acute or subacute, nonradicular low back pain or in patients with chronic low back pain. (Grade of Recommendation D)

Patient Education and Counseling

Clinicians should not utilize patient education and counseling strategies that either directly or indirectly increase the perceived threat or fear associated with low back pain, such as education and counseling strategies that (1) promote extended bed-rest or (2) provide in-depth, pathoanatomical explanations for the specific cause of the patient's low back pain. Patient education and counseling strategies for patients with low back pain should emphasize (1) the promotion of the understanding of the anatomical/structural strength inherent in the human spine, (2) the
neuroscience that explains pain perception, (3) the overall favorable prognosis of low back pain, (4) the use of active pain coping strategies that decrease fear and catastrophizing, (5) the early resumption of normal or vocational activities, even when still experiencing pain, and (6) the importance of improvement in activity levels, not just pain relief. (Grade of Recommendation B)

Progressive Endurance Exercise and Fitness Activities

Clinicians should consider (1) moderate- to high-intensity exercise for patients with chronic low back pain without generalized pain, and (2) incorporating progressive, low-intensity, submaximal fitness and endurance activities into the pain management and health promotion strategies for patients with chronic low back pain with generalized pain. (Grade of Recommendation A)

Definitions:

Levels of Evidence

Individual clinical research articles were graded according to criteria described by the Centre for Evidence-Based Medicine, Oxford, United Kingdom.

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

Grades of Recommendation

The overall strength of the evidence supporting recommendations made in these guidelines will be graded according to guidelines described by Guyatt et al, as modified by MacDermid and adopted by the coordinator and reviewers of this project. In this modified system, the typical A, B, C, and D grades of evidence have been modified to include the role of consensus expert opinion and basic science research to demonstrate biological or biomechanical plausibility.

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Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)
Low back pain

Guideline Category
Counseling
Diagnosis
Evaluation
Management
Prevention
Rehabilitation
Risk Assessment
Treatment

Clinical Specialty
Family Practice
Internal Medicine
Orthopedic Surgery
Physical Medicine and Rehabilitation
Rheumatology
Sports Medicine

Intended Users
Physical Therapists
Physicians
Students
Utilization Management

Guideline Objective(s)

- To describe evidence-based physical therapy practice, including diagnosis, prognosis, intervention, and assessment of outcome, for musculoskeletal disorders commonly managed by orthopaedic physical therapists
- To classify and define common musculoskeletal conditions using the World Health Organization's terminology related to impairments of body function and body structure, activity limitations, and participation restrictions
- To identify interventions supported by current best evidence to address impairments of body function and structure, activity limitations, and participation restrictions associated with common musculoskeletal conditions
- To identify appropriate outcome measures to assess changes resulting from physical therapy interventions in body function and structure as well as in activity and participation of the individual
- To provide a description to policy makers, using internationally accepted terminology, of the practice of orthopaedic physical therapists
- To provide information for payers and claims reviewers regarding the practice of orthopaedic physical therapy for common musculoskeletal conditions
To create a reference publication for orthopaedic physical therapy clinicians, academic instructors, clinical instructors, students, interns, residents, and fellows regarding the best current practice of orthopaedic physical therapy.

To describe the peer-reviewed literature and make recommendations related to:

- Treatment matched to low back pain subgroup responder categories
- Treatments that have evidence to prevent recurrence of low back pain
- Treatments that have evidence to influence the progression from acute to chronic low back pain and disability

Target Population

Patients with low back pain

Interventions and Practices Considered

Diagnosis/Evaluation/Risk Assessment

1. Assessment of pathoanatomical features
2. Risk factor assessment
3. Diagnosis and classification of back pain according to International Statistical Classification of Diseases and Related Health Problems (ICD) and International Classification of Functioning, Disability, and Health (ICF) categories
4. Differential diagnosis
5. Physical examination
   - Use of outcomes measures (validated self-report questionnaires such as Oswestry Disability Index and the Roland-Morris Disability Questionnaire)
   - Use of activity limitation and participation restriction measures

Treatment/Management Interventions

1. Manual therapy (thrust manipulative and nonthrust mobilization procedures)
2. Trunk coordination, strengthening, and endurance exercises
3. Centralization procedures and exercises
4. Flexion exercises
5. Lower-quarter nerve mobilization procedures
6. Traction
7. Patient education and counseling
8. Progressive endurance and fitness activities

Major Outcomes Considered

- Diagnostic accuracy (sensitivity, specificity, positive and negative likelihood ratios)
- Effectiveness of interventions in terms of pain relief, improvement of functioning, quality of life
- Pain
- Perceived disability
- Back-specific function
- Mobility
- Generic health status
- Patient satisfaction

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

The authors of these guidelines independently performed a systematic search of MEDLINE, CINAHL, and the Cochrane Database of Systematic Reviews (1966 through 2010) for any relevant articles related to classification, examination, and intervention for musculoskeletal conditions related to the low back region. The lead author assigned a specific subcategory (classification, measures, and intervention strategies for musculoskeletal conditions of the low back region) to search based upon their specific area of expertise. Two authors were assigned to each subcategory and both individuals performed a separate search, including but not limited to the 3 databases listed above, to identify articles to ensure that no studies of relevance were omitted. Additionally, when relevant articles were identified, their reference lists were hand-searched in an attempt to identify other articles that might have contributed to the content of these clinical practice guidelines. Articles from the searches were compiled and reviewed for accuracy by the authors. Articles with the highest levels of evidence that were most relevant to classification, examination, and intervention for patients with musculoskeletal conditions related to the low back region were included in these guidelines.

It was acknowledged by the Orthopaedic Section, American Physical Therapy Association (APTA) that a systematic search and review solely of the evidence related to diagnostic categories based on International Statistical Classification of Diseases and Related Health Problems (ICD) terminology would not be sufficient for these International Classification of Functioning, Disability, and Health (ICF)-based clinical practice guidelines, as most of the evidence associated with changes in levels of impairment or function in homogeneous populations is not readily searchable using the current terminology.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Levels of Evidence

Individual clinical research articles were graded according to criteria described by the Centre for Evidence-Based Medicine, Oxford, United Kingdom

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Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Individual clinical research articles were graded according to criteria described by the Centre for Evidence-Based Medicine, Oxford, United
Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Content experts were appointed by the Orthopaedic Section, American Physical Therapy Association (APTA) as developers and authors of clinical practice guidelines for musculoskeletal conditions of the low back region. These content experts were given the task to identify impairments of body function and structure, activity limitations, and participation restrictions, described using International Classification of Functioning (ICF) terminology, that could (1) categorize patients into mutually exclusive impairment patterns upon which to base intervention strategies, and (2) serve as measures of changes in function over the course of an episode of care. The second task given to the content experts was to describe the supporting evidence for the identified impairment pattern classification as well as interventions for patients with activity limitations and impairments of body function and structure consistent with the identified impairment pattern classification.

Rating Scheme for the Strength of the Recommendations

Grades of Recommendation

The overall strength of the evidence supporting recommendations made in these guidelines will be graded according to guidelines described by Guyatt et al, as modified by MacDermid and adopted by the coordinator and reviewers of this project. In this modified system, the typical A, B, C, and D grades of evidence have been modified to include the role of consensus expert opinion and basic science research to demonstrate biological or biomechanical plausibility.

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Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review
Description of Method of Guideline Validation

The Orthopaedic Section, American Physical Therapy Association (APTA) selected consultants from the following areas to serve as reviewers of the early drafts of these clinical practice guidelines:

- Claims review
- Coding
- Epidemiology
- Low back pain rehabilitation
- Manipulative therapy
- Medical practice guidelines
- Movement science
- Orthopaedic physical therapy residency education
- Outcomes research
- Pain sciences
- Physical therapy academic education
- Rheumatology
- Spinal biomechanics
- Sports physical therapy residency education
- Sports rehabilitation

Comments from these reviewers were utilized by the authors to edit these clinical practice guidelines prior to submitting them for publication to the Journal of Orthopaedic & Sports Physical Therapy. In addition, several physical therapists practicing in orthopaedic and sports physical therapy settings were sent initial drafts of this clinical practice guideline along with feedback forms to assess its usefulness, validity, and impact.

Several practicing clinicians and reviewers noted that the classification criteria summary of the International Classification of Functioning, Disability, and Health (ICF)-based Neck Pain Clinical Practice Guidelines was useful in linking data gathered during the patient's subjective and physical examinations to diagnostic classification and intervention. Thus, similar recommended classification criteria were included by the authors for these ICF-based Low Back Pain Clinical Practice Guidelines, which provide a summary of symptoms, impairment findings, and matched interventions for each diagnostic category. This summary is provided in the Recommended Low Back Pain Impairment/Function-based Classification Criteria with Recommended Interventions table in the original guideline document.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for the recommendations (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate diagnosis and orthopaedic management of patients with low back pain

Potential Harms

Not stated

Qualifying Statements
Qualifying Statements

These guidelines are not intended to be construed as or to serve as a standard of medical care. Standards of care are determined on the basis of all clinical data available for an individual patient and are subject to change as scientific knowledge and technology advance and patterns of care evolve. These parameters of practice should be considered guidelines only. Adherence to them will not ensure a successful outcome in every patient, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgment regarding a particular clinical procedure or treatment plan must be made in light of the clinical data presented by the patient, the diagnostic and treatment options available, and the patient's values, expectations, and preferences. However, it is suggested that significant departures from accepted guidelines should be documented in the patient's medical records at the time the relevant clinical decision is made.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Patient Resources

For information about availability, see the Availability of Companion Documents and Patient Resources fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2012 Apr

Guideline Developer(s)

American Physical Therapy Association, Inc., The Orthopaedic Section - Medical Specialty Society

Source(s) of Funding

The Orthopaedic Section of the American Physical Therapy Association (APTA)

Guideline Committee

Orthopaedic Section of the American Physical Therapy Association (APTA)

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Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

Guideline Availability


Print copies: Available from the Orthopaedic Section APTA, Inc, 2920 East Avenue South, Suite 200, La Crosse, WI 54601. E-mail: icf@orthopt.org

Availability of Companion Documents

None available
Patient Resources

The following is available:


Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This NGC summary was completed by ECRI Institute on July 25, 2012. The information was verified by the guideline developer on August 20, 2012.

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