

## Back Pain Assessment

Back pain is one of the most common causes for which people seek emergency care. Back pain can be relentless, causing some people to feel significantly debilitated. Back pain can affect people of any age. Mechanical back pain is the cause of 90% of cases, so health care providers can sometimes miss rare or non-specific causes while focusing on common etiologies.

### Causes of Back Pain (Wheeler et al., 2022)

Approximately 85% or more of patients seen in primary care have non-specific low back pain. This means that the patient does not have an identifiable underlying condition as the cause of the back pain. Many of these patients have musculoskeletal back pain, which usually improves in a few weeks. Approximately 1% of cases have a serious etiology. Most of these patients will have risk factors or other symptoms. Some of the etiologies include:

- Serious Etiologies
  - Spinal cord or cauda equina compression
    - Most common cause is herniation of the intervertebral disc
    - Other causes include ankylosing spondylitis, lumbar puncture, trauma, malignant tumor, benign tumor, and infection
    - Pain is usually first symptom of cord compression
    - Motor and sensory findings are present in the majority of patients at diagnosis
    - Bowel and/or bladder dysfunction are usually late findings
  - Metastatic Cancer
    - Bone is one of the most common sites of metastasis
    - History of cancer is the strongest risk factor for back pain from bone metastasis
    - Pain is the most common symptom
    - A history of cancer and sudden, severe back pain raises concern for a pathological fracture
  - Spinal epidural abscess
    - Initial symptoms include fever and malaise (non-specific), then over time patient might develop localized back pain, then radicular pain, and if left untreated, neurological deficits
    - Immunocompromised patients are at higher risk
    - Risk factors include recent spinal injections, epidural catheter placement, injection drug use, and other infections
  - Vertebral osteomyelitis
    - Usually presents with back pain and gradually increases over months to weeks
    - Fever may or may not be present
    - Incidence increases with age, more common in males than in females
    - Linked to health care-related or post-procedural spread of bacteremia
- Less Serious Etiologies
  - Vertebral compression fracture
  - Radiculopathy
  - Spinal stenosis

- Other Etiologies
  - Axial spondyloarthritis
  - Osteoarthritis
  - Scoliosis and hyperkyphosis
  - Psychological stress
  - Etiologies outside the spine

## History

- Include location, duration, and severity of the back pain, details of prior back pain, and how current symptoms compare to previous back pain
- Ask about unintentional weight loss, night sweats, fever, malignancy, precipitants or precipitating events, therapies attempted, neurological symptoms, bacterial infections, stability or progression of symptoms, bacterial infections, corticosteroid medications, injection drugs, epidural or spinal procedures
- Evaluate for social or psychological stress

## Physical Exam

- Inspect the back and posture
- Palpate and percuss the spine
- Perform a [neurological exam](#)
- Straight leg raising
- Nonorganic signs, which include a psychological component to a patient's pain

## Laboratory Studies

- Most patients with acute low back pain do not require lab testing
- If concern for infection or malignancy, obtain erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) in addition to plain radiographs

## Treatment of Back Pain (Knight et al., 2024)

- Pharmacotherapy
  - Non-steroidal anti-inflammatory drugs (NSAIDs) are used as initial therapy for a short-term course of two to four weeks
  - If NSAIDs are contraindicated, consider acetaminophen as an alternative for initial therapy
  - Pain refractory to initial pharmacological therapy, consider non-benzodiazepine muscle relaxer or benzodiazepines as second line therapy
  - In patients who cannot tolerate or have contraindications to muscle relaxants, combining NSAIDs and acetaminophen could be an alternative.
  - Other medications with limited efficacy include antidepressants, systemic glucocorticoids, antiepileptics, topical agents, and herbal remedies
- Non-Pharmacological Therapies
  - Heat
  - Massage

- Acupuncture
- Spinal manipulation
- Exercise and physical therapy
- Other therapies include cold, muscle energy techniques, traction, lumbar support, mattress recommendations, yoga, and paraspinal injections

### Pearls (Casiano et al., 2023)

- Obtaining a thorough history and physical is usually adequate for evaluation of atraumatic, acute back pain. Routinely wait 6 weeks for improvement of symptoms before ordering imaging tests.
- During the history and physical, observe for red flags with concern for malignancy, infection, fracture, or neurologic, as this would warrant imaging and other diagnostic tests

### Patient Education (Casiano et al., 2023)

- Exercise interventions such as stretching and strengthening have value in helping to prevent recurrences of acute low back pain.
- Detailed discussion of activity modification, staying active, and early return to normal activity has been proven effective.
- Staying active and maintaining a healthy body weight (BMI less than 25) can lead to better outcomes.
- Patients should avoid smoking, which increases risk of back pain in patients of any age.

### References:

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