



Low Back Pain

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Low Back Pain is the World's Leading Cause of Disability

Low back pain causes more years lost to disability than any other condition worldwide [2]. It refers to pain experienced between the lower rib cage and buttock creases but can extend into the legs. It is not a single condition but rather a symptom with many underlying causes. Although a specific diagnosis is available for some, for most, the condition is referred to as “non-specific,” meaning there is no identifiable cause. New episodes can recover quickly, but persistence or recurrence is common and characterized by repeated episodes separated by periods of remission or ongoing pain with frequent “flares” [3,6]. Despite enormous healthcare expenditures, outcomes are often disappointing. Individuals presenting with low back pain are often given unnecessary assessments (e.g., spine imaging is common but is not recommended unless serious pathology is suspected) and ineffective or potentially harmful treatments (e.g., opioids are commonly prescribed but have limited effectiveness for most low back pain) [10].

Low Back Pain is Multifactorial

Low back pain has biological, psychological, and social elements. Social determinants of health have a major impact - low education status, socioeconomic background, and occupational factors are associated with poor outcomes [5]. Psychological features related to cognitions, emotions, and behaviors are common and major factors in disability and outcomes [9]. Biologically, the experience of pain can be maintained by different mechanisms [8]. Nociceptive pain is maintained by actual or threatened damage to non-neural tissue and is due to the activation of nociceptors; neuropathic pain is caused by a lesion or disease of the somatosensory nervous system; and nociplastic pain arises from altered nociception. Features of these mechanisms can co-exist and change over time. Spinal structures are potential sources of nociceptive input, but identification of relevant sources is not straightforward.

Although imaging findings (e.g., MRI, CT, X-Ray) are common in low back pain, similar findings can also be present in those without pain. Notwithstanding, the odds of having pain are greater in those with findings [1]. Although tissue injury might have initiated a pain episode, this might not explain its persistence. Neuropathic pain can present in several ways, including sciatica, which is leg pain from spinal nerve root compression. Nociplastic pain has been recently defined to account for pain that is maintained by a complex mix of mechanisms, including central sensitization at multiple levels of the central nervous system. Diverse changes, including the interaction between the nervous and immune system, synaptic plasticity, epigenetics, and the function of brain networks, among others, lead to pain that is no longer coupled to the presence, intensity, and/or duration of peripheral nociceptive stimuli.

The biopsychosocial understanding of low back pain should not be interpreted to infer these operate in silos. Instead, they strongly interact. Adding complexity to low back pain are a range of comorbidities - many patients also report other conditions that might contribute to low back pain (e.g., diabetes is common and associated with systemic inflammation, which likely influences pain), cause low back pain or influence the selection and effectiveness of treatments. Broader contextual factors such as lack of access to care, discrimination, and culture can interact with and impact on biological and psychological aspects.

Treatments for Low Back Pain

Diverse treatments are applied by many different professionals to manage low back pain, including exercise, pharmacological agents, hands-on (manual) therapies, psychological treatments, and surgery. For those with an identifiable cause (e.g., fracture, infection, and malignancy), there is some guidance for treatment. For those classified as having a “non-specific” condition, there is often uncertainty as the effectiveness of treatments is modest at best, and the available evidence for many treatments is weak.

As uncertainty remains regarding which individuals may benefit from certain treatments, treatments are commonly applied in a one-size-fits-all manner.

Most evidence and guidelines recommend different management depending on the duration of the pain [7]. For those with acute pain (less than 6 weeks), after exclusion of signs of more serious pathology (referred to as “red flags”) recommended treatment generally involves advice to stay active, reassurance, and limited specific treatment. Most pharmacological agents have limited effectiveness or potential for harm, and recommendation for surgery is limited to very specific diagnoses.

For individuals with chronic pain (pain lasting longer than three months), clinical practice guidelines recommend exercise and multidisciplinary care, including psychologically informed treatments. Exercise can take multiple forms, and supervised exercise is more effective than unsupervised. Supported self-management is recommended. Surgical and pain interventions only are recommended in specific circumstances. Effective management of low back pain is likely to require consideration of diverse aspects, including psychological and social aspects, sleep hygiene, nutrition, weight management, as well as attention to the therapeutic alliance and interpersonal factors. The high burden of low back pain has led to strategies to stratify care such that more intensive intervention is allocated to those at higher risk of poor outcome [4].

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