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Low Back Pain

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If you are reading this article, chances are you already have or will experience low back pain (LBP) at some point in your life. Approximately 84 percent of adults will be afflicted by LBP in their lifetime.

Since LBP is so common, it can be difficult to determine causation. The challenge is deciding whether a patient's LBP is truly caused by his or her work duties or if it is merely a coincidence that the pain is first experienced while working because much of our waking hours are spent in the workplace. Fortunately, regardless of the causation, most episodes of LBP are self-limiting and resolve within four to seven weeks without any formal treatment. Only 1/3 of patients with LBP even seek medical evaluation and of these:

- 85 percent have *non-specific LBP*, meaning that no specific underlying condition can be readily identified as causing the patient's LBP. These are frequently dubbed "strains" and "sprains".
- Less than 1% of patients with LBP will have *serious causes*, such as cancer, infection, or spinal cord compression.
- Approximately 10% will have *less serious, specific causes* affecting the "low back" or lumbosacral spine. These causes include fractures, radiculopathy from torn or herniated discs, spinal stenosis, and arthritis.

The provider's first task is to determine which category best explains the patient's LBP. For the majority of cases, the provider is able to rule out serious and non-back categories from a comprehensive history and thorough physical examination. Potentially serious and concerning (or "red flag") symptoms must be discussed, and include the following: fever, unexplained weight loss, progressive lower extremity weakness, numbness or altered sensations in the legs, feet, or genital regions, and loss of bowel or bladder control. Other "red flag" factors include previous or current diagnosis of cancer, older age, prolonged use of steroids, severe trauma, recent/current IV drug use, or presence of overlying bruise or wound. While the presence of a "red flag" symptom alone is not enough to classify the LBP as one of the serious specific causes, it should prompt further investigation by physical exam, imaging, and potentially blood work, which is beyond the scope of this article. In the absence of systemic, cardiac, pulmonary, abdominal, and renal complaints in a patient with normal vital signs (ie. blood pressure, heart rate, temperature), serious and non-back categories are effectively ruled out. In an occupational medicine clinic, these two categories are almost always considered non-industrial and the patient is directed to his/her primary care provider for further evaluation and management.

Once the above categories are clinically ruled out, the patient's back pain is consistent with either non-specific LBP

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or less serious but specific LBP. In truth, this distinction – while undoubtedly important to the patient – does not typically alter the initial management of the patient's pain and symptoms; however, the mechanism of injury and location of pain can be useful in this endeavor. If a patient sustained a direct blow to the spinal column from an object or fall from significant height, the possibility of vertebral fracture should be considered and imaging studies obtained. In healthy individuals, most vertebral fractures require high energy forces, without which a fracture is improbable, but if the patient has a history of multiple fractures, osteoporosis, or reports prolonged use of steroids, a fracture may result from less powerful forces or in the complete absence of trauma. Physical exam findings such as a deformity noted along the external spine surface and/or point tenderness over a vertebra are also concerning for fracture and should prompt imaging. If the patient's LBP radiates (or extends in a somewhat linear fashion) from the low back, buttock, hip, or groin down the leg past the level of the knee, this characterization of pain is suggestive of sciatica (or compression of a nerve either at the level of the spine or within the muscles of the buttock) – a less serious but specific cause. In patients with radicular-type pain who demonstrate objective lower extremity weakness, decreased sensation, or abnormal tendon reflexes, nerve compression at the spinal level should be suspected. LBP extending to the buttock or upper leg is much less consistent with compression of a nerve but may be due to arthritis between vertebrae.

Next, the provider must consider whether imaging, such as radiographs (i.e. "X-rays") or MRIs, are needed. In the absence of direct trauma and "red flag" symptoms/factors, radiographs of the lumbosacral spine are not necessary. While many patients want to have an "X-ray" on their first visit, early use of imaging has not been shown to improve patients' outcomes. As previously mentioned, most cases of LBP resolve spontaneously in four to seven weeks, so getting "X-rays" at the initial presentation of a non-traumatic injury would be a significant and likely unnecessary radiation exposure equal to 6 months of normal background radiation. In addition to radiation exposure, it is important to remember that the confirmed presence of arthritis or a herniated disc by radiograph or MRI does not mean the patient's symptoms are due to these findings. In fact, some studies have shown that between 22-67% of asymptomatic adults have herniated discs on MRI. Arthritis and disc herniation are very common; therefore, it is important for providers to methodically work-up LBP in order to decrease the chances that these findings might inaccurately change the diagnosis.

Once the provider has arrived at a diagnosis, he or she must then determine if the patient's occupational duties provide sufficient stress, force, or risk to produce the current condition or injury. In the case of a work-related low back injury in the absence of trauma, there are several treatment options that can be employed to accelerate healing and manage pain. Earlier in 2017, the American College of Physicians published guidelines on conservative therapy for LBP, to include superficial heat, non-steroidal anti-inflammatories (NSAIDs), and other non-invasive modalities like physical therapy, massage, chiropractic care, and acupuncture. In certain clinical contexts, muscle relaxers and cognitive behavior therapy may be beneficial. For almost all cases of LBP in the working adult population, it is inappropriate to use long-term narcotics. While patients may like the idea of a back brace, use of back braces for either the treatment or prevention of LBP is not recommended.

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While most LBP patients who seek treatment achieve symptom resolution with conservative management, there are cases that require more invasive treatment. These include steroid injections in the spine (eg. epidural injections), localized nerve blocks, surgical resection of abnormal intervertebral discs, and spinal fusions. However, these treatments are performed by specialists, requiring referral to Orthopedics, Neurosurgery, and Pain Management.

In addition to recommending treatment, the provider should educate and regularly encourage the patient to remain active. There is an abundance of published data that associates continued activity with better outcomes. Obviously, continued activity does not mean powerlifting, sprinting, or even necessarily normal job function, but it is simply moving around so as not to be sedentary. Depending on the patient's job duties and level of functional impairment, work restrictions may be beneficial but should be gradually progressed to normal duties as the patient's level of function improves. The longer the patient remains off work, the less likely he or she is to return to work.

Fortunately, most LBP sufferers do achieve symptom resolution within seven weeks with or without treatment. While recurrence of LBP is likely – estimated to recur in 50% of patients within 6 months and 70% of patients within 12 months – each recurrence has an equally favorable prognosis. It is due to this favorable prognosis that initial treatment recommendations are conservative, the patient is encouraged to remain active, and imaging is often unnecessary in patients without red flag symptoms.

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