

## Chapter 2

# Lower Back Pain: An Overview of the Most Common Causes

When discussing the causes of lower back pain, it is important to make a distinction between acute, subacute, and chronic lower back pain. Acute lower back pain refers to lower back pain that lasts less than 4 weeks. Subacute lower back pain refers to lower back pain that lasts from 4 to 12 weeks. Chronic lower back pain is lower back pain lasting 12 weeks or longer.

By definition, acute lower back pain is self-limited. Because it lasts so little time, it is generally less well studied than chronic lower back pain. There are a multitude of potential causes of acute lower back pain. The most common causes are thought to be muscle strains, ligament sprains, and tendonitis. However, sometimes spinal causes likely also occur and simply heal in a quick time frame. Because the acute lower back pain is so short lived, it is extremely hard to study both in terms of a diagnosis and also in terms of treatment. Imagine the study that would be required to evaluate the effectiveness of ibuprofen for shortening the duration of acute lower back pain. First, patients would have to be enrolled and randomized immediately into the study before the pain resolved on its own. Second, the number of patients required to witness a difference in clinical response to treatment as opposed to placebo (where the duration being evaluated may be as little as a day of pain) would be huge. And, at the end of it, when the pain is going to resolve anyway, there is not a lot of enthusiasm to run such a large study.

Subacute and chronic lower back pain typically behaves in the same way. The distinction between subacute and chronic pain has largely been made for academic purposes. By the time pain lasts 3 months, it generally needs help to make it go away and it is therefore much more important and easy to study. Because subacute lower back pain behaves so similarly to chronic lower back pain, we will consider them together but should remember that the studies we discuss in this chapter are really on chronic lower back pain and not subacute lower back pain.

What follows now is a brief survey of the most common causes of lower back pain. Each cause will be dealt with in more detail in their respective chapters, but for the purpose of providing context and perspective, they will be surveyed here. There are three most common causes of chronic lower back pain. The most common cause

is discogenic lower back pain [1]. Recall from chapter one that the nucleus pulposus is filled with proteins with inflammatory properties and that the outer third (and sometimes outer two thirds) of the annulus fibrosus contains nerve fibers. In discogenic lower back pain, a tear occurs from the nucleus pulposus extending out to the outer third or two thirds of the annulus fibrosus [2]. This tear allows the proteins with inflammatory properties to extravasate out to the nerve fibers, which can irritate those fibers and cause pain.

The second most common cause of chronic lower back pain is facet joint pain [3]. The facet joints are synovial joints and are similar to the other synovial joints in the body. The facet joints (properly termed zygapophyseal joints) can be injured in a number of ways [4, 5]. The capsule of the joint can be torn and the cartilage can degenerate. These changes can lead to inflammation within the joint which leads to pain.

The third most common cause of chronic lower back pain is the sacroiliac (SI) joint [6, 7]. The sacroiliac joint can become painful because of altered biomechanics, trauma, or degenerative changes. The pain ultimately comes because of inflammation within the joint.

Spondylolisthesis is another cause of chronic lower back pain. Spondylolisthesis refers to when the bones have slipped in relation to one another. This slippage can lead to irritation and inflammation, which can lead to pain [8].

A lumbar radiculopathy occurs when the nerves exiting the spine become inflamed. This can occur for a number of reasons. A herniated disc can cause inflammation around a nerve root. Bony spinal stenosis can also lead to inflammation around the nerve root. Lumbar radiculopathies typically cause buttock and leg pain but not lower back pain, per se [9]. However, lower back pain and lumbar radiculopathies often coexist because the same arthritic facet joint that develops a bone spur and causes lower back pain may also create foraminal stenosis and inflame a nerve root leading to a lumbar radiculopathy.

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