Low Back Pain

Almost every person, at some point in their life, will experience low back pain. It can come on suddenly after a physical event like shovelling snow, yard work or a hard workout. In this case it's easy to understand why your back is sore.

By Corinne LeBlanc

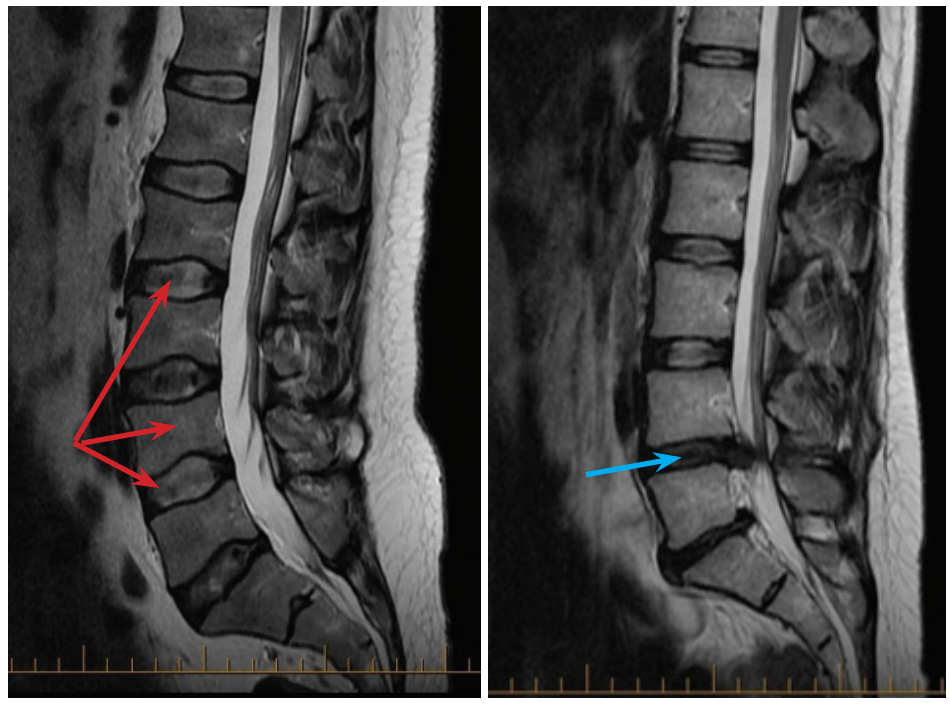
When a person has chronic back pain, it's more difficult to find the cause of the pain and how to treat it. The lower part of the spine bears more weight than the rest of the spine therefore it is more susceptible to injury and pain from overuse. Even without an injury, the natural aging process results in degenerative changes to the structures of the spine which can cause pain. To better understand back pain, it helps to know how the spine works.

The spine is composed of 3 main sections: the upper, or cervical spine; the middle, or thoracic spine; and the lower, or lumbar spine. The vertebrae in the spine make up the bony spinal column within which the spinal cord is located. The spinal cord starts at the base of the brain and runs through the spinal column, ending right around where the thoracic and lumbar spine meet (this is known as the thoracolumbar junction). The cord itself does not run through the lower back, but the nerve roots that branch off the lower part of the spinal cord course through and exit the spinal column in this area. The nerve roots pass through structures called foramen, which are essentially "holes" in the spinal column that are naturally formed by the way the vertebral bodies fit together.

The last few vertebrae in the spine compose the lumbar spine. Between each vertebra is a disc which functions to hold the vertebrae together, while allowing slight mobility in the spine. The discs also act as shock absorbers to reduce impact between the vertebral bodies. Over time, these discs lose their moisture and become dehydrated, which affects their shock absorbing ability. Lumbar discs can also herniate, either suddenly due to an injury from an activity such as heavy lifting, or slowly from general wear and tear. When discs herniate, they can encroach upon the space where the nerve roots pass through and cause irritation of the nerve. This can result in pain in the back at this level and/or pain in the distribution of the nerve being irritated. Irritation of the nerves can also occur when there is osteoarthritis in the spine; this causes narrowing of the "holes" or foramen which can impinge upon the nerves. This is called spinal stenosis.

It's quite important to know which level of the spine is affected, especially when a spinal condition requires surgery. Physicians refer to the spinal levels by naming the vertebral bodies above and below the area of a disc herniation and/or spinal stenosis. These levels are important to know as the nerve roots that exit each level travel through to different regions of the body. The nerve roots that exit the lumbar spine are mostly responsible for sensation in the legs.

The images below are taken right through the middle of the spine. The one on the left shows normal disc height and position of the discs (red arrows). The one on the right shows a large disc herniation (blue arrow).



The diagram to the right shows the areas of the legs that correspond to the different spinal levels. As an example, a disc herniation at L4/L5 may result in symptoms in the lower leg/ankle.

When investigating spinal issues, a clinical exam is initially performed. If a disc herniation or spinal stenosis is suspected, diagnostic imaging is required to identify/confirm which level(s) is affected. Currently in the Interior Health region, only specialists may order a lumbar spine MRI. However, at Image One MRI we accept referrals for lumbar spine MRI's from general practitioners and specialists alike.

We have also been granted approval from the BC College of Physicians and Surgeons to accept referrals from chiropractors. CT imaging can be helpful but in many cases an MRI is needed to confirm any abnormalities. An MRI is almost always needed prior to lumbar spine surgery.

If you have low back pain, talk to your physician about options for imaging and treatment.

If you have any questions about MRI, talk to us!