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## LOW BACK SPRAIN

Your spine, or backbone, consists of the column of 33 bones and tissue that extends from your skull down to your pelvis. Providing the support of your head and body, your backbone encloses and protects a cylinder of nerve tissues, called the spinal chord. The 33 bones in your spine are called vertebrae (one is called a vertebra). The upper 24 vertebrae join together like links in a chain. In between each vertebra is an intervertebral disk, a band of cartilage that acts as a shock absorber between the vertebrae. When someone has a “slipped disk,” he or she has an intervertebral disc that has slipped out of position, thus causing friction between two vertebrae and extreme pain from nerves being exposed. The lowest nine vertebrae are fused (joined) together in two groups, forming the sacrum and coccyx.

The cervical vertebrae are the seven vertebrae that form the upper part of your spine, between the skull and the chest.

The thoracic vertebrae are the 12 bones between your neck and your lower back. Thoracic vertebrae have cup-shaped surfaces called facets, in which the ribs rest and connect to the spine. These ‘joints’ help the ribs to move up and down during breathing.

The lumbar vertebrae are the five largest and strongest of all vertebrae. They are found in your lower back between the chest and hips. The strong muscles of the back are attached to the lumbar vertebrae.

Your sacrum and coccyx are the bones found at the base of your spine. The triangular sacrum—made up of five vertebrae fused together—supports the spine and connects it to the pelvis. Your coccyx, or tailbone, is formed from four fused vertebrae and has little function.

The vertebral foramen is the hollow part of the vertebrae where the spinal chord (nerve tissues) attaches to your brain and sends signals all over your body.

### **What is a Low Back Sprain?**

Lower back pain affects 6 in 10 adults annually. More workdays are lost to back pain than any other ailment.

A sprain is an injury to tendons, ligaments, and/or muscle. When these tissues become overstretched or torn, they become inflamed, causing pain.

Low back sprain results when the soft tissues of the lower back are stretched or torn. It can result from a sudden injury or from more gradual overuse. Muscle spasms may add to pain and discomfort, making movement difficult. The back is prone to this strain because of its weight-bearing function and involvement in our moving, twisting and bending.

Low back sprain may be caused by a tear in an intervertebral disc in the lumbar area of the spine. When torn, the disc secretes substances that cause inflammation. Low back sprain may impair function for a period of up to 4 weeks. Fortunately the vast majority are self limited at about 3 weeks. In some cases the pain can become chronic or the sprain may recur due to inadequate conditioning.

### **Causes of a Low Back Sprain**

Identifying the specific cause of the sprain is usually impossible. Low back sprain can be due to sudden injuries, which result in overstretching or tearing of the soft tissues. Muscles in the low back are large, and strain is thus more painful. However, because the muscles in the lower back provide the stability and strength for even basic activities like walking or lifting, a sprain can occur from doing any of these activities if the muscles are poorly conditioned. Heavy lifting and twisting, sitting for prolonged periods, and general poor health and fitness also contribute to back sprain.

Lower back pain is often caused by poor posture, such as while sitting at a desk or driving a car, or by excessive muscle tension due to emotional stress. It may also occur during pregnancy when the mother-to-be is carrying the extra weight of the baby.

Care should be taken in diagnosis not to miss an unapparent disc injury. Herniated discs may cause pressure on the nerves, creating additional pain.

Other causes of lower back pain can include osteoarthritis, or in younger patients ankylosing spondylitis, a form of arthritis that affects the joints in the spine.

### **Symptoms of a Low Back Sprain**

The basic symptoms include:

- Low back pain that may radiate into the buttocks, but not to the legs
- Stiffness in the low back area, limiting motion
- Inability to maintain normal posture due to stiffness and/or pain
- Muscle spasms either with activity, or at rest

If pain is severe and not responding to initial treatment, or if the pain radiates to the legs, other tests may be required to determine what is causing the pain. CT scans or MRIs may be ordered in order to assess soft-tissue damage. Other possible causes of injury include a ruptured disk, degenerative disk disease, or fracture of one of the vertebrae.

### **Treatment of a Low Back Sprain**

Immediate treatment is aimed at reducing pain and stiffness, and relaxing the muscle spasm. Bed rest is necessary until standing and walking are possible, generally 1-3 days.

The following positions may prove most comfortable while resting:

- Lying on the back with knees flexed, with a pillow underneath the knees
- Lying on the side with a pillow between the knees
- Lying on the stomach with a small pillow under the lower abdomen

While bed rest is necessary for a short time, however, the less complete rest the more effective healing may be. Prolonged bed rest can lead to a loss of muscle strength, and may in fact make muscles stiffer, adding to pain and discomfort.

Treatment may include a course of non-steroidal anti-inflammatory medication (NSAIDs) or other non-narcotic pain medication to ease pain. Muscle relaxants may be helpful in the first week, but narcotics are not recommended due to the possibility for dependency.

Physical therapy should also be prescribed to assist in healing. Ultrasound, heat, and ice, either alone or in combination, may help relieve muscle spasms, decreasing the pain and swelling. Exercises to slowly stretch out the muscles while they are in spasm may also ultimately assist in reducing pain.

Once the pain has diminished, an exercise program should be instituted in order to strengthen and stretch both the back and stomach muscles in order to prevent further strain. This is the most difficult problem: doing exercises when the pain has left. A good general rule is to do the exercises and stretching for at least the same length of time as the initial pain problem lasted.

If the patient is overweight, a weight loss program may be implemented. Weight on the front of the spine causes the lower back muscles to spasm more continually. This continual strain on the back not only contributes to chronic strain and the potential for sprain, but can also cause disc degeneration and arthritis in the spine.

Long-term treatment should focus on physical fitness, proper lifting and carrying techniques, and proper posture, in order to prevent further injury. Chronically weakened muscles are at a much higher risk of re-injury, so fitness will be emphasized.

Surgery is rarely necessary for a low back sprain. The most common need for surgery is in the case of a disc that has ruptured or "slipped", which causes persistent leg pain.

If pain in the lower back continues to be severe after an initial treatment regime of rest and anti-inflammatory medication, or if pain radiates to the legs, diagnostic tests may be required. Computer tomography (CT) scans or magnetic resonance imaging (MRI) tests can help in the assessment of soft-tissue damage. They may identify other causes of injury, such as a ruptured disk, degenerative disk disease, or the fracture of a vertebra.

If surgery is a must, patients should be aware of some risks that come with surgery. Some of the potential risks of surgery include:

- Injury to nerves and blood vessels
- Risks of anesthesia, including death
- Excessive Bleeding
- Blood Clots
- Infection

You should carefully consider these risks along with the possible advantages of the surgery, and weigh them carefully. Because the rehabilitation process requires so much effort on your part, it is important that you have a positive attitude if you decide to have the surgery.

Lower back strain may develop into a recurring problem unless efforts are made to change habitual ways of walking or lifting. Complete recovery from chronic back pain may require changing one's style of life, occupation, or longstanding dietary habits. The maintenance of appropriate body weight and physical fitness is the best defense against lower back strain.

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