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### **Low Back Pain: Lumbar Disc Disease and Spinal Stenosis**

#### **Your Life Your Health**

**by James L. Holly, MD**

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Benjamin Franklin once said that two things are inevitable: death and taxes. So, too, is low back pain. Almost every American will experience low back pain at some time in his or her life. Moreover, a backache is rarely a once-in-a-lifetime event. The annual price tag for low back pain is estimated at \$50 billion. A great deal of that expenditure is for unnecessary treatments. Left alone -- without bed rest, spinal manipulations, or surgery -- low back pain will usually ease within a few days, or at worst, a few weeks.

In trying to avoid back pain, adults are told that carrying a huge load on their backs may do harm. Yet, school children continue to walk around with heavy backpacks all week long. Back pain is a serious problem in the U.S. and is a growing complaint of many teens. The reality is that for their height, many children are toting around backpacks that exceed the legal weight limits set for adults. Medical research on backpack weight limits has suggested kids shouldn't carry more than 10% to 15% of their body weight. That means that an average 40 pound child should not carry more than 6 pounds. Some of them are carrying 15 pound back packs filled with books.

Adults overstress their backs by the weight and frequency of their lifting and also by how they lift. We all have experienced times when your back is killing you, but you have to get those groceries out of the car. You lift carefully. You go slowly. You try not to hurt yourself, but you do. How could you have re-injured your back? You were being so careful.

The problem is that people with back pain guard the injured area by using more muscles than they need to. The more muscles they use, the greater the load on the spine. People with back pain tried to avoid using hurt muscles. In doing so, they used different muscles and put a lot more strain on their backs than do normal people. Lifting slowly only increases the time that the spine has to endure all that extra force. It actually increases the danger of lifting for people with back pain.

Back pain is complicated because it is so common and because of the varied reasons for it. Almost all of humankind has back pain in common. Many people just live with it, putting up with bouts of pain. But for a few select people, back problems are so severe they become chronic and debilitating, often requiring surgery. Research is suggesting that

a genetic abnormality may dramatically increase the risk of one of the most common back disorders -- lumbar disk disease. They hope this genetic defect may eventually be a target for gene therapy.

Lumbar disk disease affects about 5% of the population. It often causes a herniated disk to stick into the spine resulting in sciatica, a severe pain in the lower back radiating down the back of the thigh and knee to the foot. The disease also causes the disks to wear down, or degenerate. Certain genes regulate the formation of the disks -- the cushions between the bones in your spine -- and the cartilage that surrounds them. Defective genes can interfere with this process.

In analyzing the genes of 171 unrelated Finnish patients with sciatica, researchers found a genetic variation in 12% of patients with lumbar disk disease. Presence of the variation increases risk of lumbar disk disease about threefold. Though the genetic variation does not cause lumbar disk disease, people with this genetic change may be more susceptible to the degenerative forces that lead to the disease. Although back pain is so common, we haven't known what causes it. This research is trying to find the trigger mechanism by which the disk starts to degenerate. If we can find it and stop, or reverse it, it may eliminate the need for surgeries.

However, if unrelenting back pain is already part of your life, what can you do right now?

Tremendous progress has been made in the last 15 years in understanding how the spine works from a mechanical standpoint, how the muscles and joints work and understanding the mechanisms of pain, what seems to cause back pain. The spine is complicated because the muscles, bones, ligaments, spinal cord, and nerves all are a very intimate part of the anatomy in that area.

Degenerative spine disease is responsible mostly for back pain, and that in itself can be quite incapacitating. But when the nerves become involved, patients experience severe leg pain, leg numbness, severe weakness ... and there can be combined problems, tremendous back pain because of spinal degeneration and nerve pain because of pinched nerves.

The two most commonly treated conditions that cause back pain are herniated disk and spinal stenosis, which occurs when the lower end of the spinal column becomes narrowed and compressed, squeezing the spinal cord or spinal nerves.

In the past, these conditions were treated with aggressive, major surgeries, requiring large incisions to expose the back side of the spine and remove a considerable amount of the spine's bony covering as well as muscle ligaments -- a procedure called a laminectomy.

Although laminectomy takes pressure off the nerves and relieves the severe leg pain and symptoms, the spinal degeneration that caused the condition in the first place is still there and continues to progress to some degree. [Surgery] doesn't solve the problem, but treats fairly severe symptoms of the underlying spinal degeneration problem. Microsurgery is the best treatment to date and has been available for 12 or 13 years.

Microdiscectomy treats herniated disk and microdecompression is for spinal stenosis. Both of these minimally invasive procedures, which involve a 1-inch incision and use a laser and special scope, are done as outpatient surgery under a local anesthetic -- so patients go home the same day.

In microdiscectomy, the soft tissues causing pressure on nerves are gently removed using lasers, and 90% to 95% of the time patients have complete relief. Microdecompression involves lasers to remove painful bone as well as the very thick ligament that is pinching the nerves; 90% of the time patients are relatively pain-free afterward.

If raising and crossing your leg causes pain, this indicates that there is very likely a herniated disc. Herniated discs do not always require surgery. After age 60, about 36% of the population has herniated discs, but those herniated discs do not cause pain. And, although 60% of adults seek treatment of back pain, only about 1% to 2% of these cases go to surgery. Physical therapy for back pain shouldn't just focus on regaining back strength. It should also focus on proper use of back muscles. A qualified Physical Therapist can teach you how to lift, how to strengthen and protect your muscles and how to live with your back.

People with back pain need to be reassured assure the patients they will most likely get better soon and to follow up that advice with tips about strategies for limiting further episodes of back pain. For example, patients with desk jobs should be urged to get up and move around every hour or so. People should also consider exercises that extend and flex the back, to strengthen the muscles. But the best advice is to avoid activities that bring on symptoms. If running causes your back to hurt, switch to biking.

In the coming weeks, we'll discuss other methods for dealing with and living with chronic low-back pain. Remember, it is your life and it is your health.