

Oh, My Aching Back

If you have lower back pain, you are not alone. Nearly everyone at some point has back pain that interferes with work, routine daily activities or recreation. Americans spend at least \$50 billion each year on low back pain, the most common cause of job-related disability and a leading contributor to missed work. Back pain is the second most common neurological ailment in the United States - only headache is more common. Fortunately, most occurrences of low back pain go away within a few days. Others take much longer to resolve or lead to more serious conditions.

Acute or short-term low back pain generally lasts from a few days to a few weeks. Most acute back pain is mechanical in nature - the result of trauma to the lower back or a disorder such as arthritis. Pain from trauma may be caused by a sports injury, work around the house or in the garden, or a sudden jolt such as a car accident or other stress on spinal bones and tissues. Symptoms may range from muscle ache to shooting or stabbing pain, limited flexibility and/or range of motion, or an inability to stand straight. Occasionally, pain felt in one part of the body may "radiate" from a disorder or injury elsewhere in the body. Some acute pain syndromes can become more serious if left untreated.

Chronic back pain is measured by duration - pain that persists for more than three months is considered chronic. It is often progressive and the cause can be difficult to determine.

What Structures Make up the Back?

The back is an intricate structure of bones, muscles and other tissues that form the posterior part of the body's trunk, from the neck to the pelvis. The centerpiece is the spinal column, which not only supports the upper body's weight but houses and protects the spinal cord - the delicate nervous system structure that carries signals that control the body's movements and convey its sensations. Stacked on top of one another are more than 30 bones - the vertebrae - that form the spinal

column, also known as the spine. Each of these bones contains a roundish hole that, when stacked in register with all the others, creates a channel that surrounds the spinal cord. The spinal cord descends from the base of the brain and extends in the adult to just below the rib cage. Small nerves ("roots") enter and emerge from the spinal cord through spaces between the vertebrae. Because the bones of the spinal column continue growing long after the spinal cord reaches its full length in early childhood, the nerve roots to the lower back and legs extend many inches down the spinal column before exiting. This large bundle of nerve roots was dubbed by early anatomists as the cauda equina, or horse's tail. The spaces between the vertebrae are maintained by round, spongy pads of cartilage called intervertebral discs that allow for flexibility in the lower back and act much like shock absorbers throughout the spinal column to cushion the bones as the body moves. Bands of tissue known as ligaments and tendons hold the vertebrae in place and attach the muscles to the spinal column.

What Causes Lower Back Pain?

As people age, bone strength and muscle elasticity and tone tend to decrease. The discs begin to lose fluid and flexibility, which decreases their ability to cushion the vertebrae.

Pain can occur when, for example, someone lifts something too heavy or overstretches, causing a sprain, strain or spasm in one of the muscles or ligaments

in the back. If the spine becomes overly strained or compressed, a disc may rupture or bulge outward. This rupture may put pressure on one of the more than 50 nerves rooted to the spinal cord that control body movements and transmit signals from the body to the brain. When these nerve roots become compressed or irritated, back pain results.

Low back pain may reflect nerve or muscle irritation or bone lesions. Most low back pain follows injury or trauma to the back, but pain may also be caused by degenerative conditions such as arthritis or disc disease, osteoporosis or other bone diseases, viral infections, irritation to joints and discs, or congenital abnormalities in the spine. Obesity, smoking, weight gain during pregnancy, stress, poor physical condition, posture inappropriate for the activity being performed and poor sleeping position also may contribute to low back pain. Additionally, scar tissue created when the injured back heals itself does not have the strength or flexibility of normal tissue. Buildup of scar tissue from repeated injuries eventually weakens the back and can lead to more serious injury.

Occasionally, low back pain may indicate a more serious medical problem. Pain accompanied by fever or loss of bowel or bladder control, pain when coughing, and progressive weakness in the legs may indicate a pinched nerve or other serious condition. People with diabetes may have severe back pain or pain radiating down the leg related to neuropathy. People with these symptoms should contact a doctor

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immediately to help prevent permanent damage.

Can Back Pain be Prevented?

Recurring back pain resulting from improper body mechanics or other non-traumatic causes is often preventable. A combination of exercises that don't jolt or strain the back, maintaining correct posture, and lifting objects properly can help prevent injuries.

Many work-related injuries are caused or aggravated by stressors such as heavy lifting, contact stress (repeated or constant contact between soft body tissue and a hard or sharp object, such as resting a wrist against the edge of a hard desk or repeated tasks using a hammering motion), vibration, repetitive motion and awkward posture. Applying ergonomic principles - designing furniture and tools to protect the body from injury - at home and in the workplace can greatly reduce the risk of back injury and help maintain a healthy back. More companies and home-builders are promoting ergonomically designed tools, products, workstations and living space to reduce the risk of musculoskeletal injury and pain.

The use of wide elastic belts that can be tightened to "pull in" lumbar and abdominal muscles to prevent low back pain remains controversial. A landmark study of the use of lumbar support or abdominal support belts worn by persons who lift or move merchandise found no evidence that the belts reduce back injury or back pain. The two-year study, reported by the National Institute for Occupational Safety and Health (NIOSH) in December 2000, found no statistically significant difference in either the incidence of workers' compensation claims for job-related back injuries or the incidence of self-reported pain among workers who reported they wore back belts daily compared to those workers who reported never using back belts or reported using them only once or twice a month.

Although there have been anecdotal case reports of injury reduction among workers using back belts, many companies that have back belt programs also have training and ergonomic awareness programs. The reported injury reduction may be related to a combination of these or other factors.

Quick Tips to a Healthier Back

Following any period of prolonged inactivity, begin a program of regular low-impact exercises. Speed walking, swimming or stationary bike riding 30 minutes a day can increase muscle strength and flexibility. Yoga can also help stretch and strengthen muscles and improve posture. Ask your physician or orthopedist for a list of low-impact exercises appropriate for your age and designed to strengthen lower back and abdominal muscles.

+ Always stretch before exercise or other strenuous physical activity.

+ Don't slouch when standing or sitting. When standing, keep your weight balanced on your feet. Your back supports weight most easily when curvature is reduced.

+ At home or work, make sure your work surface is at a comfortable height for you.

+ Sit in a chair with good lumbar support and proper position and height for the task. Keep your shoulders back. Switch sitting positions often and periodically walk around the office or gently stretch muscles to relieve tension. A pillow or rolled-up towel placed behind the small of your back can provide some lumbar support. If you must sit for a long period of time, rest your feet on a low stool or a stack of books.

+ Wear comfortable, low-heeled shoes.

+ Sleep on your side to reduce any curve in your spine. Always sleep on a firm surface.

+ Ask for help when transferring an ill or injured family member from a reclining to a sitting position or when moving the patient from a chair to a bed.

+ Don't try to lift objects too heavy for you. Lift with your knees, pull in your stomach muscles, and keep your head down and in line with your straight back. Keep the object close to your body. Do not twist when lifting.

+ Maintain proper nutrition and diet to reduce and prevent excessive weight, especially weight around the waistline that taxes lower back muscles. A diet with sufficient daily intake of calcium, phosphorus and vitamin D helps to promote new bone growth.

+ If you smoke, quit. Smoking reduces blood flow to the lower spine and causes the spinal discs to degenerate.

(Editor's Note: This article was prepared by the Office of Communications and Public Liaison, National Institute of Neurological Disorders and Stroke National Institutes of Health, Bethesda, MD 20892.)

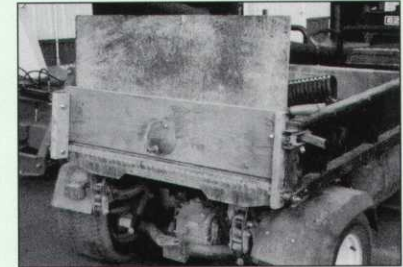
Modifying Truckster Tailgate Simplifies Depositing Gravel At Dacotah Ridge

Over time heavy rain events had taken their toll on the bunkers at Dacotah Ridge. The resulting contamination from the sub grade with fines and silt reached a point that the



water would not pass through to the tile very readily, leaving us with water hazards. Have you heard that story before? You've probably been there, done that.

In late fall we went in and removed the sand a couple feet on



each side of the trench then removed the pea gravel and the tile. After the tile was cleaned it was replaced along with the gravel. The staff discussed and came up with an idea for depositing gravel in the trenches. The truckster, with the modified tailgate, would simply drive along and fill in the trench. The tailgate is a 2 x 12 with a 4-inch hole. The flow of gravel is easily monitored by the angle of the dump bed and the pivoting gate located on the outside of the tailgate. This simple modification saved a lot of backs and labor hours. It worked slick. Give it a try if, I mean when you do your next drainage project.

-- Mike Nelson
Dacotah Ridge Golf Club.