

FACTSHEET

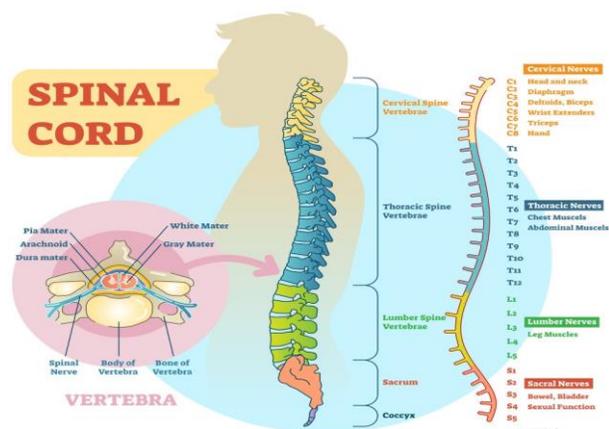
LOWER BACK PAIN

Over 80% of American adults will experience low back pain at some point in their lives and about 20% of those develop chronic and often debilitating low back pain, according to the National Institutes for Health. Back pain becomes more common with advancing age. In 2010, low back pain ranked 3rd among the most burdensome conditions in the U.S. in terms of disability or poor health. Only ischemic heart disease and chronic obstructive pulmonary disease ranked higher.

Anatomy of Back and Spine

The lower back, where most back pain occurs, includes the five vertebrae (referred to as L1-L5) in the lumbar region, which supports much of the weight of the upper body. The spaces between the vertebrae are maintained by round, rubbery pads called intervertebral discs that act like shock absorbers throughout the spinal column to cushion the bones as the body moves. Bands of tissue known as ligaments hold the vertebrae in place, and tendons attach the muscles to the spinal column. Thirty-one pairs of nerves are rooted to the spinal cord and they control body movements and transmit signals from the body to the brain.

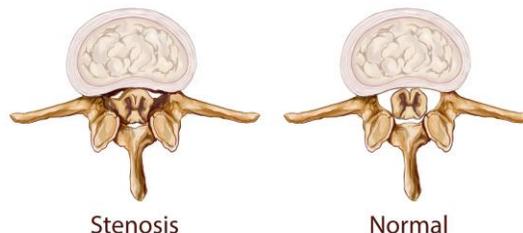
As people grow older, loss of bone strength from osteoporosis can lead to fractures, and at the same time, muscle elasticity and tone decrease. The intervertebral discs begin to lose fluid and flexibility with age, which decreases their ability to cushion the vertebrae.



Causes of Lower Back Pain

Most of low back pain is mechanical in nature. Some examples of mechanical causes of low back pain include:

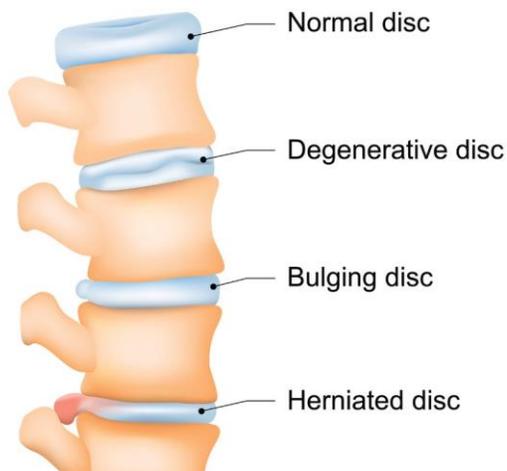
Spinal stenosis is a painful, sometimes disabling condition that is most common in men and women over age 60. It's typically caused by degenerative changes associated with osteoarthritis, such as overgrowth of bone and soft tissue. Among people over age 65, spinal stenosis is the most common reason for having surgery on the lumbar spine.



Spondylolisthesis (spahn-dih-low-LISS-thuh-siss) occurs when a vertebra shifts forward or backward, out of alignment with the vertebra above it. A misaligned vertebra can crowd the spinal cord and pinch the nerves exiting the spinal column.

Degenerative disc disease is one of the most common causes of low back pain. It occurs when the fibrous discs between the vertebrae break down due to natural aging. As it progresses, one or more discs may flatten out and begin to bulge into the spinal canal, compressing nerves exiting the spinal column.

Herniated discs can occur when the outer ring of a disc gives way altogether, allowing the contents of the nucleus to herniate (spill out) into the spinal canal. Disc contents are usually expelled to the side, where nerves enter and exit the spinal column. Disc contents are usually expelled to the side, where nerves enter and exit the spinal column. Nerves and extruded disc material can't all fit comfortably in such a small space, and nerve roots in the area end up getting squished.



Adult degenerative Scoliosis occurs when deterioration of the spine leads to the development of a scoliosis (S or C shaped) curve in the spine. Degenerative scoliosis typically begins after the age of 40. In older patients, particularly women, it is also often related to osteoporosis.

Treatment of Lower Back Pain

Treatment for low back pain generally depends on whether the pain is acute or chronic. A variety of therapies have been shown to offer relief including, exercise, physical therapy hot or cold packs, medications, steroid injections, yoga, acupuncture and acupressure. For some individuals lower back pain will become chronic and these therapies may become insufficient to manage their pain or level of disability. When quality of life or ability to function are significantly impaired, many may consider surgical options.

In general, surgery is recommended only if there is evidence of worsening nerve damage and when diagnostic tests indicate structural changes for which corrective surgical procedures have been developed.

An NIH-funded multi-year multicenter study called the Spine Patient Outcomes Research Trial (SPORT) compared the most commonly used surgical and nonsurgical treatments for patients with the three most common diagnoses for which spine surgery is performed: intervertebral disc herniation, spinal stenosis, and degenerative spondylolisthesis. SPORT represented the largest clinical investigation to date looking at treatment results for these disabling and costly causes of chronic low back pain.

Results after four years of follow-up showed that in general, otherwise healthy people who have surgery for one of these three conditions are likely to fare better than those who receive non-operative care. However, the results also indicated that people who are reluctant to have surgery may also recover with non-operative treatments if their conditions are not progressing and their pain is tolerable.

Sources:

National Institute of Neurological Disorders and Stroke <http://www.ninds.nih.gov>

American Association of Neurological Surgeons <http://www.aans.org>

National Institute of Arthritis and Musculoskeletal and Skin Diseases <http://www.niams.nih.gov>