



Lower Back Pain

An Educational Guide



A publication from the
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Page 2

Table of Contents

Structure of the Spinal Column	3
What are Ligaments	3
Spinal Discs	4
Back Problems	4
Disc Problems	5
Osteoarthritis	6
Osteoporosis	6
Prevention	6
Exercises	8
Sexual Activities	9



Low Back Pain

Health Education for Patients and Families

The following material has been developed to help you learn about the different causes of low back pain, how it may be prevented and relieved, as well as various methods of treatment. These are not appropriate for everyone and before following any recommendations, consult your doctor.

The structure of the spinal column or backbone:

Your spinal column or backbone is a major support structure of your body. It is made of bone segments called vertebrae, which extend from the base of your skull to the area of your lower back. An adult's vertebrae can be divided into five different sections:

- 7 neck (cervical) vertebrae
- 12 middle back (thoracic) vertebrae
- 5 low back (lumbar) vertebrae
- 5 sacrum vertebrae
- 3 tailbone (coccyx) vertebrae

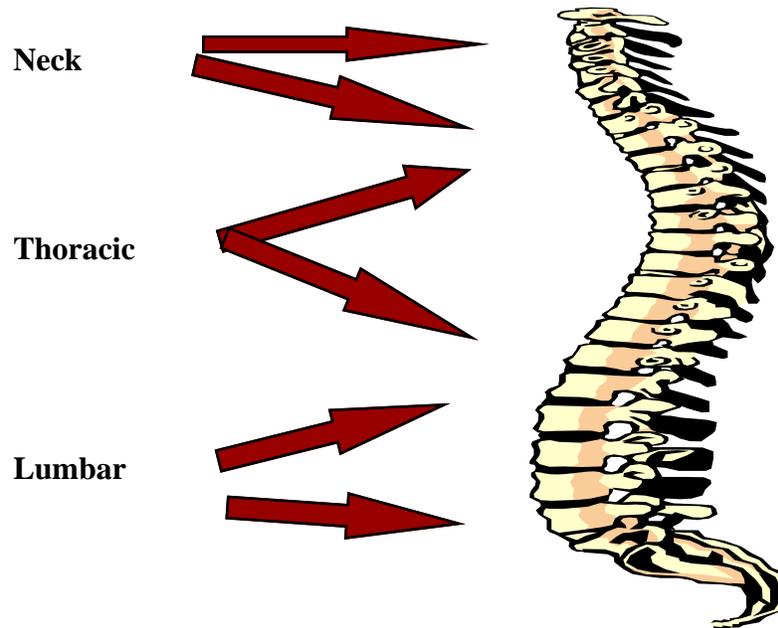
The five lumbar vertebrae are the largest because they carry the majority of weight from your upper body

There are three major functions of the spine:

- 1) Support the body's upright position
- 2) Surround and protect the spinal cord
- 3) Serve as a place of attachment for back muscles and ligaments

What are ligaments?

Ligaments are strong elastic bands that bind the bones and spinal discs together.



What are spinal discs?

In between each neck, thoracic, and low back vertebrae are spinal discs. Each disc has a inner and outer layer. The inner section is a jelly-like mass with outer layers of parallel fibers surrounding it. The fibers hold the jelly-like section in place. Because the discs are very flexible and elastic, they change their shape to conform to your movements. Their main function is to act as "shock absorbers" or cushions so that the vertebrae do not hit one another when you walk, run, etc.

What may cause back problems?

Eighty percent of all Americans will experience back pain in their lifetime. Most of the time, this is self-limiting. One or more of the following factors can cause back problems:

1. Poor posture (the way you stand or sit)
2. Poor lifting techniques
3. Sedentary (non-active) lifestyle
4. Emotional stress
5. Obesity
6. Injury or trauma to the back

What are several types of back problems?

- Muscle and ligament strain
- Disc problems
- Osteoporosis

Muscle and ligament strain:

Muscle problems may occur when weak abdominal and back muscles cannot support your spine adequately. This might happen because of overwork, improper lifting or bending, falling, or poor posture while standing or sitting.

Treatments for acute muscle strain that may be prescribed by your physician include bed rest, aspirin, and/or muscle relaxers.

Muscle strain of a more chronic nature may be treated with physical therapy, massage, heat and/or a heated, therapeutic pool.

Treatment of both short and long term back problems may involve strengthening and protecting the muscles through special exercise, along with maintaining correct posture.

Disc problems:

As you grow older, spinal discs go through structural changes, which cause them to lose flexibility, become narrower, and dry out. Because of these changes, disc problems are most commonly found in the 18 to 38 age group. For example, during childhood and young adulthood, discs have the consistency of milk. At about age 30, the discs begin to take the consistency of yogurt. By the time a person is between 40 and 50 years old, the discs can be compared to shredded pineapple. Beyond age 50, the discs often calcify, making them more brittle. At that time, stiffness and pain sometimes occur.

A herniated disc, also called a slipped disc, is a common problem. With a herniated disc, the outer disc fibers may tear or crack. The soft center will then flow through these tears and create a blister-like bulge. The disc may press against spinal nerves and cause pain or it may produce a chemical reaction that leads to inflammation. The area of the pain depends of where the disc tear is. For example, a disc herniation in the

lower lumbar region may produce sciatica or pain down the leg as well as lower back pain.

Treatment of a herniated disc may include:

- bed rest
- anti-inflammatories
- physical therapy
- manual medicine
- Surgery

Osteoarthritis:

As mentioned before, aging causes the disc to dry out and narrow. The discs become smaller, forcing the vertebrae closer together. This adds more stress to the vertebrae and produces instability. The body will try to correct this by increasing the surface area of the vertebrae. Ridges of bone are formed along the upper and lower vertebral rims. These ridges are called bone spurs or osteophytes. The spurs can press against nerves and may cause pain, numbness, muscular weakness, or stiffness.

A physician may suggest aspirin, heat, physical therapy and/or exercise to relieve the pain.

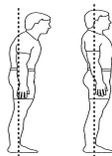
Osteoporosis:

This condition is marked by the gradual thinning of bones, which increases the risk of spontaneous fractures (breaks) in the spine. Wrists and hips may also be prone to fractures. Other symptoms may include a gradual decrease in a person's height and rounding of the shoulders. Osteoporosis occurs most commonly in older people and is often found in women following menopause.

Osteoporosis is usually treated with medication to increase a person's bone density and prevent fractures, physical therapy, and low impact aerobic exercises such as walking and weight lifting.

How can you prevent or decrease low back pain?

Standing:



- Notice your posture. When you stand properly, your weight is distributed evenly, not stressing any part of your back more than another.

- Proper standing: stand up straight with your head up, stomach muscles tight and buttocks tucked in.
- Bend knees when leaning or bending, for example when picking something off the floor.
- Avoid standing for a long time. If you have no choice, change your weight distribution from right to left.
- Try not to wear heels higher than 2 inches because this will increase your back's curvature.

Sitting:



- Sitting places the most stress on your spine.
- “Sit Tall” so your lower back is flat or slightly rounded outward.
- If possible, sit so that your knees are of equal height as your hips by placing your feet on telephone books or a foot stool.
- Use a straight back chair with a curve that supports your back. The seat cushion should be firm so you do not sink more than an inch into it.
- Avoid sitting for longer than an hour. Take breaks by moving and walking around a little.
- Avoid sitting on high stools or backless chairs.
- Avoid swivel chairs or chairs on rollers.

Sleeping:

- The best position is in the fetal position, lying on your side with knees pulled up. The most stressful position is lying on your stomach.
- If you sleep on your back, place a pillow under your knees so they are higher than your hips.
- When getting out of bed, swing your legs over the bed's edge to the floor.
- Use a firm mattress.

Lifting:

- Never bend or lift from the waist with legs straight. Lower your body by bending your knees, keeping your waist straight. Use your thigh muscles, not back muscles when lifting.
- Hold the lifted object close to your body.

- Never twist your body while you lift

Driving:

- Enter a car by sitting first. Then bring one leg into the car at a time.
- Move the front seat forward so your knees will be higher than your hips and the pedals can be reached easily without stretching.
- Sit up straight with back flat against the seat. Avoid leaning forward.
- Place a small pillow or special car seat behind your lower back.
- Readjust your sitting position frequently.
- On a long trip, get out of the car every 30 to 60 minutes for walking and stretching.

Exercise to help strengthen your back:

Before doing the exercises described below, ask your doctor if they are appropriate for your condition.

Also, always include 10 minutes of warm-up stretching in your exercise program. This may help prevent sudden injury or pulling of ligaments or muscles.

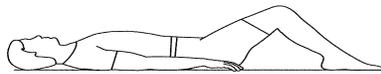
Warm-up exercises:

Stand straight with your feet shoulder width apart. Arms straight over your head. Stretch as high as you can but keep your feet planted on the floor. Hold this for 15 to 20 seconds. Then slowly, bend over and try to touch the floor. Keep your knees flexed. Hold for 5 counts, repeat 3 times.

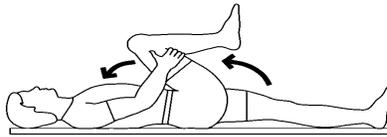
Standing straight, legs apart, place your hands behind your head. Lean over to the right as far as you can and hold for 5 counts, repeat to the left side. Repeat each side 4 times.

Exercises to strengthen you abdominal and back muscles:

Pelvic Tilt: Lie on your back with knees bent. Squeeze buttocks together tightly and pull in abdomen so your back is flat on the floor. Hold for 5 seconds. Repeat 10 times.



Knee raise: Lie on your back, both knees bent. Pull one knee up to your chest with your arms. Hold for 20 seconds. Return to original position and repeat with other leg. Repeat each 10 times.



What About Sexual Activities?

Certain sexual positions may add stress to your back. Don't be afraid to discuss this with your doctor.

How Can You Prevent Recurring Back Pain?

You can prevent low back pain by

- Maintaining proper posture
- Lifting properly
- Exercising
- Losing weight



A WORD ABOUT THE CENTER FOR PAIN MEDICINE & PHYSIATRIC REHABILITATION

Our center is dedicated to improving a patient's quality of life. We utilize current concepts in physical medicine, rehabilitation, and pain medicine to decrease your symptoms, improve your lifestyle, and promote optimum health. We feel that we must address the whole person in order to treat the problem. Addressing only the symptoms without treating other underlying problems will only provide partial relief for the patient. We utilize medications, exercise, and emotional support to provide a positive environment and outlook. We provide all our services within one office so that the patient will constantly be supervised. Any problems that might occur along the way can be addressed quickly so that there is no delay in your care. Our employees are all licensed and our physicians are all board certified. Dr. Kahan, our Medical Director, is board certified by the *American Academy of Physical Medicine and Rehabilitation, American Academy of Physical Medicine and Rehabilitation– Pain subspecialty, International Board of Interventional Pain Physicians, American Board of Pain Medicine, American Osteopathic Board of Physical Medicine and Rehabilitation, and National Board of Osteopathic Examiners*. He is the former Director of Outpatient Services for Rehabilitation at Albert Einstein College of Medicine and has taught over 120 residents in physical medicine and rehabilitation and pain medicine. He continues to give educational lectures on a regular basis.