

Ergonomics / Back Safety

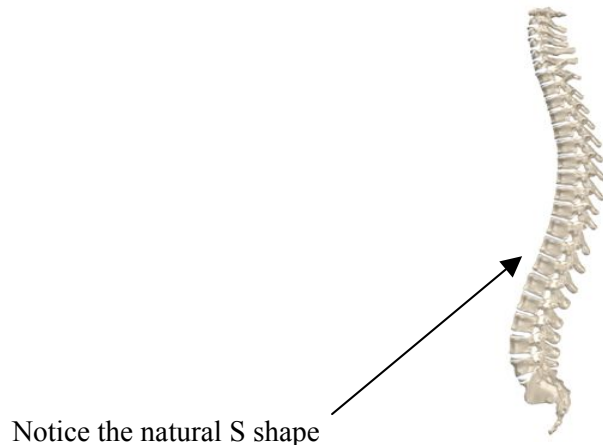
We often think of back safety as only being important for people in heavy physical jobs. The fact is that back safety is important for all of us and not just at work, but at home and at play as well.

Back injuries are considered by OSHA as the nation's #1 workplace safety problem. Back injuries are often: very painful; a long term or lifetime disability; and expensive to diagnose and treat.

Most back problems are related to your spine. Your spine is made up of many small bones called *vertebrae*. These vertebrae are "spaced" by spinal *discs* that act as shock absorbers to cushion and separate your vertebrae. Your spine serves not only to help you sit or stand upright, but also to protect your *spinal cord*. Your spinal cord is the main "information highway" for your entire body, and is composed of millions of nerves. Because your spine is a delicate structure, you will experience pain whenever you strain, sprain, or in some way injure your back.

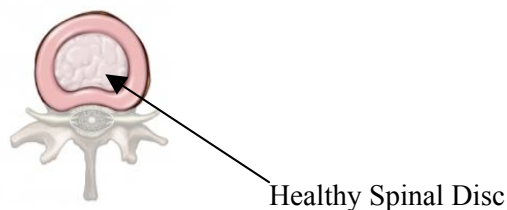
The Spine

Your spine has a natural S shape. Bending this natural S out of shape for long periods of time can lead to muscle fatigue and back pain. When you experience back tension you stretch backwards. Stretching backwards puts the spine in its natural shape relieving tension.



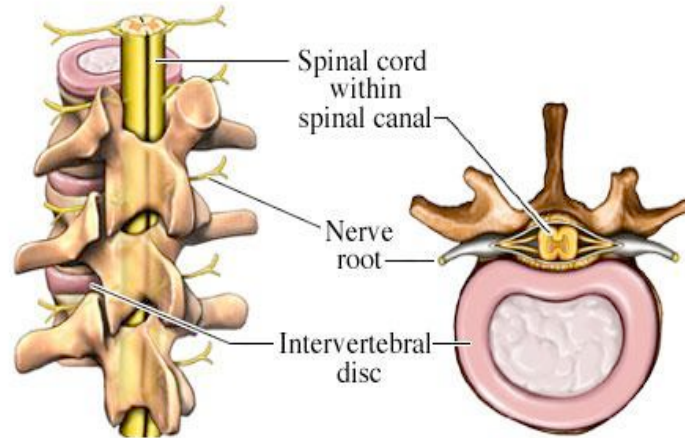
Spinal Discs

The primary purposes of spinal discs are to act as shock absorbers between adjacent vertebrae; ligaments that hold the vertebrae of the spine together and as joints that allow for mobility in the spine. There are twenty-three vertebral discs in the spinal column.



Spinal Cord

The spinal cord functions primarily in the transmission of neural signals between the brain and the rest of the body, but also contains neural circuits that can independently control reflexes.



The back is a complex structure made up of 33 vertebrae, over 30 muscles, ligaments, joints, and intervertebral discs. With so many parts, it is easy to see how you can injure your back and why it is so important to protect your back and to keep your back healthy.

Common back pain

The most common of back pain is *muscular strains* or *lumbar sprains* on the lower back. Strains cause the muscle to be abnormally stretched or torn. Sprains cause the ligaments to tear away from their attachments. Most cases of lower back pain will resolve themselves within several weeks however, if pain is severe or persistent you will need to be evaluated by a doctor.

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 immediately to help prevent permanent damage.

Conditions associated with low back pain

Bulging disc (also called *protruding*, *herniated*, or *ruptured disc*). The intervertebral discs are under constant pressure. As discs degenerate and weaken, cartilage can bulge or be pushed into the space containing the spinal cord or a nerve root, causing pain.

Sciatica is a condition in which a herniated or ruptured disc presses on the sciatic nerve, the large nerve that extends down the spinal column to its exit point in the pelvis and carries nerve fibers to the leg.

Spinal degeneration from disc wear and tear can lead to a narrowing of the spinal canal.

Spinal stenosis related to congenital narrowing of the bony canal predisposes some people to pain related to disc disease.

Osteoporosis is a metabolic bone disease marked by progressive decrease in bone density and strength.

Skeletal irregularities produce strain on the vertebrae and supporting muscles, tendons, ligaments, and tissues supported by spinal column.

Fibromyalgia is a chronic disorder characterized by widespread musculoskeletal pain, fatigue, and multiple “tender points,” particularly in the neck, spine, shoulders, and hips.

Spondylitis refers to chronic back pain and stiffness caused by a severe infection to or inflammation of the spinal joints.

Methods for diagnosing lower back pain.

X-ray imaging includes conventional and enhanced methods that can help diagnose the cause and site of back pain.

Discography involves the injection of a special contrast dye into a spinal disc thought to be causing low back pain.

Computerized tomography (CT) is a quick and painless process used when disc rupture, spinal stenosis, or damage to vertebrae is suspected as a cause of low back pain.

Magnetic resonance imaging (MRI) is used to evaluate the lumbar region for bone degeneration or injury or disease in tissues and nerves, muscles, ligaments, and blood vessels.

Bone scans are used to diagnose and monitor infection, fracture, or disorders in the bone.

Thermography involves the use of infrared sensing devices to measure small temperature changes between the two sides of the body or the temperature of a specific organ.

Ultrasound imaging, also called ultrasound scanning or sonography, uses high-frequency sound waves to obtain images inside the body.

Treatment of back pain

Ice and heat (the use of cold and hot compresses) have never been scientifically proven to quickly resolve low back injury, compresses may help reduce pain and inflammation and allow greater mobility for some individuals. As soon as possible following trauma, patients should apply a cold pack or a cold compress to the tender spot several times a day for up to 20 minutes. After 2 to 3 days of cold treatment, they should then apply heat (such as a heating lamp or hot pad) for brief periods to relax muscles and increase blood flow.

Bed rest — 1–2 days at most. Persons who continued their activities without bed rest following onset of low back pain appeared to have better back flexibility than those who rested in bed for a week.

Exercise may be the most effective way to speed recovery from low back pain and help strengthen back and abdominal muscles. Routine back-healthy activities may include stretching exercises, swimming, walking, and movement therapy to improve coordination and develop proper posture and muscle balance.

Spinal manipulation is literally a "hands-on" approach in which professionally licensed specialists use leverage and a series of exercises to adjust spinal structures and restore back mobility.

Acupuncture involves the insertion of needles the width of a human hair along precise points throughout the body.

Traction involves the use of weights to apply constant or intermittent force to gradually “pull” the skeletal structure into better alignment.

Causes of Back Injury

- Poor Posture
- Improper Lifting
- Stress and fatigue
- Poor general health, lack of physical fitness
- Falling while carrying a load
- Sudden twist while carrying a load
- Jerking or moving incorrectly while carrying a load

Preparing to lift

Prior to lifting, you should warm up your muscles with a couple of stretches like hamstring stretch, side-to-side stretching; touching your toes or Gastroc Stretch. Before lifting or moving an object, test the weight of the load to make sure it can be moved safely. Test the weight by lifting a corner of the object. If it is too heavy or if the object is an odd shape, STOP! If an object is too heavy or awkward to carry on your own, request assistance from a co-worker to help move or lift the object.

Lifting Safely

In most work situations, objects that are very heavy are lifted and carried by machines such as forklifts. However, there are times when you may have to lift, adjust, or carry a heavy object. It is at these times that you run the risk of injuring your back.

Assess the situation

- How far will you have to carry the load?
- Is the way clear of clutter, cords, slippery areas, overhangs, stairs, curbs, or uneven surfaces?
- Will there be doors that are closed?
- Once you get the load up, will you be able to see over the load, or will the load block your view?
- Can the load be disassembled, carried in pieces, and then reassembled?

Executing a safe lift

The first and most important rule to lifting safely is to **NEVER USE YOUR BACK TO LIFT**. Using your back to lift will result in muscle strain and or lumbar sprains. **ALWAYS LET YOUR LEGS DO THE LIFTING.**

- Get your feet close to the object ensuring a firm footing
- Center your body over the feet
- Keeping your back straight, squat down, bending at your knees
- Grasp the load or object firmly and pull it close to you
- Using your legs, slowly lift up while keeping head up
- Keep the load at the center of your body, no higher than the waist
- Tuck your elbows into the side of your body

Carrying the load

- Keep your back straight or slightly arched.
- Walk slowly and surely
- Use your feet to change directions, Never twist your back
- Avoid leaning over
- Avoid lifting a load over your head
- If you become tired, set the load down, and rest for a few moments

Setting the load down

Reverse of lifting a load

- Position yourself where you want to set the load.
- Squat down; Let your legs do the work, not your back
- Remember to keep your head and do not twist your body
- Once the load is where you want it, release your grip.

Alternatives to heavy lifting

When using a handtruck or pushcart, remember:

- It is easier and safer to push than to pull.
- Stay close to the load, try not to lean over, and keep your back straight or slightly arched.
- Use both hands to control the handtruck or pushcart.
- Use tie-down straps, if necessary, to secure the load.
- Avoid stairs and inclines. If you must take a load to another floor, use a freight elevator.
- Never "horse around" with handtrucks and pushcarts.

Forklifts

- If an object is too heavy to lift or carry with a handtruck or load onto a pushcart, use a forklift.
- **Warning:**
Never attempt to operate a forklift or other piece of lifting equipment unless you have been trained and authorized to do so.

I have received, read and understand all information given to me about Ergonomics and Back safety. I understand it is my responsibility to ensure a safe work environment at all times and to use back safety when lifting or carrying heavy objects. I understand it is my responsibility to use back safety where there is concern for possible injury.

Signature: _____ Date: _____

Supervisor: _____