SAFETY BRIEF: **BACK SAFETY & SAFE LIFTING TECHNIQUES**

Chances are good that either you or someone you know has suffered from a back injury at one time. Although the back itself is a marvel at engineering, it is not very resilient and can easily be injured if used improperly. We can greatly reduce the likelihood of injuring our backs by adhering to proper lifting techniques that we will discuss in this safety brief. In addition, simple lifestyle changes such as losing weight and exercising regularly can be of great benefit.

Quick Facts:

- An estimated 2 million back injuries occur annually in the United States
- More than 1 million back injuries are sustainable in the workplace annually
- A staggering 80% of adults are estimated to experience a back injury in their lifetime; and is one of the leading causes of workers' compensation claims
- For 5% of back injury sufferers, the condition will become chronic and disabling
- Back injury is the top cause of "job-related disability"

Anatomy of the Spine:

The average human is born with 33 individual vertebrae that interact and connect with each other through flexible joints called facets. By the time a person grows into an adult, most have only 24-26 vertebrae because some of the vertebrae at the bottom of the spine fuse together during normal growth and development. The spine's vertebrae are held together by ligaments, with muscles attached to the vertebrae by bands of tissue called tendons. Between each vertebrae is a cushion called a disc. Openings in the vertebrae line up to form a long, hollow canal in which the spinal cord runs through starting from the base of the brain. Nerves from the spinal cord branch out and leave the spine through the spaces between the vertebrae.

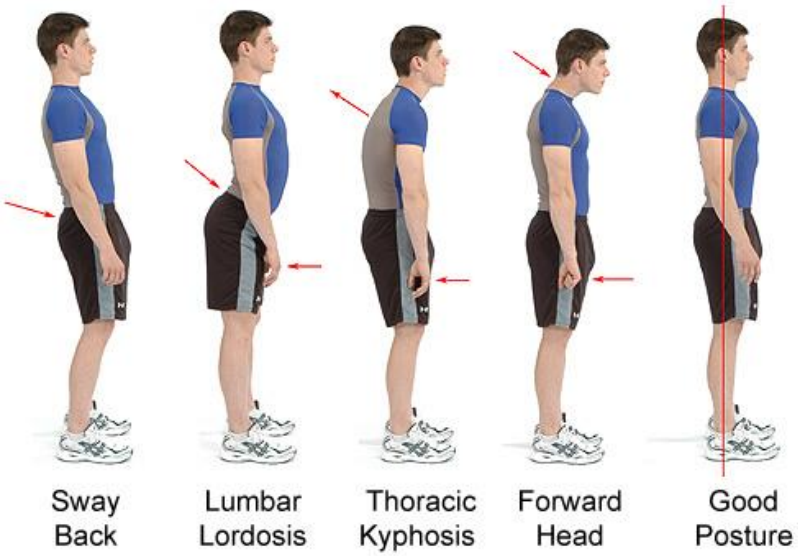
Spine Shape:

A normal spine has an S-shaped curve when viewed from the side. This shape allows for an even distribution of weight and flexibility of movement. "Sway back" is common in teenagers and young adults, and for people who stand for long periods of time with the majority of their weight on one leg. With sway back, the hops are jutted forward, a flattened curve in the low back, and hyperextended knees.

"Lordosis" characteristics include a forward tilting pelvis causing weak stomach muscles and a tightness in the hamstrings, lower back, and hip muscles. This posture is typical in dancers and

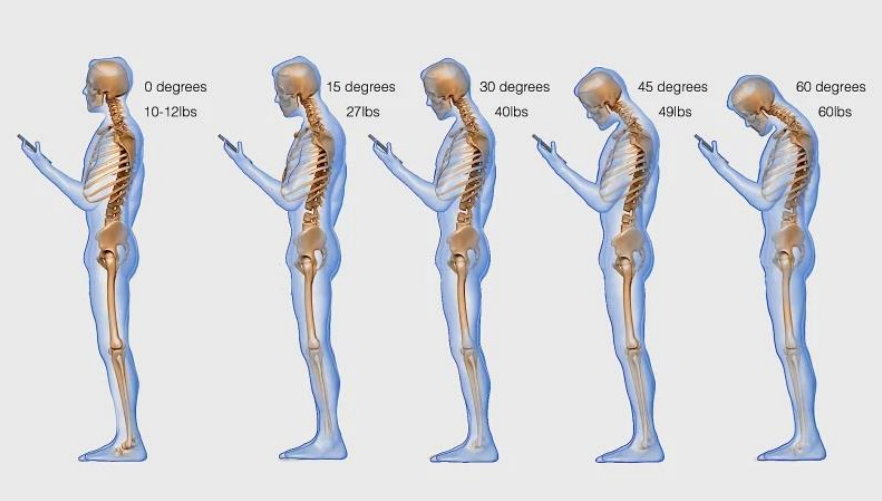
gymnasts who repeatedly stretch for increased flexibility, and in pregnant women due to the laxity of the pelvic muscles.

"Kyphotic" posture is typical in office workers as the excessive rounding of the upper back due to the result of slumping the shoulders forward while craning the neck forward for extended periods of time. Over time, the thoracic spine muscles stretch and the chest muscles shorten. These muscle imbalances happen over time, but they eventually leave us unable to make postural adjustments to correct it. This can cause severe neck and back pain, difficulty breathing, and can result in permanent spinal deformity.



Text Neck:

Looking down at your phone can add up to 60 pounds of pressure on your spine, depending on the angle. That's according to a new study from spinal surgeon Dr. Kenneth Hansraj published in *Surgical Technology International*. People spend two to four hours on average per day with their heads titled downward in activities like texting and reading on their phone, the study said. Over the course of a year, that time adds up to 700 to 1,400 hours of excess stress on the cervical spine, or up to 5,000 hours for high school students. Over time, this cause a hunched forward position and increases the risk of spinal wear and tear. It's "nearly impossible to avoid the technologies that cause these issues," Dr. Hansraj wrote in his report. But people can take preventative steps by looking at their phones while maintaining good posture, defined as having one's ears aligned with their shoulders.



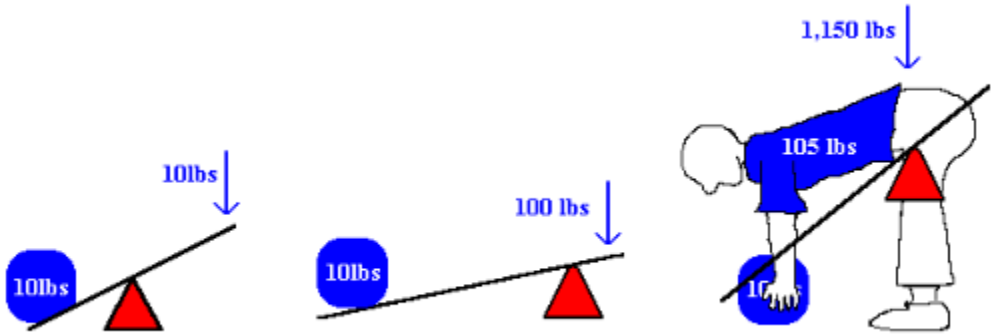
Physical Exposures:

There are many physical exposures in our daily lives that can increase the risk of back injuries. Some of these include; repetitive work, heavy lifting or use of excessive force, awkward postures such as twisting, reaching or bending to pick up or move an item. Awkward load shape of size, overexertion or over use of muscles, working cold conditions, vibrations- machines or power tools that have vibrating pieces, slips, trips, and falls, continuous standing, and poor posture in an office chair. According the Mayo Clinic, additional factors that put an individual at increased risk beyond physical exposures they may experience at work include; smoking, obesity, older age, female gender, physically strenuous work, sedentary work, stressful job, anxiety, and depression.

Back Disadvantage:

Your back operates at a 10:1 disadvantage. So, think of your back as a lever. With the point of the triangle in the center of the lever. It only takes 10 pounds of pressure to lift a 10 pound object. Now, if you shift the point of that triangle to one side (say, you lift by bending at your back and not using your legs), it takes much more force to lift the same object. Your waist actually acts like

the point of that triangle in the lever system, and has now become off centered. When you add in the 105 pounds of average human torso, you see that lifting a 10 pound object actually puts 1,150 pounds of pressure on the lower back. If you were 25 pounds overweight, if would add an additional 250 pounds of pressure on your back every time you were to bend over. Given these figures, it's easy to see how repetitive lifting and bending can quickly cause back problems. Even leaning forward while sitting at a desk or table can eventually cause damage and pain.



Safe Lifting & Handling Tips:

Regardless of what your job is, you most likely will have to lift or move an object at some time. That may be reaching for something on the top shelf, moving items after a delivery, or re-organizing equipment. If you lift or carry something incorrectly, it is possible to injure or strain your back. Here are some tips to correctly and safely lift or carry a load:

- Assess what needs to be done
  - Employees should always consider the weights and distances involved, the heights from where a load is to be picked up or set down, and the frequency of the activity. Never lift more than what you manage safely.
- Decide what can be lifted safely
  - Employees will need to make a measured call on what they can safely lift, based on their capability, the nature of the load, the environmental conditions and what training they have had.
- Identify ways of reducing the risk
  - Before lifting anything, always ask yourself if the item needs to be lifted at all. Maybe the task could be completed with a lifting aid; a hand cart or with additional assistance from a co-worker.
- Rearrange the task
  - Where possible, it's always worth checking whether the task can be re-designed to avoid lifting altogether. If this isn't possible, consider re-arranging the task to

minimize the risk. Maybe it's easier to push rather than pull the object, or break up the distance with rest points.

- Assess the nature of the load
    - Maybe the load can be broken up into smaller items to make it lighter? Can it be made more stable or easier to grasp? Should circular or irregular shaped items be packed into boxes instead to prevent rolling?
- Assess the work environment
    - What kind of walking/working surface? Are you moving objects inside from outside? Are the floors dry? Is there an incline or decline?
- Plan how tasks will be done in advance
- Use safe lifting techniques

Refer to our Model Safety Plan on "Back Injury Prevention and Safe Lifting" in our Loss Control Incentive Program for more information. Additional training is also available through the AMLJIA Online University at www.amljia.org. Log on to the Online University for courses related on this topic such as "Back Safety," and "Workplace Ergonomics." For more information about the Online University, contact the AMLJIA at 800-337-3682.