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UNDERSTANDING AND PREVENTING BACK INJURIES

By SeaBright Insurance Loss Control

The most frequent type of injury in the U.S., both on and off the job, is back strain. In fact, this affliction is ranked second only to headaches as the most frequent cause of pain. Over 80% of adults will suffer some type of back pain during their lives. Costs associated with this problem approach \$90 billion a year in lost wages, medical bills, insurance claims and lost productivity (Duke University).

With this in mind, it may surprise you that back injuries and associated pain can often be controlled with simple solutions like correct posture and basic exercises. Even people who have injured their back in the past can adopt certain strengthening exercises to avoid recurrent injuries.

STRUCTURE OF THE BACK:

In order to prevent back injuries on the job, supervisors should understand how the back and spine are structured. The back is the foundation of the body. It is composed of a carefully balanced mechanism of bones, muscles, ligaments, tendons and nerves that balance and bear the weight of your body, plus the loads you lift and carry.

The spinal column consists of 24 vertebrae and 23 discs that act as cushions and shock absorbers. The spinal column protects the sensitive spinal cord and is sheathed by ligament and muscle tissue.

The spine has three natural curves: the cervical (neck), thoracic (upper back) and lumbar (lower back). Each spinal segment has a nerve network emerging from the spinal cord through a channel in the vertebrae that monitors or controls a particular function of the body. When this system gets out of balance, or wears out, back pain occurs.

CAUSES OF BACK PAIN:

Back pain and discomfort have many sources, both physical and psychological. Some of the more common causes are:

- **Excess weight** and poor muscle tone, particularly around the middle, are common causes of back pain. A shift in the body's center of gravity, due to increased abdominal fat, changes the normal curve of the spine and puts increased pressure on the lumbar area. Incorrect body posture adds to the problem as well. When you slouch or stand with a swayback this exaggerates your back's natural curves. Any imbalance can stress spinal muscles and joints, causing fatigue and injury from over use.
- **Herniated or "slipped" discs** that bulge or rupture from normal wear and tear or excessive strain may cause great pain. Spinal discs have a strong, fibrous outer cover that contains a jelly-like substance on the inside. With heavy, repeated pressure on a disc, this jelly-like substance often breaks through inner layers of the fibrous cover, causing the disc to "bulge" and press upon spinal nerves. This happens in stages. A final, strenuous action may cause it to "rupture" through the outer layer. Considerable pain can be felt in any one of these earlier stages, but they often heal without surgery.
- **Muscle strains and spasms** - Once commonly called lumbago, aches and pains usually signal strained muscles, tendons or ligaments, or inflamed joints along the backbone. If the back is strained, you may feel the pain immediately or develop soreness or stiffness later. Muscle spasm may also occur after an injury. Spasm is the back's response to injury and is designed to immobilize the area and prevent further damage.
- **Osteoarthritis** - Commonly referred to as arthritis, this disease affects many people past the age of sixty. Excessive use, injury or aging slowly deteriorates cartilage, which is the protective tissue that covers the surface of vertebral joints. Discs between

vertebrae become worn and the spaces between the bones narrow. Bony outgrowths called spurs also develop. Over time, the spine tends to stiffen and loses flexibility.

- **Osteoporosis** - As we age, the amount of calcium in our bones decreases. Loss of calcium weakens the bone structure. In some cases, the vertebrae become compressed, resulting in back pain. Many women older than fifty years of age are affected by compression fractures caused by osteoporosis.
- **Sciatica** - This back ailment is named after the sciatic nerve that extends down each leg from your hip to your heel. Nerve inflammation or compression of a nerve root in your lower back can cause sciatica. The pain may radiate down through your buttock to the lower leg. Tingling, numbness or muscle weakness in your legs may also accompany nerve compression. Coughing, sneezing and other activities that exert pressure on the spine can worsen sciatica. Severe nerve compression can also cause progressive muscle weakness.
- **Stress** - Many people experience back pain during stressful periods of their lives. This is sometimes called “a tension headache that slipped!” Pain often goes away once personal, work, or family problems have been resolved. In the meantime, massage, exercise or the other self-care methods described below may be helpful. Proper exercise, in fact, can help reduce both the mental stress and the back discomfort.

MEDICAL DIAGNOSIS OF BACK PROBLEMS:

In order to evaluate and diagnose back problems, a physician may resort to specific studies to confirm or dispute the causes of back pain. Some of these methods, in order of frequency of usage, are:

1. **X-Rays** - These tests can reveal vertebrae problems and degenerative changes in the spine. However, studies indicate that x-rays are not a reliable diagnostic tool for back pain. Perfectly formed spines may experience pain, while unusual spines may be totally pain free.
2. **MRI (Magnetic Resonance Imaging)** - This technique of scanning the body can see “through” bone and delineate soft body tissue, such as herniated discs.
3. **Electro Diagnostic studies** - These tests look at nerve conduction pathways and can confirm nerve compression caused by herniated discs.
4. **Computed Tomography (CT scan)** - This uses scanners and computers to form a cross section of images that can define disc and other problems, such as bone displacement.
5. **Myelography (rarely used)** - A dye, injected into the spinal canal and x-rays of the vertebrae can reveal a herniated disc or other lesions.

HOME CARE MEASURES FOR MINOR BACK PAIN:

- **Apply cold, then heat** - Sources of heat and cold, such as a hot bath and hot or cold compresses, can soothe sore and inflamed muscles. Use cold treatment first. Use an ice bag with a barrier cloth no longer than 20 minutes to the affected area. For warm treatment, use a heating pad on the affected area on a low setting for about 20 minutes.
- **Over-the-counter medications** - Pain relievers such as acetaminophen may help control pain. Non-steroidal anti-inflammatory drugs like ibuprofen can also reduce inflammation that affects muscles and joints.
- **Get plenty of rest and do not exert yourself.** - Practice correct posture. To rest your back, recline, *do not sit*, which will usually increase the problem! (If sent home by the doctor for bed rest, this usually amounts to 2 or 3 days at most.)

Most back pain problems are not life threatening and many doctors recommend home treatment at first. Bouts with minor back pain usually resolve within a few weeks by using simple measures like rest and over-the-counter pain relievers. In most cases, the back eventually heals itself with time and proper care.

FOR CHRONIC PAIN, SEE A PHYSICIAN:

Persistent back pain can signal serious medical problems. The physician should be seen if the back pain is the result of a fall or traumatic accident. Another sign of potential problems is numbness in the legs or other unusual health problems. Your doctor will obtain a history of the problem and observe/examine your posture, muscles and bone structure. He or she may also recommend treatment with a specialist and prescribe treatment including:

- **Back education seminars** - These programs are geared toward managing back pain and preventing its recurrence. Classroom study involves the anatomy of the back and exercises/precautions on how to protect the back at home and work.
- **Massage and heat/cold applications** - When performed by a licensed professional, such as a licensed physical therapist, applications of heat, cold and gentle massage may relieve back pain. Manipulation of the spine may aggravate a disc problem however. Consult with your primary care physician to determine if manipulation is safe for you.
- **Prescription medications** - Anti-inflammatory, muscle relaxers or corticosteroid injections may relieve inflammation on a short-term basis.

- **Physical therapy and exercise** - Therapy and exercise can play a vital role in recovery from back pain. Two to three days of bed rest on a firm mattress will often ease back pain. However, the back needs to be strengthened by prescribed physical therapy and prescribed exercises to help correct posture and improve flexibility.
- **Back Surgery** - This is the last resort if there is unrelenting pain caused by nerve compression. One procedure is called lumbar laminectomy, where the surgeon removes disc fragments that have pressed on nerve roots within the spine. In some cases, the surgery does not remove all the pain and may limit range of motion. Conservative (non-surgical) treatment should always be tried before considering back surgery — and it is wise to get a second medical opinion before taking this step.

EXERCISE IS THE KEY TO PREVENTING BACK PAIN:

Regular exercise is probably the best way to reduce the likelihood of back pain. Such activity can increase aerobic capacity, improve overall fitness and help control weight. Stretching and toning of the back and stomach muscles can help reduce the wear and tear on the spine. Strength training can make arms, legs and lower body stronger. Walking should be emphasized, as most doctors consider it the most acceptable form of both preventive and therapeutic exercise for the back.

If you have injured your back, consult with your doctor before beginning any exercise program. The safest and most important exercise for back recovery is *walking*—usually on a daily basis. Here are some additional tips on proper exercise:

Start slowly - Do not overdo it, especially if you are out of condition from an injury. As weak muscles become stronger, work up to 15 minutes of exercise daily.

Try not to re-injure your back - Once you have fully recovered, swimming and other water exercises are the safest for your back. In addition, workouts on a treadmill, stationary bike or cross-country ski machine are less jarring to the back.

Bicycling is a good option, too. Be sure to adjust the seat and handlebar heights to assume proper posture while pedaling. Avoid activities that involve a lot of twisting or quick starts and stops such as tennis, basketball, football or racquetball.

PREVENT INJURY BOTH ON AND OFF THE JOB:

Back care training at work should emphasize the need to develop good habits 24-hours a day. The following are some lifestyle improvements that can have an impact on your employees' back health:

- **Avoid falls** - A slip and fall can result in a serious back injury. Watch where you walk, wear proper shoes for the job and the working environment.
- **Maintain the natural curve in your lower back** while standing, sitting, leaning or lifting. Correct posture helps avoid distortion of the nerves, discs and bones in your lower spine.
- **Bend your knees and lift with your legs** - Plan your lift and know where the load is going and how you will get there. Pushing is safer than pulling. Avoid twisting while lifting and reaching overhead. Make sure your footing is on non-slip surfaces.
- **Keep the load close to your body** - This is the most important rule to remember when lifting or carrying. Because of the leverage principal, the further away from your body you hold the load, the “heavier” it is.
- **Check your sleeping habits** - We spend about 1/3 of our life in bed, so lie in a good position on a firm mattress. Use pillows for support, but do not use one that forces your neck into an extreme angle.
- **Heed your body's warning signals** - If your back hurts, stop what you are doing and rest. If you must stand or sit for prolonged periods, change your position often. Avoid any unnecessary bending, twisting or reaching.
- **Plan lifting tasks** - Think through and reorganize work and leisure activities that could potentially injure your back. Do not rush your material handling activities - take time to be careful.

WHAT SUPERVISORS CAN DO TO PREVENT EMPLOYEE BACK INJURY

Discuss back care during employee orientation: This is a leading cause of time loss injuries, so it is never too soon to address back care. Find out if new employees know how to lift properly by asking them to *describe* and *demonstrate*. Also, make it clear that lifting limits exist and workers are expected to *team lift* heavy loads.

Conduct effective on-going safety training: The important subject of back and muscle strain deserves attention several times a year. At crew meetings, ask for *demonstrations* of proper handling the materials and equipment used in your operation—do not just talk about it. Be sure to cover matters of twisting, reaching and leaning over to work, as well as how to lift objects.

Match the right employee to the job: Do not assign short employees to tasks that require a lot of stretching. Avoid assigning tall workers to jobs that require much bending or stooping. Workers with less strength should not be put in positions that require repeated heavy lifting. Any employee with existing back pain should be assigned to lighter duty jobs with little or no lifting. If you do not have control over placement, at least make sure workers know ways to avoid strain and injury.

Observe and correct improper lifting habits: Lifting improperly can be a hard-to-break habit. Employees who do so will eventually strain their back. As a supervisor, part of your role is to point out and correct any unsafe employee acts. Be sure to check up later to see if they are following your reminders. New habits need *booster shots* before they “take.”

Use material handling aids whenever possible: Hoists, hand trucks, carts, slings, lift tables, pallet jacks, conveyors, positioners and automated systems all reduce the potential for employee material handling injuries. Give workers reminders to *push*, instead of pull, and to avoid twisting when using this equipment.

Study and correct any ergonomic problems: Examine computer workstations, assembly tables and other work areas to determine if they permit proper body positioning, accommodate individual employee differences, or exceed lifting capacity.

Promote wellness: Workers who are unhealthy or out of shape are more likely to injure their back. Company supported wellness programs have reduced sick time and work-related injuries in their employee population. Do what you can to support these efforts.