



Back Injury & Prevention

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Purpose

This program is designed to help districts reduce injuries that occur when lifting and moving materials. It identifies work areas, tasks and procedures that place employees at risk of injury. Examples cover actual methods that have been used by businesses to reduce the risk of injury.

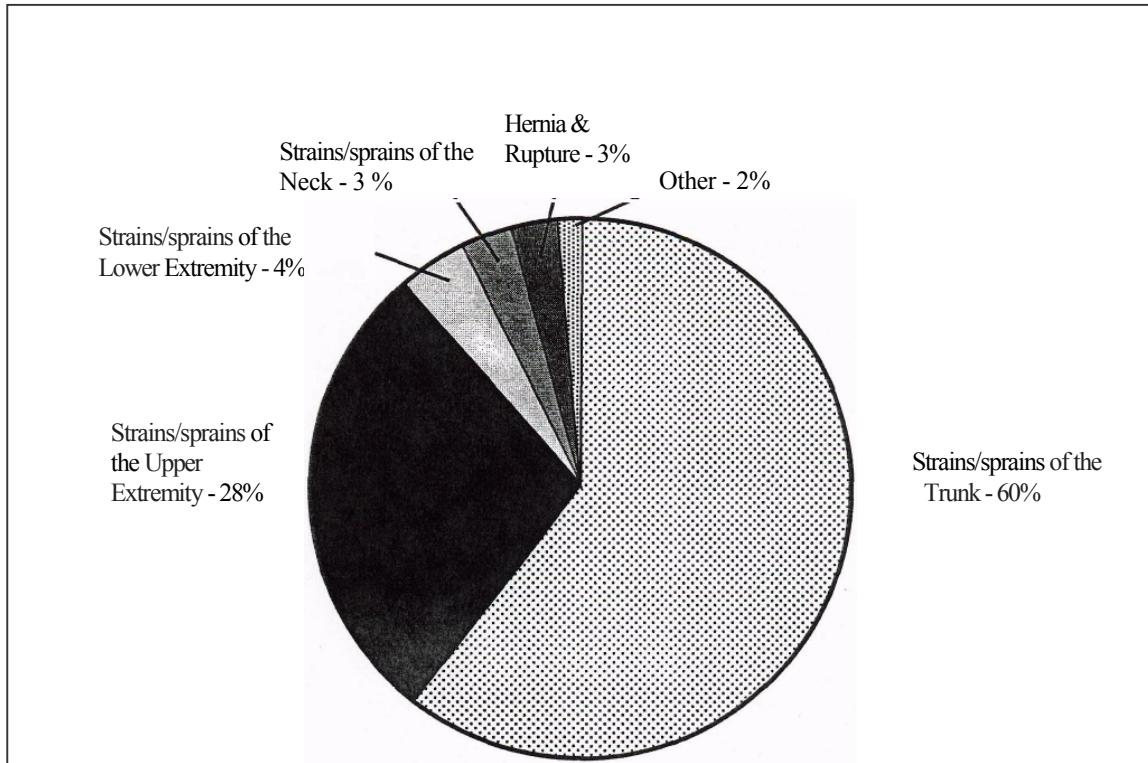
Scope

The program addresses three areas: causes of injuries, lifting techniques, and injury-preventing stretches.

Background

Between 1992 and 1998, Labor and Industries accepted approximately 1,166,000 workers' compensation claims from State Fund employers. Of those, 301,000 were the result of an "overexertion" type of exposure. That's almost 26 percent of all State Fund claims. An overexertion claim is defined as any non-impact injury that results from lifting, pulling, pushing, carrying, welding or throwing objects. Overexertion claims cost the State Fund more than \$1.05 billion between 1992 and 1998 - an average of \$150 million per year. The pie chart on the following page shows the distribution of overexertion claims by the nature of injury. The majority of these injuries, classified as sprains/strains of the trunk.

PERCENT OF DISTRIBUTION OF OVEREXERTION CLAIMS BY NATURE OF INJURY, 1992 –1998



Other factors that may contribute to low back pain, and should be considered when investigating possible causes include:

- Poor physical fitness
- Lack of flexibility
- Participation in certain recreational activities
- Emotional stress
- Lack of rest
- Poor back support when sleeping
- Poor posture when sitting and standing for long periods

Although an employer may have some control over these factors, in most cases employees have the greater control. This program will focus on those factors that the employer can control in the workplace and suggest ways to eliminate hazards on the job that contribute to back pain and disability.

Regulations (WAC 296-126-096)

Any lifting, carrying, pushing or pulling duties shall be made known to the prospective employee at the time of employment. Instruction shall be given on proper lifting techniques.

Back Pain and Common Disorders

Identify tasks or processes in the work environment that are responsible for overexertion injuries and back pain are important. The main structure in the back that provides support and allows for movement is the spine. The spine is composed of 33 separate bones or vertebrae, 24 of which are movable. Each of the 24



movable vertebrae are stacked on top of each other and separated by a fibrous cartilage called a disc (Figure 1). Each disc consists of a tough fibrous band of tissue that surrounds the inner core of gel-like substance. The inner gel-like substance consists mainly of water, and acts like a hydrostatic shock absorber to protect the spine from large compressive forces. The outer wall protects the inner contents and prevents the gel from leaking out. Over time the outer wall can start to break down due to frequent stresses from activities such as repetitive lifting, awkward work postures and standing on hard surfaces, all of which accelerate the process. When the disc wall develops a weak spot, it can begin to bulge. This disc bulge can put pressure on the nerves in and around the disc, causing pain. If pressure and wear and tear continue on the disc, the outer wall can rupture or herniated. Not only can this put additional pressure on the disc and spinal nerves, it can make the vertebrae on top and below the disc unstable. This instability can place more pressure on the surrounding nerves as well as stressing ligaments attached to each vertebra.

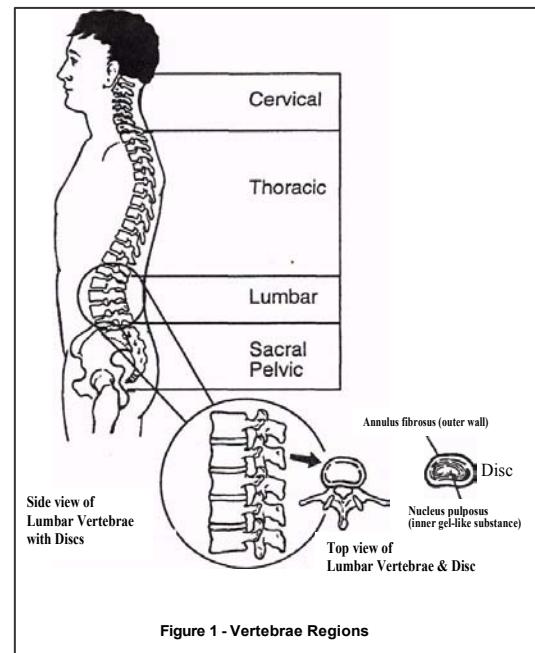


Figure 1 - Vertebrae Regions

In addition to low back pain associated with disc problems, pain can commonly be attributed to muscle strains and ligament sprains. These injuries occur when the back is bent too far in one direction, bent repeatedly, or when too much load is applied in a bent position. When injury occurs from overstretching or overloading, inflammation can occur. In addition, the larger muscles in the back may begin to spasm. If the muscle and ligaments aren't allowed to heal properly before being stressed again, scar tissue can develop. Because scar tissue is not as strong or flexible as normal muscle or ligament tissue, it is prone to recurring injury.

Causes of Back Pain and Injury

In some cases, an accident may have resulted in a pulled muscle. But the muscle really didn't become bothersome until after several weeks or months of repetitive lifting or awkward work postures. In other

cases, months or years of repetitive lifting, pushing, pulling and carrying didn't become noticeable until a single lift produced significant pain from a bulging or ruptured disc.

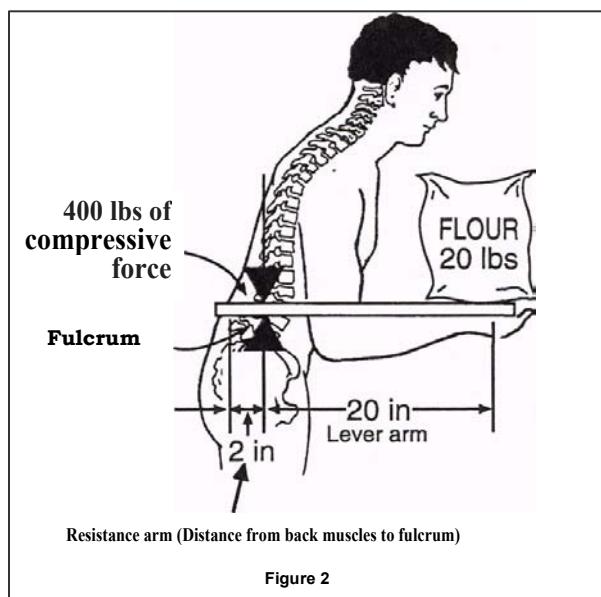


Figure 2

The low back is especially susceptible to breakdown due to the mechanics of the human body and the type of tissue and structures that make up the spine. As illustrated in Figure 2, the upper body can be thought of as a lever arm and the low back as the fulcrum point at which the trunk rotates around. For this reason, the compressive forces on the spine are the greatest in this region and consequently can cause the most damage to the discs that sit between each



vertebra. For instance, lifting a 20 lb. bag of flour 20 inches away from the body produces approximately 400 lbs. of compressive force on the disc at the fulcrum point. This is 20 times the weight of the actual object lifted! In this case it is not only the distance of the sack of flour from the body that contributes to the large compressive force, but also the weight of the trunk as it is bent forward. The muscles in the back have to work to support the flour sack and the weight of the upper body. For this reason, even if a person is not lifting an object, large compressive forces are produced just to maintain the trunk in a forward bent posture. Therefore, tasks that require employees to work in forward bent postures, also contribute to the risk of developing low back pain.

Risk Factors Associated with Lifting and Moving Materials

Risk factors are characteristics of the job or task that increase the risk or chance of sustaining a low back injury. The more risk factors that are present on the job, the greater the employee's risk of back injury. Heavier objects require more muscle force to stabilize the trunk and produce greater compressive forces on the spine. Heavier objects are also more hazardous to handle for the following reasons:

1. Heavier objects require more strength to handle, which limits the number of employees who can safely handle them.
2. When an object is too heavy for an employee to easily move, an attempt to force the object to move by assuming an awkward posture or using momentum to jerk or twist. Abruptly twisting the back while lifting or quickly accelerating objects produces even larger forces on the spine, and greatly increases the risk of muscle and ligament strains and sprains as well as wear and tear on the discs.
3. Heavier objects require more energy to handle and can cause early whole-body and local muscle fatigue. As an employee becomes fatigued, they will be more likely to make errors, use improper lifting techniques, and cause an accident that could produce more severe consequences than a back injury.

CONTROLLING RISK FACTORS IN THE WORKPLACE

Control methods are changes that can be made to the physical work environment, equipment, tools, work processes, and employees' behavior to reduce the number or level of risk factors. Most control methods fit into one of three general categories:

Engineering controls

These are physical changes or modifications to workstations, tools, or equipment that make it easier for employees to handle materials. Engineering controls may also improve material handling by using equipment or tools in areas where they weren't used in the past. An example would be using a hand truck to move bags of flour from a pallet to a mixing area, rather than manually carrying them. Another example of an engineering control would be raising the height of a work surface to reduce the amount of bending forward required by the employee to work on materials.

Administrative controls

Procedures for safe work methods that reduce the duration, frequency, or severity of exposure to a hazard. Administrative controls include gradual introduction to work, regular recovery pauses, job rotation, job design and maintenance and housekeeping. One example would be redesigning a job that



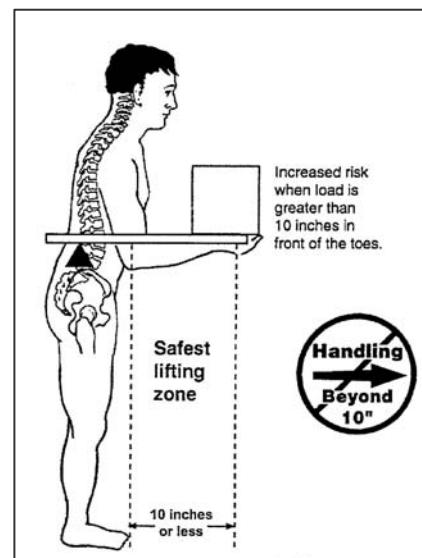
normally requires two hours of continuous handling, to include a five-minute recovery period for every 15 minutes of continuous handling. Reorganizing the order in which tasks are performed can significantly reduce physical and mental stress and potentially prevent a fatigue-related injury or accident.

Training

Training involves educating workers and managers about the potential risks of back injuries, their causes, symptoms, prevention and treatment. Training can also involve education on safe lifting techniques and proper body mechanics. Training should also involve employees by letting them know they can come to management when they recognize a hazard and work together to develop a solution. When physical changes are made to the workplace (new equipment or tools, for example), employees should be trained to use them correctly.

HORIZONTAL DISTANCE OF LOAD FROM BODY

The horizontal distance of the load away from the body is the distance from the low back to the hands when handling an object in front of the body. The greater this distance, the larger the compressive forces on the vertebrae and discs.



Cumulative & Acute Trauma

CUMULATIVE TRAUMA

Back pain that gradually develops from years of repeated subtle strains to the back, such as: carrying out simple tasks like brushing your teeth, sitting at a desk, carrying groceries, sleeping on your stomach, carrying luggage, poor posture, medical factors like age or other disabilities, lack of exercise, stress, etc.

The two most common types of cumulative trauma back injuries are disc injuries and muscular injuries.

Disc Injury Stages:

- The disc's fibrous outer rings weaken and tear.
- The disc's inner fluid escapes through the tear, presses against a nerve, and causes pain.
- Continued stress eventually causes the bulging disc to rupture.

Muscular Injury Stages:

- Back muscles and ligaments are strained or torn.



- Injured muscles and ligaments bleed and become inflamed.
- Muscle spasm-pain cycle results.

ACUTE TRAUMA

An immediate injury resulting from an acute or sudden trauma, such as:

- An automobile accident
- A slip or a fall
- A blow to the back or neck
- A number of other serious accidents
- Improper lifting technique
- Overexertion

Lifestyle

Sleeping on your stomach can cause cumulative trauma by twisting your neck curve and exaggerating the low back curve. Instead of sleeping on your stomach, sleep on your side with a pillow under your head and between your knees. When you sleep on your back use pillows to elevate your head and your knees. Sleep on a firm mattress and if you have to sleep on your stomach, put a pillow under your stomach to avoid sway back. Also, when getting out of bed, remember to roll onto your side and push your body upright using your arms rather than straining your back by sitting straight up.

Back stress can develop while sitting at a desk, reaching for something high, lifting improperly, standing for prolonged periods of time, etc.

Age is often associated with back pain, although it is not a direct cause. Age is accompanied by deterioration in physical condition and loss of muscle tone, which in turn can cause back pain. The process can be reversed through exercise.

Exercise is important because your general physical condition influences the condition of your back. A good exercise program can help keep your back healthy by giving key muscle groups flexibility and strength. Here are a few good ideas when starting your exercise program:

- ***Consult your doctor*** before beginning any exercise program.
- Exercise regularly.
- Warm up thoroughly before starting any vigorous exercise and cool down afterward.
- Maintain good posture throughout your workout.
- If the exercise starts to cause pain, stop doing it.

Diet is important, due to excess weight. A large sagging stomach can place extra strain on the back. Too much weight pulls the spine out of alignment and puts pressure on the discs. Maintaining normal weight and building strong abdominal and back muscles will take care of this problem.



Proper Lifting Techniques

The height, weight, and age of an employee contributes to lifting capability. General physical condition and frame are also important. For example, an employee who is exceedingly overweight or abnormally tall or short will not have the same lifting strength as the average employee in their age group.

The employee's past experience and training contribute to his lifting capability.

Lifting ability varies from employee to employee and type of job.

For occasional lifting, women should not lift more than one-third their own weight; or more than one sixth their weight when lifting jobs are frequent.

For men, one-half their own weight is the recommended limit when lifting occasionally. For frequent lifting, the load should not exceed one-third their weight.

The object's weight is not the only factor that determines the difficulty of a lifting task. Pay attention to its size, shape, bulk, height, position, and center of gravity. An object that is particularly large will be more difficult to lift than a smaller object of the same weight.

Keep the work room temperature at a comfortable level. An overheated room will quickly drain the energy from workers. If you're lifting jobs come frequently, take just a moment to rest every few minutes. You'll find you have more energy for the next lifting tasks. A cold room can cause problems with numb fingers (difficult to hold objects) and icy floors (slips and trips).

PRECAUTIONS TO TAKE

Always "size up" the load. Know what you're lifting. Loose material in a box can shift and throw you off balance. If you are lifting a box, make sure the bottom and sides are secure. Don't carry more than you can manage. Split a heavy load.

Know where you're going with the load and plan a direct, obstacle-free route. Make sure ramps and stairways are clear. Come to full stops at corners and aisle intersections. When you go through a doorway, keep your hands out of the way. If you can't see over or around your load, get help.

Sacks or bags should be grasped at opposite diagonal corners. They can be carried on the shoulder by resting it on your shoulder, arm and back. Hold the bag or sack by the front corner. Lower the bag or sack by swinging it from your shoulder to your hip. Hold the load against your stomach and bend your knees to lower it.

Overreaching and stretching to reach overhead may cause muscle strain. Move closer to the object and use a secure platform.

When you can use a mechanical help such as a push cart, dolly or wheelbarrow to bear the load.

Never drop a load.



Do not lift anything in an awkward position.

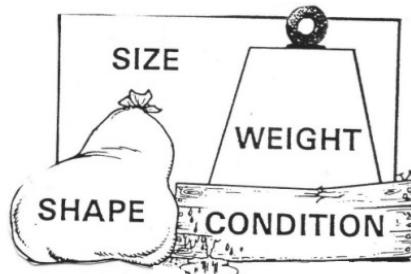
Always push loads instead of pulling.

If standing for an extended length of time. Place one foot at a different elevation.

STEPS TO SAFE LIFTING

Here's a proven method of lifting, which will help prevent muscle sprains and injuries to your back. Begin by sizing up the load, your work area, and environment.

Look for jagged edges, rough boards, nails, or wire ends that may injure your hands or fingers. Be sure to wipe off wet objects that may slip from your grasp and wear appropriate personal protective equipment.



START THE LIFT

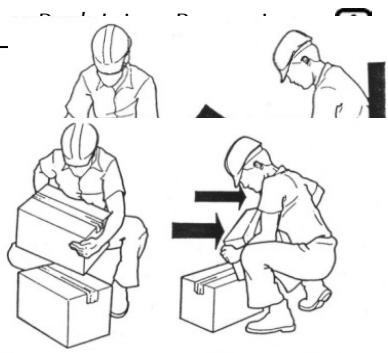


1. To set up for lifting, spread your feet apart, one along side and one behind the object.

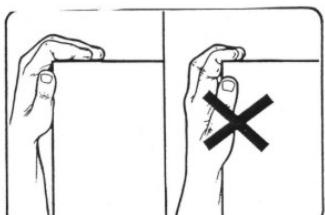
2. Straddle the load, bend your knees, and lower your body into a squatting position. Keep your back straight.

STRADDLE THE LOAD
BEND YOUR KNEES
KEEP YOUR BACK STRAIGHT

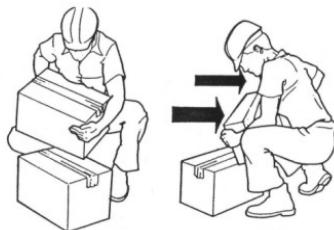




3. Grasp the object near the top of the farthest corner, wrapping your palm around the edge. Hold the opposite bottom corner of the object in the palm of your other hand and keep your elbows and arms tucked against your sides.



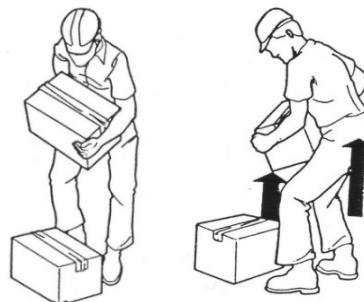
4. Always get a grip with your whole hand. Do not strain by lifting with only your fingertips.



5. Tip the object forward slightly, testing its weight and pull it close to your stomach. You may rest it on your legs.



6. Get a good grip on the load. Pull in your stomach; tuck in your chin so your neck and head continue the straight back line for a good pelvic tilt. This keeps your spine straight and pressure on the spinal disks evenly distributed.



7. Begin to lift straight up, smoothly, without stopping, by pushing your legs, keeping the load close to your body, your back straight, and using the pelvic tilt.



8. Complete the lift to a standing position and be sure your hold is secure before moving. When you need to turn, use your feet as a pivot point. Do not twist while lifting.



9. Lower the load by using your leg and back muscles. Use your pelvic tilt for added strength. Never bend your back, instead, **BEND YOUR KNEES!**

DO'S AND DON'TS REMINDERS

- Don't try to recover a dropped load.
- Lift mentally; first try to foresee any hazards and clear them.
- Keep balanced. Don't lift while in an awkward position.
- Get help for lifting heavy or awkward loads.
- Don't pull heavy loads, push instead.

Other Back Straining Activities

SHOVELING

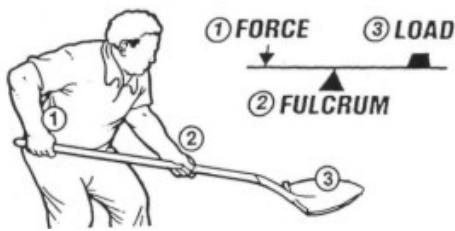


1. Holding a shovel at the end of a handle is like holding the load at arms length. Also, your feet should be pointing towards the shovel blade.



2. Avoid twisting your back, which results from the incorrect position of your feet and legs. Use your feet to turn your whole body.

**The closer the fulcrum to
the load the less force
required to move it**





3. The right way to hold the shovel is with one hand holding the shovel closer to the blade. This hand acts like a fulcrum. The closer to the load, the less effort is required to lift it.



4. Bend your knees; align your back with the pelvic tilt by tucking in your chin and pulling in the stomach muscles. Use your thigh as a fulcrum for the shovel to minimize strain.

5. Leaning forward in a crouch, the lift is started upward by using the leg muscles, pivot your feet to swing the shovel, turning the blade from horizontal to vertical to dump the load.



DRIVING

Like lifting, driving requires support for your whole back. Use a rolled up towel (or lumbar support) and adjust the seat so your knees are above hip level.

ALTERNATIVE LIFT

The "hip bend" lift is used for loads you can't get close to. Putting your buttocks out behind you helps keep your spine balanced and protected.

Use the alternative lift when the ideal lift is impractical, as when lifting someone from a bed or retrieving materials from hard to reach places.

To do this lift, get as close to the load as possible. With your buttocks out and your head and back in a straight line, tighten your abdominal muscles and bend your knees. Then lift using your leg, buttock, and abdominal muscles.

Stretches and Exercises

STRETCHES

Stretching is vital, prior to strenuous exercise or activity, and there are several stretches you can do through the day to keep your back from tightening or from being injured.

Guidelines:

1. Before each stretch, stand relaxed, with feet shoulder's width apart, knees slightly bent, and keep your back straight by contracting your abdomen.



2. Do the stretches at your own individual rate and ability.
3. Stretch to the point of comfortable tension.
4. Do not strain when you stretch.
5. Hold each stretch while you count to 10 slowly (20 seconds).
6. Do not bounce while stretching.
7. Breathe in a relaxed manner.
8. Make stretching a part of your daily routine. If you have questions about your ability to perform any stretches, consult your physician.

Standing Extension Stretch

Stretch

- Raise arms overhead directly above head
- Interlock thumbs
- Extend body upwards on toes

- Spread fingers, applying pressure to thumbs



Wrist Extension Stretch

- Place palms together in front of chest, elbows bent
- Lift elbows



Wrist Flexion Stretch

- Extend arms straight in front of chest
- Place backs of hands together
- Flex wrists toward elbows



Neck Stretch

Slowly lower head to right shoulder
Repeat in all directions, left, front, and back



Shoulder Stretch

- Place right hand on middle of upper back
- Pull right elbow gently downward with left hand
- Repeat on opposite side



Upper Back Stretch

- Grasp right elbow with left hand
- Pull elbow horizontally across body while looking in opposite direction
- Repeat on opposite side





Back Extension Stretch

- Place hands on back of hips
- Gently arch upper body backwards
- Maintain support with arms and hands
- Push upward with hands and arms for recovery



Lateral Rotation Stretch

- Grasp left hip with right hand
- Extend left arm horizontally to left side, palm up
- Rotate only upper body and head to the left, extending fingers downward
- Repeat on opposite side



Lateral Stretch

- Place right hand on right hip
- Extend bent left arm overhead
- Bend upper body and head to the right
- Repeat on opposite side



Shoulder Rotation Stretch

- Clasp hands behind back
- Keep knees slightly bent
- Bend forward at waist to a 45 degree angle
- Lift arms upward
- Return to upright position by bringing hips forward and pushing upward



Lateral Flexion Stretch

- Place right and left hands on left hip
- Rotate upper body and head to the left
- Slowly bend from waist
- Repeat on opposite side



Hamstring Stretch

- Assume stride position with right leg forward, legs straight, feet flat on floor
- Place both hands on right knee
- Rotate hips toward left leg
- Push upward with hands and arms for recovery
- Repeat on opposite side





Quadriceps Stretch

- Place left hand on stationary object for balance
- With right hand, grasp right foot behind right hip, knee pointed downward
- Pull foot upward
- Repeat on opposite side



Calf Stretch

- Assume a stride position with left leg forward
- Keep right leg straight with foot flat on floor
- Place both hands on left knee
- Move hips forward
- Repeat on opposite side



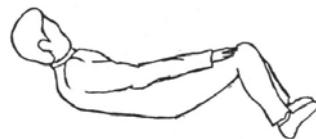
Squat Stretch

- Assume a squat position, hands on knees
- Keeping head and back straight, lower upper body until thighs and chest are parallel to floor
- Gently push upward for recovery



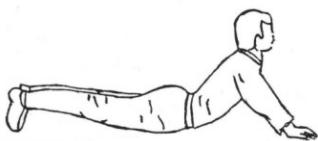
STRENGTHENING EXERCISES

Modified Sit-ups: To strengthen abdominal muscles. From starting position, tighten stomach and slowly curl up head, neck and shoulders, extending hands to knees. Keep low and middle back on floor. Return to starting position. Relax and repeat.



Wall Slide: With your back against a wall, slide to a sitting position and hold as long as possible.

Press-up: Lie down with hands near shoulders and pelvis on floor. Press up painlessly, hold, and repeat.





Sitting Bend: From sitting position, push lower back against back of chair. Bend over, reach hands toward floor. Hold for a count of three, return to starting position. Repeat.



Knee Bend: Stand and hold on to a counter or heavy chair for balance. Tighten buttocks and stomach muscles. Squat down. Stand up, using legs to power you. Your back should remain as straight as possible. Relax and repeat.



Conclusion

Back injuries are preventable. Nearly every activity performed by a worker involves the use of the back and has some degree of risk of injury. Those risks coupled with the lifestyle factors addressed in this program should be taken seriously. Applying the information discussed in this program can greatly reduce the likelihood of permanent or disabling back injuries.



Appendix A: NIOSH Back Belt Study

December 5, 2000

Contact: Centers for Disease Control and Prevention (CDC)
National Institute for Occupational Safety and Health(NIOSH)
Fred Blosser, Media Relations (202)401-3749

NO EVIDENCE THAT BACK BELTS REDUCE INJURY SEEN IN LANDMARK STUDY OF RETAIL USERS

Washington, DC—In the largest study of its kind ever conducted, the Centers for Disease Control and Prevention's (CDC)'s National Institute for Occupational Safety and Health (NIOSH) found no evidence that back belts reduce back injury or back pain for retail workers who lift or move merchandise, according to results published today in the *Journal of the American Medical Association (JAMA)* Dec. 6th issue.

The study, conducted over a two-year period, found no statistically significant difference between the incidence rate of workers' compensation claims for job-related back injuries among employees who reported using back belts usually every day, and the incidence rate of such claims among employees who reported never using back belts or using them no more than once or twice a month.

Similarly, no statistically significant difference was found in comparing the incidence of self-reported back pain among workers who reported using back belts every day, with the incidence among workers who reported never using back belts or using them no more than once or twice a month. Neither did the study find a statistically significant difference between the rate of back injury claims among employees in stores that required the use of back belts, and the rate of such claims in stores where back belt use was voluntary.

Back belts, also called back supports or abdominal belts, resemble corsets. In recent years, they have been widely used in numerous industries to prevent worker injury during lifting. There are more than 70 types of industrial back belts, including the lightweight, stretchable nylon style used by workers in this study.

Approximately four million back belts were purchased for workplace use in 1995, the most recent year for which data were available. The results of the new study are consistent with NIOSH's previous finding, reported in 1994, that there is insufficient scientific evidence that wearing back belts protects workers from the risk of job-related back injury.

"Work-related musculoskeletal disorders cost the economy an estimated \$13 billion every year, and a substantial proportion of these are back injuries," said CDC Director Jeffrey P. Koplan, M.D., M.P.H. "By taking action to reduce exposures, employers can go a long way toward keeping workers safe and reducing the costs of work-related back injury."

This study was the largest prospective study ever conducted on use of back belts. From April 1996 to April 1998, NIOSH interviewed 9,377 employees at 160 newly opened stores owned by a national retail chain. The employees were identified by store management as involved in materials handling tasks (lifting or moving merchandise). Through interviews, data was gathered on detailed information on workers' back-belt wearing habits, work history, lifestyle habits, job activities, demographic characteristics, and job satisfaction. The study also examined workers' compensation claims for back injuries among employees at the stores over the two-year period.



In a prospective study, researchers identify a cohort or group of workers for evaluation, and then collect current information on that group as the study progresses. In this study, NIOSH determined workers' habits in wearing back belts in advance of any injuries, and collected data as workers filed back injury claims.

Findings from this study included:

- There was no statistically significant difference between the rates of back injuries among workers who wore back belts every day (3.38 cases per 100 full time equivalent workers or FTEs) and back injury rates among workers who never wore back belts or wore them no more than once or twice a month (2.76 cases per 100 FTEs).
- There was no statistically significant difference between the incidence of self-reported back pain among workers who wore back belts usually every day (17.1 percent) and the incidence of self-reported back pain among workers who never wore back belts or wore them no more than once or twice a month (17.5 percent).
- There was no statistically significant difference between the rate of back injury claims in stores requiring the use of back belts (2.98 cases per every 100 FTEs) and the rate in stores where back belt use was voluntary (3.08 cases per 100 FTEs).
- A history of back injury was the strongest risk factor for predicting either a back-injury claim or reported back pain among employees, regardless of back-belt use. The rate of back injury among those with a previous history of back pain (5.14 cases per 100 FTEs) nearly twice as high as the rate among workers without a previous history of back pain (2.68 per 100 FTEs).
- Even for employees in the most strenuous types of jobs, comparisons of back injury claims and self-reported back pain failed to show any differences in rates or incidence associated with back belt use.

"We appreciate the partnership offered by workers and management in helping us conduct this important study," said NIOSH Acting Director Lawrence J. Fine, M.D., D.P.H. "We look forward to working closely with industry and labor to disseminate our findings as widely as possible."

CDC protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national and international organizations.

Editor's Note: For further information on the study, or for other information on preventing work-related musculoskeletal injuries, contact the CDC's NIOSH toll-free information number, [1-800-35-NIOSH](tel:1-800-35-NIOSH) (1-800-356-4674) or visit the web page at www.cdc.gov/niosh.



Appendix B: Quick Tips for Lifting

Quick Tips for Lifting



Most back problems occur over a period of time. Careful attention to lifting on the job and at home and regular exercise to maintain fitness and strength will help you maintain a healthy back. The following principles will assist in lowering your risk of back injury due to lifting.

1. Size up the load. Test it to see if you can lift it safely. Can you grasp it securely? Good handholds (cut-outs, handles) will make the load easier to lift. Make sure the load is balanced in your hands.
2. Get as close to the load as possible before lifting it, and keep it close once you've lifted it. If possible, slide the load towards you before picking it up.



3. **Keep the load as close to your body as possible.** If the load is large and cannot be placed between your knees as they are bent, bend at the hips and waist with your knees relaxed. It is more important to keep the load close than it is to bend your knees.



One solution to lifting a larger load is to get another person to help you.



A better solution is to use mechanical assistance (hand trucks, carts) to avoid lifting altogether.



4. Make sure your footing is secure. Do not lift objects that obscure vision and footing. Plan ahead and make sure that your travel path is clear of obstructions and that there are no slip hazards such as a wet floor.



5. **Do not twist while lifting!**

Move your feet so that they point in the direction of the lift as you turn.



6. Lift smoothly and slowly. Do not jerk the load.

7. Organize the work so as to avoid lifting from the floor or above shoulder level. Items to be handled should be between knee and shoulder height.



8. If you have a lot of lifting to do during the day, try not to do it all at once. Alternate lifting tasks with lighter work to give your body a chance to recover. Remember, mechanical assistance is just as important for repetitive lifting as it is for heavy lifting.

9. Use the same principles when lowering or placing the load after lifting.

10. Try to avoid carrying the load more than 10 feet without getting mechanical assistance. Use a dolly or cart.

For more information, please contact:
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