

SAFE LIFTING TECHNIQUES

Proper Lifting Techniques



Document Number: 221

Introduction

Preventing back injuries is a major challenge to employers. According to the Bureau of Labor Statistics (BLS), more than one million workers suffer back injuries each year, with back injuries accounting for one out of every five workplace injuries and illnesses. One fourth of all compensation indemnity claims are a result of back injuries. This problem produces pain and discomfort to employees, and can have a dramatic change in their productivity and lifestyles.

A BLS survey shows that four out of five of these injuries were to the lower back, and that three out of four occurred while lifting. This survey shows the importance of reducing back injuries caused by lifting. Although no approach has completely eliminated such injuries, a substantial portion could be prevented by incorporating an effective control program, along with an ergonomic analysis and design of work tasks.

OSHA is considering ways to help prevent lifting injuries. The agency requested public comments on October 2, 1986, to help in its research on manual lifting. They are looking at two major categories: engineering controls and administrative controls.

Engineering controls are used to redesign the workstation to minimize lifting hazards. Administrative controls include carefully selecting and training workers so that they can perform their jobs safely.

Suggested administrative controls include:

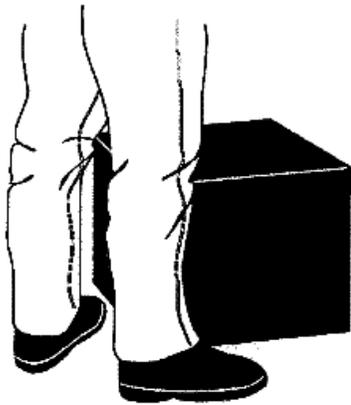
- Strength testing of existing workers, which one study showed can prevent up to one-third of all work-related injuries by discouraging the assignment of workers to jobs that exceed their strength capacities.



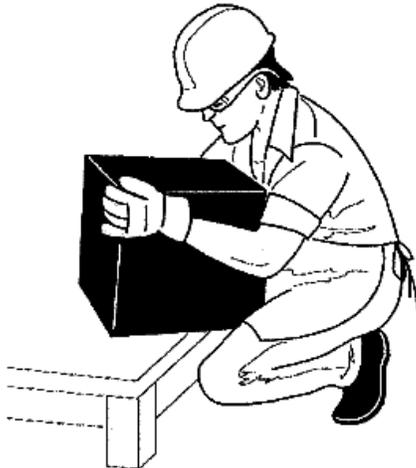
- Physical conditioning or stretching programs to reduce the risk of muscle strain.
- Training employees to utilize lifting techniques that place minimum stress on the lower back.

How to Lift Safely

Before lifting, take a moment to think about what you're about to do. Examine the object for sharp corners, slippery spots or other potential hazards. Know your limit and don't try to exceed it. Ask for help if needed, or if possible, divide the load to make it lighter. Know where you are going to set the item down and make sure it and your path are free of obstructions. Then follow these steps.

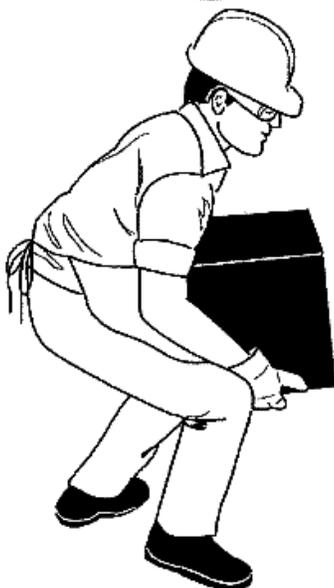


1. Stand close to the load with your feet spread apart about shoulder width, with one foot slightly in front of the other for balance.



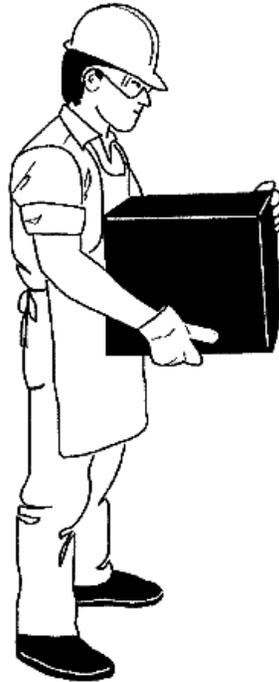
2. Squat down bending at the knees (not your waist). Tuck your chin while keeping your back as vertical as possible.

3. Get a firm grasp of the object before beginning the lift.



4. Begin slowly lifting with your LEGS by straightening them. Never twist your body during this step.

5. Once the lift is complete, keep the object as close to the body as possible. As the load's center of gravity moves away from the body, there is a dramatic increase in stress to the lumbar region of the back.



If you must turn while carrying the load, turn using your feet-not your torso.

To place the object below the level of your waist, follow the same procedures in reverse order. Remember, keep your back as vertical as possible and bend at the knees.

Conclusion

Using proper lifting techniques can help prevent downtime due to avoidable back injuries. With a little practice, precautionary methods such as these can become good daily habits that could help prevent back injuries-both on and off the job.

Remember, no approach will completely eliminate back injuries. However, a substantial portion can be prevented by incorporating effective administrative controls and engineering controls.

To evaluate a worker's lifting habits, consider the following variables: frequency of lifting, duration of such activities, and type of lifting, as well as the worker's state of health, body size, age and general physical fitness.

To help in the evaluation process, consider the Applications Manual for the Revised NIOSH Lifting Equation, which gives an equation that you can use to factor all of these variables. If you're interested in getting a copy of this manual, call or write the National Technical Information Service (NTIS) at:

National Technical Information Service (NTIS)
Port Royal Road
Springfield, VA 22161
Telephone: 703-487-4650
Fax: 703-321-8547
Stock # PB94-176930LJM

Commonly Asked Questions

- Q. *When carrying a load, is it okay to turn or twist my body as long as I turn with my torso?***
- A. No. You should try to minimize any turning or twisting, but if you must turn while carrying the load, turn using your feet.
- Q. *Are there any guidelines I can follow to help assess multi-task lifting jobs?***
- A. Yes. To help in the evaluation process, refer to the *Applications Manual for the Revised NIOSH Lifting Equation*.
- Q. *Will wearing a back support belt increase my maximum lifting potential?***
- A. No. Manufacturers of back support belts do not claim they increase maximum lifting potential.

Sources for More Information

"*Facts About Backs*," Bureau of Business Practice, 1994.

"*Back Injuries-Nation's #1 Workplace Safety Problem*," Fact sheet No. OSHA 89-09, U.S. Department of Labor.

"*Watch Your Back*," Mine Safety and Health Administration.

FREE Technical Support

When you have a question, you can rely on our team of technical experts. They'll answer your questions about product specifications, chemical compatibility, regulatory issues, and general worker safety and health. Call our Safety TECHline™ Technical Support toll-free: 800-356-2501 (6 a.m. to 9 p.m. CT, Monday - Friday). Or e-mail our Technical Support Staff at techsvc@labsafety.com anytime!

FREE Catalog

For products to meet all your workplace safety and industrial needs, turn to Lab Safety Supply. In it you'll find thousands of safety and industrial products, plus a complete service package and our 100% guarantee to stand behind them.

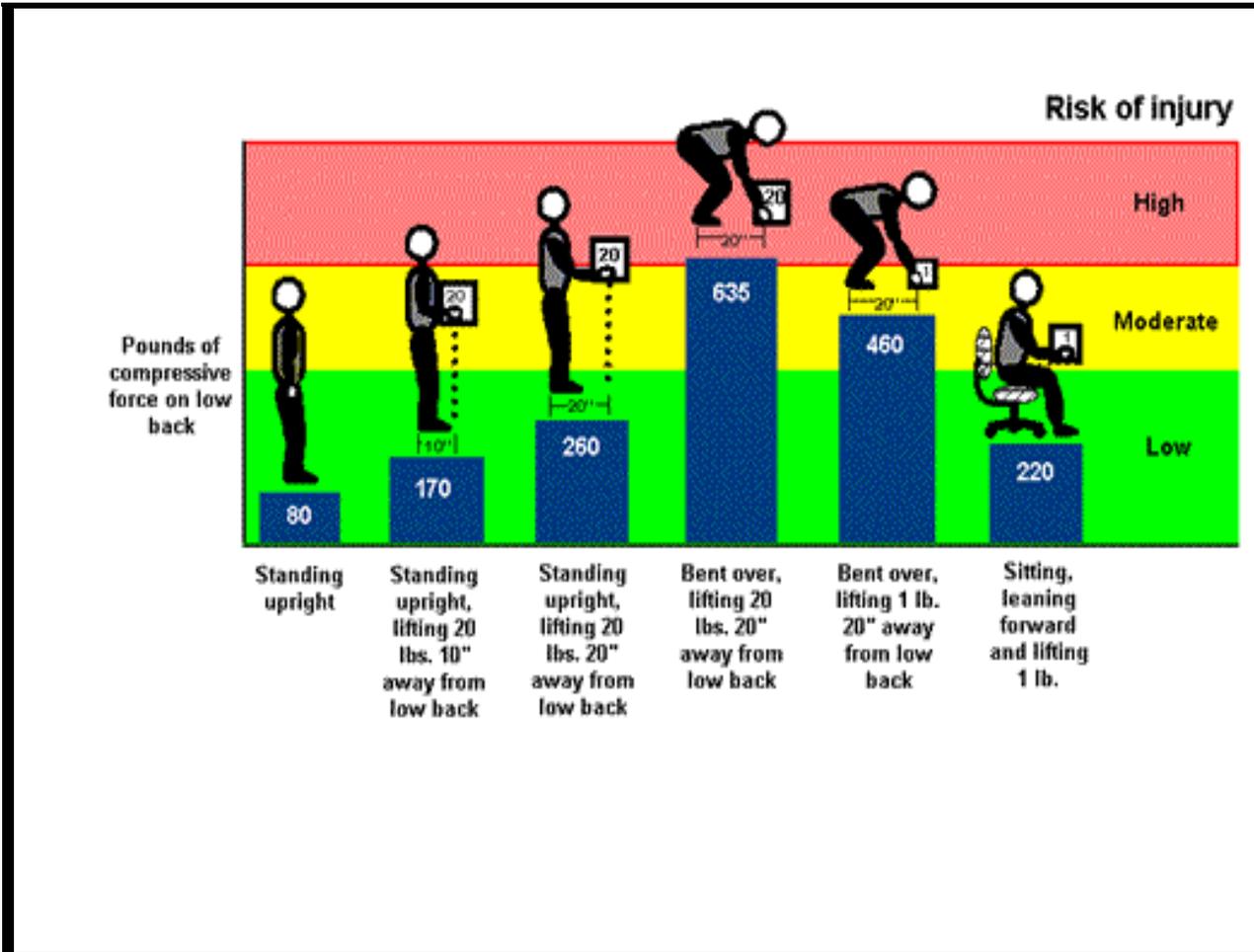
[Click here](#) to select a catalog and fill out a request form on-line, or call today to reserve your free copy: 800-356-0783 (7 a.m. to 9 p.m. CT, Monday - Friday).

Please Note: The information contained in this publication is intended for general information purposes only. This publication is not a substitute for review of the applicable government regulations and standards, and should not be construed as legal advice or opinion. Readers with specific questions should refer to the cited regulation or consult with an attorney.

Risk of Injury

**Pounds of
 Compressive force on
 Low back**

SAFE LIFTING TECHNIQUES



| | | | | | |
|------------------|--|--|--|--|--|
| Standing Upright | Standing Upright lifting 20 lbs.- 10" away from low back | Standing Upright lifting 20 lbs.- 20" away from low back | Bent Over, lifting 20 lbs.- 20" away from low back | Bent Over, lifting 1 lb.- 20" away from low back | Sitting leaning forward and lifting 1lb. |
|------------------|--|--|--|--|--|

American Academy of Orthopaedic Surgeons®

YOUR ORTHOPAEDIC CONNECTION
Orthopaedic information you can trust

Back Pain Exercises

Exercises to minimize problems with back pain

You can minimize problems with back pain with exercises that make the muscles in your back, stomach, hips and thighs strong and flexible. Some people keep in good physical condition by being active in recreational activities like running, walking, bike riding, and swimming. In addition to these conditioning activities, there are specific exercises that are directed toward strengthening and stretching your back, stomach, hip and thigh muscles.

Before beginning any exercise program, you should discuss the program with your doctor and follow the doctor's advice. It is important to exercise regularly, every other day. Before exercising you should warm up with slow, rhythmic exercises; if you haven't exercised in some time, you can warm up by walking. Inhale deeply before each repetition of an exercise and exhale when performing each repetition.

Exercises to strengthen your muscles

Wall slides to strengthen back, hip, and leg muscles



Stand with your back against a wall and feet shoulder-width apart. Slide down into a crouch with knees bent to about 90 degrees. Count to five and slide back up the wall. Repeat 5 times.

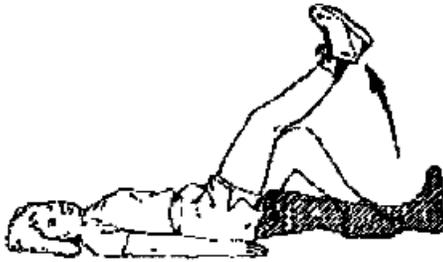
Leg raises to strengthen back and hip muscles.



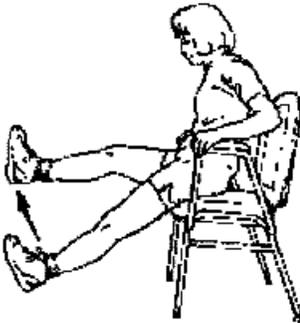
Lie on your stomach. Tighten the muscles in one leg and raise it from the floor. Hold your leg up for a count of 10 and return it to the floor. Do the same with the other leg. Repeat five times with each leg.



Leg raises to strengthen stomach and hip muscles



Lie on your back with your arms at your sides. Lift one leg off the floor. Hold your leg up for a count of 10 and return it to the floor. Do the same with the other leg. Repeat five times with each leg. If that is too difficult, keep one knee bent and the foot flat on the ground while raising the leg.



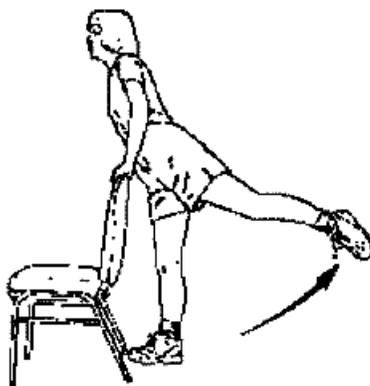
You can also sit upright in a chair with legs straight and extended at an angle to the floor. Lift one leg waist high. Slowly return your leg to the floor. Do the same with the other leg. Repeat five times with each leg.

Partial sit-up to strengthen stomach muscles



Lie on your back with knees bent and feet flat on floor. Slowly raise your head and shoulders off the floor and reach with both hands toward your knees. Count to 10. Repeat five times.

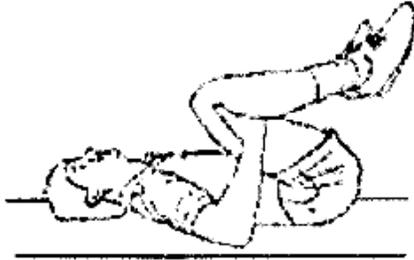
Back leg swing to strengthen hip and back muscles



Stand behind a chair with your hands on the back of the chair. Lift one leg back and up while keeping the knee straight. Return slowly. Raise other leg and return. Repeat five times with each leg.



Exercises to decrease the strain on your back



Lie on your back with your knees bent and feet flat on your bed or floor. Raise your knees toward your chest. Place both hands under your knees and gently pull your knees as close to your chest as possible. Do not raise your head. Do not straighten your legs as you lower them. Start with five repetitions, several times a day.



Stand with your feet slightly apart. Place your hands in the small of your back. Keep your knees straight. Bend backwards at the waist as far as possible and hold the position for one or two seconds.

(For more information on "Prevent Injuries America!®," call the American Academy of Orthopaedic Surgeons' public service telephone number 1-800-824-BONES (2663).)

