



WESTERN
KENTUCKY
UNIVERSITY

Environmental Health & Safety

**BACK SAFETY
PROGRAM**

2006

Introduction

Low Back pain is one of the most common medical complaints. According to the Bureau of Labor Statistics, more than one million workers suffer back injuries each year, and back injuries account for one of every five workplace injuries or illnesses. Further, one-fourth of all compensation insurance claims involve back injuries, costing industry billions of dollars on top of the pain and suffering borne by employees. It is the second most common reason Americans cite for visiting the doctor (behind colds and flu). In severe cases, back injuries can cause crippling pain and lifelong disability.

How can I avoid back injuries?

- Pace yourself. Take many small breaks between lifts if you are lifting a number of things.
- Don't overdo it--don't try to lift something too heavy for you. If you have to strain to carry the load, it's too heavy.
- A “**LIFT TEAM**” must be used if lifting over 40 pounds.
- Avoid walking on slippery, uneven surfaces while carrying something.
- Don't rely on a back belt to protect you. It hasn't been proven that back belts can protect you from back injury.
- Get help before you try to lift a heavy load. Use a dolly or a forklift if you can.

Posture

The back Association of Canada has found that the incidence of back pain is as high in people who sit for long periods of time as it is in people who lift all day. Just because you sit in front of a computer does not alleviate a person from back injury. While sitting, the body is flexed at the base of the spine. This can put three times more pressure on your back (approximately 400 pounds) than simply standing up!

Tips to help avoid problems with your posture

- Use a chair that
 - allows your feet to touch the floor
 - allows your hips to stay a bit higher than your knees
 - properly supports the curves of your spine
- Sit close to your desk
- Distribute your body weight evenly on your pelvis and feet
- Take frequent stretch breaks as needed

How much weight a worker can safely lift depends on a number of factors.

When the factors are such that the worker can assume an “ideal” body posture during the lift, the worker is able to lift greater loads. However, when the body posture is not ideal (e.g., back is bent or arms are outstretched), then the amount of weight the worker can safely lift is reduced. Factors affecting how much weight a worker can safely lift include:

Lifting factors	More weight can be safely lifted when:	The amount of weight that can safely be lifted is reduced when:
How far from the body the load is held (horizontal distance).	The load is close to the body and not too large/bulky, which allows the arms and elbows to be close to the torso during the lift.	The load is farther away from the body or is large/bulky, forcing the arms and elbows away from the torso during the lift.
How high or low is the lift (vertical distance).	The lift is at waist height.	The lift must be made from below the knees or above the shoulder.
How much the worker must twist to lift and move the load.	The lift is performed in front of the body.	The worker must twist the torso to lift and move the load.
How often the lift is repeated.	The lift is performed only occasionally.	The lift is performed repeatedly (several times a minute).
How far the load is carried.	The lift does not involve carrying.	The load must be carried a distance (more than 3 feet).
How the load is gripped.	The load has handles.	The load does not have handles or is slippery.

General controls to reduce lifting hazards:

- Use lift assists (hand dollies, carts, lift tables, forklifts).
- Reduce size of product boxes to lighten load.
- Arrange work space so employee can move closer to load and perform lifts with arms close to body.
- Use adjustable palletizes that allow loading at waist height.
- Use pallets that can rotate.
- Use tubs with adjustable bottoms to reduce need for bending over to remove product.
- Put objects to be lifted at waist level.
- Arrange workstation so lift is done in front and without twisting.
- Use chutes and slides to move loads across conveyors or in new direction.

- Put handles or grips on boxes.
- Use gloves that aid in holding slippery objects.

Consider one of the two methods for preventing lifting injuries--administrative controls and engineering controls. The former includes carefully selecting and/or training workers so they can safely perform lifting tasks. Engineering controls attempt to redesign a job so lifting becomes less hazardous.

Suggested administrative controls include:

- Assign jobs that do not exceed the employee's strength capabilities.
- Training employees to utilize lifting techniques that place minimum stress on the lower back.
- Physical conditioning or stretching exercises to reduce the risk of muscle strain.

Suggested engineering controls include:

- A reduction in the size or weight of the object lifted. The parameters include maximum allowable weights for a given set of task requirements; the compactness of a package; the presence of handles, and the stability of the package being handled.
- Adjusting the height of a pallet or shelf. Lifting which occurs below knee height or above shoulder height is more strenuous than lifting between these limits. Obstructions which prevent an employee's body contact with the object being lifted also generally increase the risk of injury.
- Installation of mechanical aids such as pneumatic lifts, conveyors, and/or automated materials handling equipment.

In a recent study it was determined that up to one-third of compensable back injuries could be prevented through better job design (ergonomics).

Other factors include frequency of lifting, duration of lifting activities, and type of lifting, as well as individual variables such as age, sex, body size, state of health, and general physical fitness.

On-line training can be found at:

<http://www.free-training.com/osha/back/backmenu.htm>

Low Back Pain Exercise Guide
Taken From
American Academy of Orthopedic Surgeons

Regular exercises to restore the strength of your back and a gradual return to everyday activities are important for your full recovery. Your orthopedic surgeon and physical therapist may recommend that you exercise 10 to 30 minutes a day one to three times a day during your early recovery. They may suggest some of the following exercises. This guide can help you better understand your exercise and activity program, supervised by your therapist and orthopedic surgeon.

Initial Exercise Program



Ankle Pumps - Lie on your back. Move ankles up and down.
Repeat 10 times.



Heel Slides - Lie on your back. Slowly bend and straighten knee.
Repeat 10 times.



Abdominal Contraction - Lie on your back with knees bent and hands resting below ribs. Tighten abdominal muscles to squeeze ribs down toward back. Be sure not to hold breath. Hold 5 seconds. Relax. Repeat 10 times.



Wall Squats - Stand with back leaning against wall. Walk feet 12 inches in front of body. Keep abdominal muscles tight while slowly bending both knees 45 degrees. Hold 5 seconds. Slowly return to upright position. Repeat 10 times.



Heel Raises - Stand with weight even on both feet. Slowly raise heels up and down. Repeat 10 times.

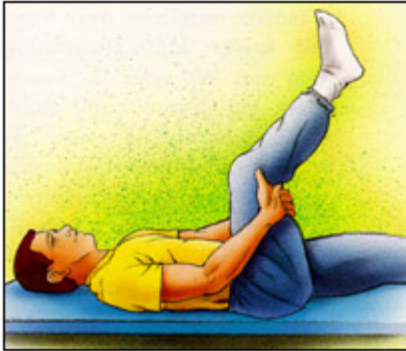


Straight Leg Raises - Lie on your back with one leg straight and one knee bent. Tighten abdominal muscles to stabilize low back. Slowly lift leg straight up about 6 to 12 inches and hold 1 to 5 seconds. Lower leg slowly. Repeat 10 times.

Intermediate Exercise Program

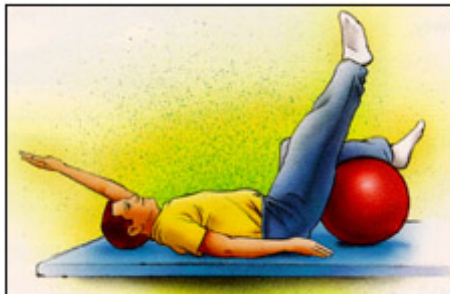


Single Knee to Chest Stretch - Lie on your back with both knees bent. Hold thigh behind knee and bring one knee up to chest. Hold 20 seconds. Relax. Repeat 5 times on each side.



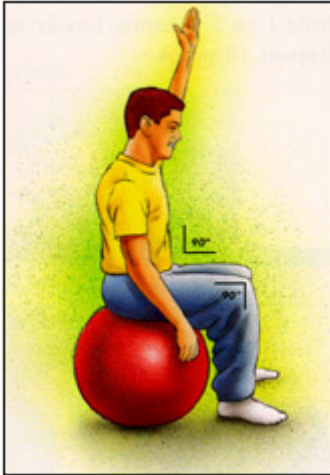
Hamstring Stretch - Lie on your back with legs bent. Hold one thigh behind knee. Slowly straighten knee until a stretch is felt in back of thigh. Hold 20 seconds. Relax. Repeat 5 times on each side.

Lumbar Stabilization Exercises With Swiss Ball - Abdominal muscles must remain contracted during each exercise. See "Abdominal Contraction" exercise from initial exercise program. Perform each exercise for 60 seconds. The further the ball is from your body, the harder the exercise.



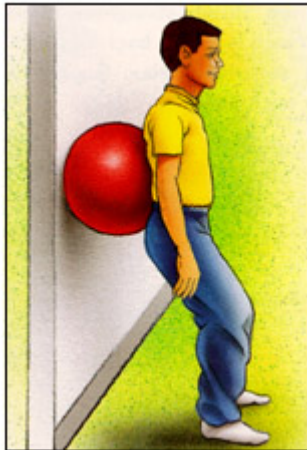
Lie on your back with knees bent and calves resting on ball.

- 1.** Slowly raise arm over head and lower arm, alternating right and left sides.
- 2.** Slowly straighten one knee and relax, alternating right and left sides.
- 3.** Slowly straighten one knee and raise opposite arm over head. Alternate opposite arms and legs.
- 4.** Slowly "walk" ball forward and backward with legs.



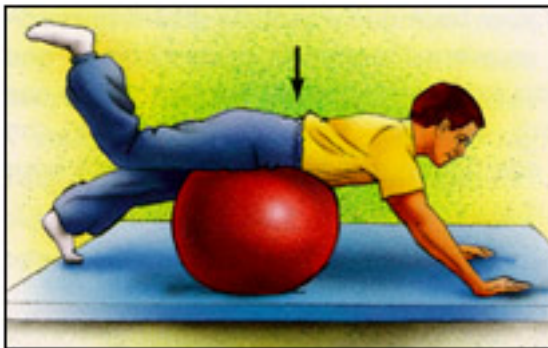
Sitting on ball with hips and knees bent 90 degrees and feet resting on floor.

1. Slowly raise arm over head and lower arm, alternating right and left sides.
2. Slowly raise and lower heel, alternating right and left sides.
3. Slowly raise one heel and raise opposite arm over head. Alternate opposite arm and heel.
4. Marching: Slowly raise one foot 2 inches from floor, alternating right and left sides.



Standing with ball between your low back and wall.

1. Slowly bend knees 45 to 90 degrees. Hold 5 seconds. Straighten knees.
2. Slowly bend knees 45 to 90 degrees while raising both arms over head.



Lie on your stomach over ball.

1. Slowly raise alternate arms over head.
2. Slowly raise alternate legs 2 to 4 inches off of floor.
3. Combine 1 and 2, alternating opposite arms and legs.
4. Bend one knee. Slowly lift this leg up, alternating right and left legs.

Be careful not to arch your low back!

Advanced Exercise Program



Hip Flexor Stretch - Lie on your back near edge of bed, holding knees to chest. Slowly lower one leg down, keeping knee bent, until a stretch is felt across top of the hip/thigh. Hold 20 seconds. Relax. Repeat 5 times on each side.

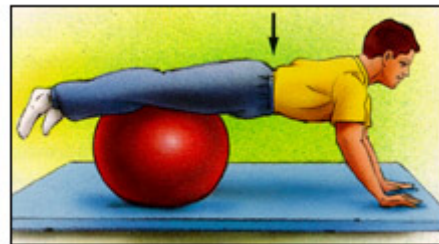


Piriformis Stretch - Lie on back with both knees bent. Cross one leg on top of the other. Pull opposite knee to chest until a stretch is felt in the buttock/hip area. Hold 20 seconds. Relax. Repeat 5 times each side.

Lumbar Stabilization Exercises With Swiss Ball

Lie on stomach over ball.

1. "Walk" hands out in front of ball until ball is under legs. Reverse to starting position.
2. "Walk" hands out in front of ball until ball is under legs and slowly raise alternating arms over head.
3. "Walk" hands out in front of ball and slowly perform push-ups.



Aerobic Exercises - Maintain spine in neutral position while stabilizing with abdominal muscles to protect the low back during aerobic exercise. **1.** Stationary bike for 20 to 30 minutes. **2.** Treadmill for 20 to 30 minutes.

Test For Back Safety

- T F 1. Back injuries are ranked as the number one cause of workdays missed for employees under the age of 45.
- T F 2. Muscles of the back help support the spine, help hold the body upright, and allow the trunk of the body to move, twist, and bend in many directions.
- T F 3. Chronic stress can lead to muscle weakness and back pain.
- T F 4. Sitting for long periods of time will not hurt your back.
- T F 5. One of the ways to protect your back is to get help with a heavy load.
- T F 6. You can test the weight of an object before lifting by picking up a corner.
- T F 7. If you have not exercised before it is OK to start right up with a strenuous program of exercise.
- T F 8. When lifting an object it is best to keep your stomach muscles tight.
- T F 9. When a load is too heavy to lift, break it down into smaller loads if possible
- T F 10. Exercising will help to strengthen your back and stomach muscles for proper lifting.