

# Lifting Lessons

This document identifies factors that affect your back when lifting and lowering. By controlling the factors, you can reduce stress to your back when lifting and lowering to help prevent injury both at work and at home.

## Object Weight

The **heavier the weight** of the object, the **greater the stress** will be to your back when lifting. If possible, reduce the weight of heavy loads prior to moving them. This can often be accomplished by splitting the load in half. Sometimes the weight of the load cannot be reduced. If the load is too heavy for you, either get help or use a mechanical lifting device.

## Distance

The **further the object** is from your body, the **greater the stress** will be to your back when lifting. Position the object as close as possible to your body **before** you begin the lift. This may require bringing the object to the edge of the shelf or pallet in preparation for the lift. **Do not reach over other objects!** If other objects are in the way, either move them out of the way or move to a position where you are able to get close to the object you are lifting. Try to store objects that are moved frequently in positions that allow you to get close to the objects when lifting.

## Height

Lifting the object from the ground is more stressful than lifting the same object from several inches off the ground. When possible, store objects on platforms (i.e., shelves or pallets) that raise objects off the ground. Starting positions that are at a level between the knee and waist are the least stressful to the back.

## Acceleration

The **faster you accelerate** an object when lifting, the **greater the stress** will be to your back. Always lift with controlled speed to reduce stress to your back. If the object is so heavy that you have to jerk the object to lift it, it is too heavy and you should either get help or use a mechanical lifting device. Also, the **faster you decelerate** an object immediately before setting it down, the **greater the stress** will be to your back. Always lower objects with controlled speed.

## Stance




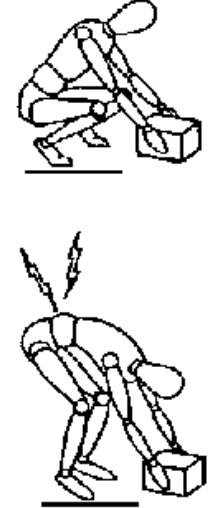
**A stance where the feet are too close together can increase stress** to the back if something unexpected happens (i.e., the load shifts, someone bumps into you, your foot slips). Your initial reaction to the unexpected is either to prevent dropping the object you are lifting or to prevent yourself from falling. In recovering your balance, you may twist your back or overexert your muscles. This can be prevented by being prepared for the unexpected through use of a wide stable stance. Your feet should be about shoulder width apart to give you side-to-side stability and staggered to give you forward and backward stability. Also, with this stance, you will be less tempted to twist during the lift.

## Torso Stability

The more torso motion you allow during the lift, the **greater the stress** to your back when lifting. Try to keep your torso a stable unit during the lift. This is accomplished through contraction of your abdominal muscles. The lift should be initiated with your legs. Keep your torso rigid as you come to an upright position using your leg and buttock muscles. Your thigh and buttock muscles are far stronger than your back muscles!

## Twisting

Twisting during a lift **increases the stress** to your back during lifting. Instead of twisting, come to an upright position, then pivot, using your feet. Your feet should face where you lift object from and where you set an object down.

<b>STEPS FOR MANUAL LIFTING</b>	
1.	Assess the lifting environment. This is a mental process that takes just seconds before you begin the lift. Look at the surrounding area to become aware of possible hazards. Is the floor or ground level and dry? If not, you will need to take extra precautions during the lift. Do you know where you will place the object you are about to lift? If not, you may need to clear a place for the object before the lift. Is the pathway needed to perform the lift and/or carry the object clear? If not, you need to either take extra precautions or clear the pathway.
2.	Assess the weight and size of the object. Nudge the object to assess the approximate weight of the object. This will help you determine whether you can lift the object yourself or whether you need additional help from another person or a mechanical lifting device. Also, assess the size of the object. Often, bulky items are not heavy, but require additional help to maintain proper body mechanics during lifting, carrying, and lowering. Know your limitations and get additional help when necessary.
3.	Get close to the object to be lifted. Move other objects out of the way or move yourself to a position where you can be close to the object you are about to lift.
4.	Assume a stable stance. Your feet should be approximately shoulder width apart with feet staggered slightly.
5.	Bend your knees. Bend your knees as far as you can and still be able to come to an upright position using your thigh muscles. If you have weak thighs, you may only be able to bend your knees slightly.
6.	Grip the object firmly.
7.	Keep your back a straight, stable unit.
8.	Initiate the lift with your leg and buttock muscles.
9.	Lift with controlled speed.
10.	Continue to keep your back a straight, stable unit.
11.	Come to an upright position using your leg and buttock muscles.
12.	Pivot, using your feet; do not twist.
13.	To lower, use the same precautions noted above.
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p><b>#1</b></p>  </div> <div style="text-align: center;"> <p><b>#2</b></p>  </div> <div style="text-align: center;"> <p><b>#3</b></p>  </div> <div style="text-align: center;"> <p><b>Wrong Lifting: Back does the work</b></p>  </div> </div>	

For more information, contact EH&S at 328-6166 or [safety@mail.ecu.edu](mailto:safety@mail.ecu.edu) . Look for more ergonomics information at [www.ecu.edu/oehs](http://www.ecu.edu/oehs) Thanks to UC Davis for sharing this information.