

# Ergonomics

## *Proper Lifting Techniques*

*Use this guide to prevent back and lifting-related injuries. These guidelines should be used when lifting or moving ANY loads, both at work and at home.*



**PennState**

**Environmental Health and Safety**  
**Phone: (814) 865-6391**

# Proper Lifting Techniques

## 1. Plan and Assess the situation

Before lifting or carrying heavy loads, plan and assess the situation.

- Look to see if doors, stairwells, and ramps are clear of obstacles and debris.
- Walk and examine the route before you transport the object.
- Plan and determine where you want to place the object before you arrive at the destination, so you do not have to put it down and lift it again.
- Determine the weight of the object. Lifting loads heavier than 50 pounds can increase stress on muscles, discs, and vertebrae.
- If the object is too heavy for one person, ask for help.
- Use hand trucks and pushcarts if available.

## 2. Stretch

Maintain flexibility to help prevent a back or lifting-related injury.

- Do warm-up exercises and stretches.
- Stretch hamstrings, quadriceps, triceps, and lower back.
- Do a few jumping jacks or run-in place to get your blood flowing.

## 3. Lifting

- When lifting, stand as close to the object as possible. **Do not** hold the load away from your body. The closer it is to your spine, the less force it exerts on your back.
- Bend your knees and keep your body upright so you lift with your legs and not your back.
- Look up and keep your back and shoulders upright. Your back should be slightly arched.

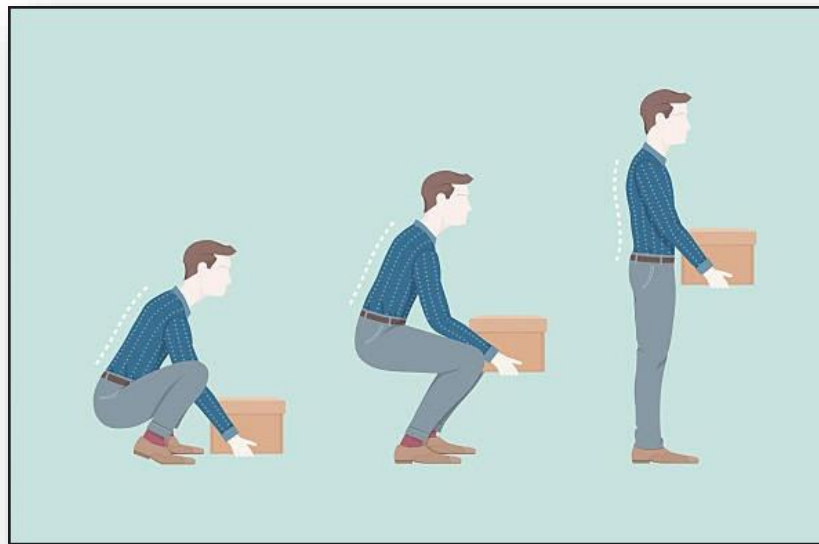


Figure 1

# Proper Lifting Techniques

## 4. Carrying

- **Never** use “jerking” or twisting motions while lifting or carrying anything, no matter how heavy it is.
- Get a good grip on the object to avoid the risk of dropping it.
- Handholds should fit fingers without digging into your palms.
- Use your feet to change direction by taking small steps as you go.
- As you change direction, lead with your hips and keep your shoulders in line with your hips.
- Keep the object close to your body with your elbows at your side.

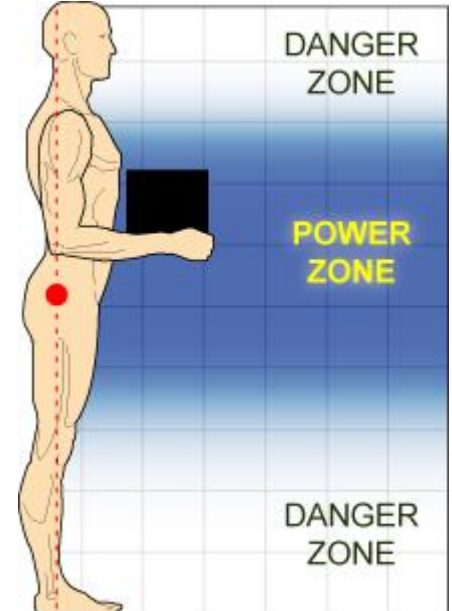


Figure 2

### Power Zone

The Power Zone is the space between your mid-thigh and mid-chest, where you can lift the MOST with the LEAST amount of effort (see figure 2). Try to keep objects within this zone when lifting or carrying to reduce the potential for injury.

## 5. Set Down

- Set the object down by lowering your legs, bending your knees, and keeping the object close to your body.
- Keep your head up and tighten your stomach muscles.

### Using hand trucks and pushcarts

Pushing is easier than pulling. Pushing allows you to use your body weight to assist. Use both hands to push and control the cart. Keep the cart close and lock your arms. Keep your back in its natural arch position. Tie the load down to the cart if necessary.

### Forklifts

Using forklifts to lift and transport heavy loads, requires training and authorization before use. Please contact EHS for training (814) 865-6391.

# Improper Lifting Techniques

1. Twisting or turning your body while lifting a load
2. Do not attempt to carry a load that is too heavy or too large
3. Lifting an object above shoulder level
4. Bending forward rather than squatting down to your load
5. Bad grip risks dropping the item
6. Obstructing your vision while carrying a load
7. Rushing through the process