

# Material Handling Safety and Tips for Back Injury Prevention

Musculoskeletal injuries, particularly back injuries, are one of the greatest risks for workers who frequently lift, carry, or handle materials as part of their daily job activities. A back injury can be devastating and have life-altering consequences. Additionally, over time and as our bodies age, our ability to endure the physical requirements of lifting and carrying objects is reduced.

## What causes these injuries?

Back injuries are often the result of a cumulative effect of several contributing factors:

- Frequent heavy lifting, particularly if it involves forceful exertion.
- Poor or awkward postures
- Excessive reaching or twisting while lifting.
- Repetitive movements and motion

## How Can I Prevent Back Injuries?

The most preferable method of moving heavy materials is to use mechanical equipment or tools to move the material. However, if the object must be manually handled, there is a safer way to approach the task that will minimize your risk of injury.

When lifting or moving any heavy object, the process should be broken down into four stages – Planning and Preparation, Lifting, Carrying, and Setting Down

- **Planning and Preparation**
  - Does the item need to be moved?
  - Can it be stored in a way that reduces or eliminates the need for it to be moved?
  - How heavy is the item? Should I get more people to help?
  - Is the item easy to carry or is it awkwardly shaped?
  - Can I use equipment or tools to move the items rather than manually carry them?
  - Where is the item going to be stored?
  - What will the route of travel be? Is the route safe and free of obstructions or hazards?
- **Lifting**
  - Stand as close to the load as possible to avoid excessive reaching and bending.
  - Face the object to be carried straight on, do not lift from an angle or position that requires you to twist.
  - Bend at the knees, not the waist, and form a good squatting position. Keep your back straight.
  - Holding the load close to your body, slowly drive up with your legs to stand.

- **Carrying**
  - Hold the load as close to your body as possible, preferably in between your chest and waist (core).
  - Ensure a good grip is maintained on the item.
  - Keep your eyes on the travel path and watch for potential obstacles, trip hazards, etc.
  - Do not carry items that will obstruct your ability to see your travel path. Carry smaller loads or utilize equipment to move the items.
  
- **Setting the item down**
  - Keeping your back straight, bend at the knees slowly. Engage/tighten your core muscles as you descend.
  - Slowly set the item down.

**Additional Tips:**

- Avoid storing heavy items above shoulder height.
- Use step stools and ladders as appropriate to help minimize reaching.
- Ask for help if the load is too heavy or utilize mechanical aids such as carts or dollies.
- Do not twist when picking up or setting down, rotate your entire body.
- Pushing requires less strain on your body than pulling when moving an object.
- Perform light stretching prior to the lift and remember to stay hydrated.

**For More Information:**

- **OSHA Materials Handling and Storage**
  - <https://www.osha.gov/sites/default/files/publications/osha2236.pdf>
  
- **NIOSH Ergonomic Guidelines for Manual Material Handling**
  - <https://www.cdc.gov/niosh/docs/2007-131/default.html>

If you have additional questions about back safety, ergonomics, or material handling safety, contact UMBC Department of Environmental Safety and Health at [esh@umbc.edu](mailto:esh@umbc.edu).