



Manual Lifting and Material Handling

The amount of material handling in a task should be minimized by the way the job is engineered using ergonomic principles. However, lifting and moving of materials is still a big part of some jobs. Training on proper lifting procedures is a key way to prevent musculoskeletal injuries.

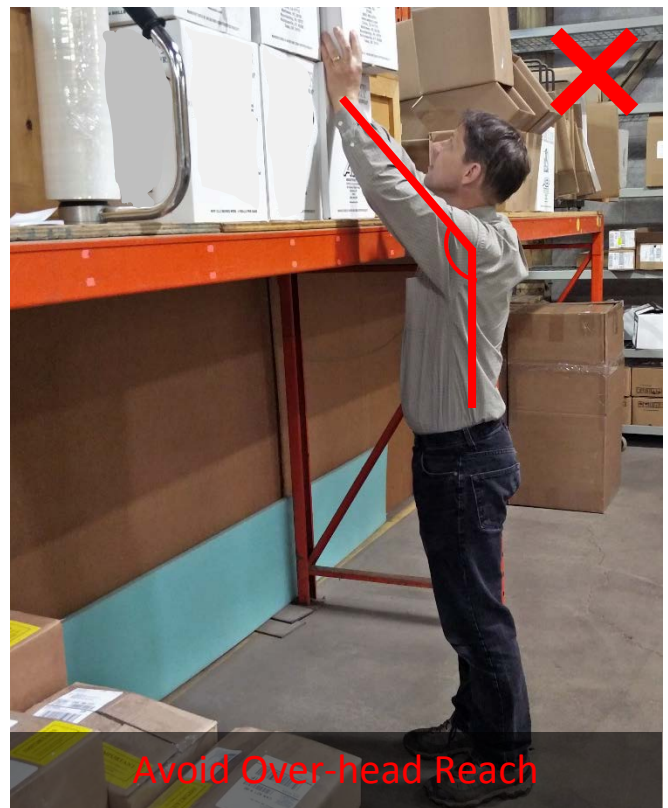
How you lift is important!

Proper lifting reduces risk factors, particularly by minimizing awkward postures which in turn reduces the amount of strain experienced by certain parts of the body. The body is capable of performing heavy tasks without injury, if it is in neutral posture, if forces are reasonable, and if appropriate rest periods are given to prevent fatigue.

*** Fatigue, inattention and rushing are common factors in the causes of MSDs.**

General material handling precautions:

- Inspect materials for surface hazards (slivers, jagged edges, slippery surfaces).
- Wipe off greasy or slippery surfaces before attempting to handle them.
- Grasp the object with a firm grip.
- Avoid gripping near catch or shear points.
- Keep hands away from the end of long objects (lumber, pipe) to prevent being pinched.
- Use gloves, safety shoes, eye protection, and other personal protective equipment when appropriate.
- Store frequently lifted objects between knuckle and chest height.
- Avoid lifting above shoulder height as much as possible.
- Push rather than pull.
- Use mechanical assistance if the load is above the head or below the feet (moving dolly, small step stool, portable carts, etc.)
- Ask for help if a load appears too heavy. Don't try to lift it.
- Use mechanical lifting aids when possible (fork lift, dolly, moving dolly, height adjustable tables, etc.)
- Take extra care with awkwardly shaped objects, liquids, and contents that may shift.





Lifting a load

Two-handed lift

- **Position feet correctly:** Correct positioning of the feet provides an increase in balance. One foot should be placed alongside the object to be lifted, and one behind it. Feet should be shoulder width apart and stable. The rear foot will provide the upward power.
- **Straight back and bent knees:** A straight back is not necessarily a vertical back. The spine should be in its natural curvature, about a 15 degree angle from the hips. Knees should be unlocked and bent. Straightening the knees will give rise to the lift.





- **Load close to the body:** the closer the center of gravity of the load is to the body the smaller the force on the lower back and arms will be. Keep elbows close to the body.
- **Correct grasp:** A full palm grip will reduce muscle stress and decrease the possibility of the load slipping. Gripping with the ends of the fingers increases the risk of muscle strain and slipping.
- **Chin in:** Tucking the chin in and raising the top of the head straightens the entire spine and provides the arms with a more efficient position for grasping.
- **Body weight:** Centre body weight over the feet. This position increases balance and provides a powerful line of thrust.



Assisted one handed lift (Golfer's lift)

This technique can be used when the worker is lifting something out of a container or off the floor.

- One hand should be placed on a stable surface, while the person leans to grip the object.
- Extend out the **opposite leg and arm** to create a counter-balance.
- Push off with the non-lifting hand to raise the upper body, while bringing down the raised leg. Make sure the back muscles are not doing the work

The assisted one-hand lift should be used **ONLY** if the object to be lifted is not too heavy or awkward to be lifted by one hand or there is no stable surface for support.



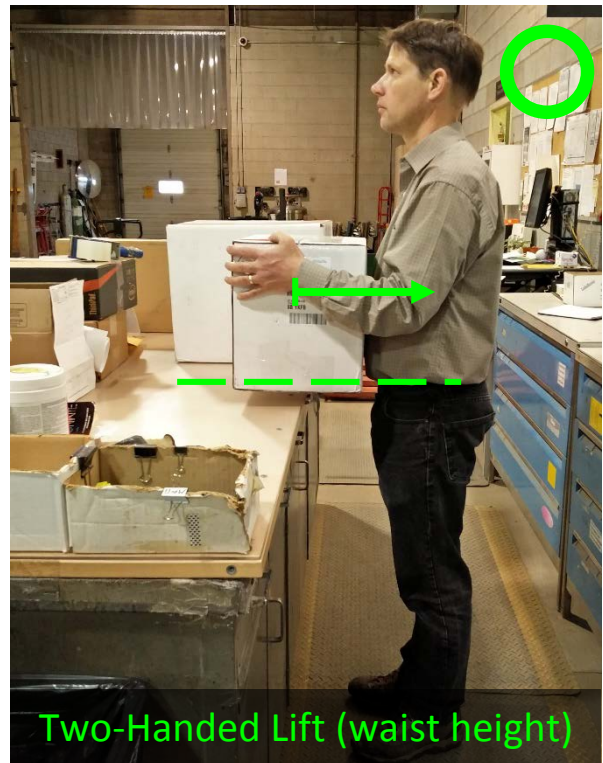


As you lift, remember to:

- **Tighten your stomach muscles** as the lift begins. Start a lift by pushing through the rear foot and continue it with the straightening of the knees.
- **Use leg muscles** to lift, the back should remain straight.
- Lifting should be a smooth motion, **do not jerk-lift** as it increases the stress on the lower back.
- **Never twist your body while lifting**, instead pivot with your feet.
- Keep your head up and **keep the natural curve in your back**.
- When transferring loads laterally, shift your weight from one leg to another, keeping the curve in your lower back and elbows close to the body.

Carrying a load

- Get help if the object is too bulky or heavy to be handled by one person.
- Inspect the route over which the load is to be carried. Plan a spot to set the load down and rest.
- To change directions; lift the object to the carrying position and turn the entire body, including the feet. Avoid twisting the body especially the back.
- Carry the load close to the body, preferably resting against the trunk.
- Carry the load at its balance point.
- To set down a load; set the edge of the load on a bench, table etc. Adjust hand position and push the object until it is secure.



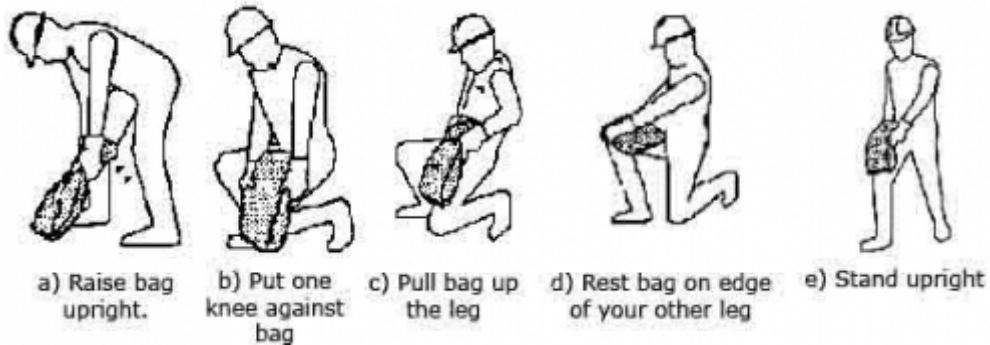
Team Lifting

When lifting is done by two or more people the load should be adjusted so it rides at the same level and the load is distributed evenly. Team lifting and carrying should be synchronized, a team leader can help by calling out commands ("lift", "walk", etc).



Special Precautions

- Check the weight of barrels and drums as it may change or shift constantly
- Take extra care with sheet metal and glass, as it can be sharp
- If the load contains hazardous material, take protective measures accordingly
- Beware of 'floppy' loads like sacs or bags



Other ergonomic tips

- Avoid severe bending
- Keep your work in front of your body
- Avoid bending your torso backward
- Avoid twisting the torso and long reaches
- Hold hands in front of, and near to the body

