

Safe Lifting Technique

Experts do not often agree as to what constitutes a truly safe lifting method, and in reality there is no single correct way to lift. The method espoused for the past several decades (bend the knees and not the back) has not been particularly effective in reducing the incidence or severity of low back injury by itself. Lifting, in practice, is highly dependent on the particulars of the task at hand.

Expert opinions differ as to which lifting methodology poses the least physical threat to the handler. The biomechanical approach indicates that a squat lift (knees and hips bent with the back more or less straight) places the least stress on the back. Proponents of the physiological approach to lifting argue that the stoop lift (legs straight with the back bent) is less physiologically stressful than the squat lift. And the psychophysical approach to lifting indicates that a freestyle lift is least taxing.

A freestyle lift is described as a semi squat posture, which allows the handler to rest the load on the thigh(s) during the lift.

However, there is general agreement on some fundamental principles that should help protect materials handlers when lifting under most circumstances.

Typically, when lifting the handler should:

1. Test the weight of the load, its weight distribution and stability within the container. This minimizes the chance of being surprised by an unexpectedly heavy weight or having to contend with a shifting load.
2. Get help from someone or use a mechanical assist device whenever very heavy or awkward loads must be handled. When lifting with a partner, the team should communicate and coordinate the task (when lifting, moving, and lowering the object).
3. Know where the load is going. Make sure the path is free from obstructions or hazards, and ensure that space is available at the destination to set the object down.
4. Be positioned close to the load, with the feet flat and stable. Keep the load as close to the body as possible so that the center of gravity is as close to the spine as possible. Moving the load away from the torso (horizontally and/or vertically) greatly increases the load to the back, shoulders, and arms, and, therefore, increases the risk of injury.
5. Grasp the object with the whole hand using a power grip whenever possible. Avoid pinching with the fingertips to hold an object. Ideally, the handler should be able to use both hands on handles or handholds to pick up the load.
6. Move with natural, smooth, continuous, and balanced motions while avoiding rapid, jerky, or unbalanced lifts. Move the feet to avoid twisting the torso and to maintain balance and stability during the lift, if necessary.

7. Minimize twisting, bending, stretching, and reaching with the trunk during the lift. These movements greatly increase the risk of developing LBP.

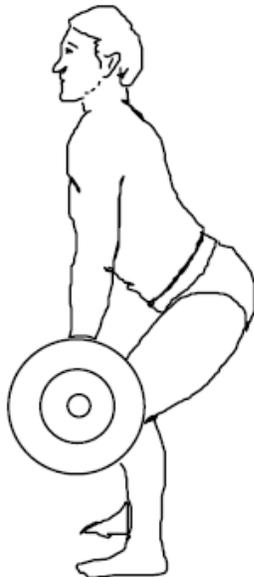
These principles should make it clear that we need to lift with our head before we lift with our back. Taking a couple of seconds to help ensure our safety and health is time well spent.

Body Mechanics

All of the problems in the last exercise had something to do with body mechanics. Lifting, carrying and reaching -- remember, it's not how much you lift or carry as much as it is how you do it. Once you have factored in the upper body weight due to posture or the position of the object to be lifted or carried, you can consider the following examples of how you can overcome the lifting hazard by using proper body mechanics.

Remember the five general lifting rules:

- * Plan the lift.
- * Both squat and stoop lifting is now considered acceptable for jobs requiring repetitive lifting. The term used to describe this is **free form lifting**. No matter what type of lift is used, it is never permissible to exceed the maximum acceptable load of the worker.
- * Keep the load as close to the body as possible.
- * Lift the load with a smooth body motion. (*Avoid jerking*)
- * When turning, do not twist. Turn with the feet rather than twisting of the trunk.



Keep Back Arched When Lifting
Keep Head and Shoulders Up

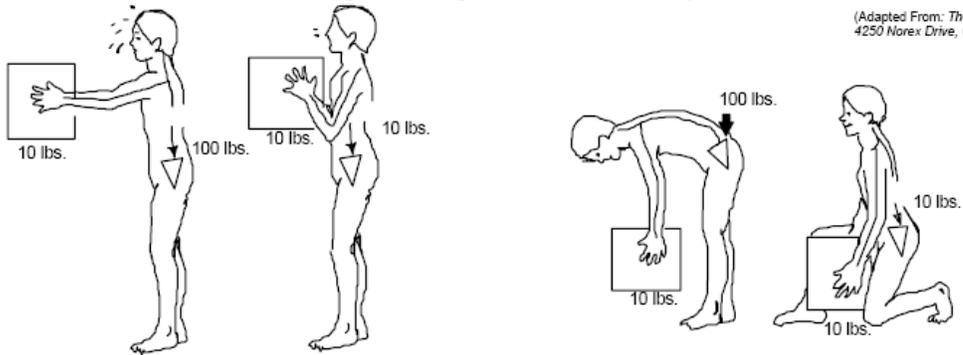


Plan Ahead, Test The Load
Before Lifting.

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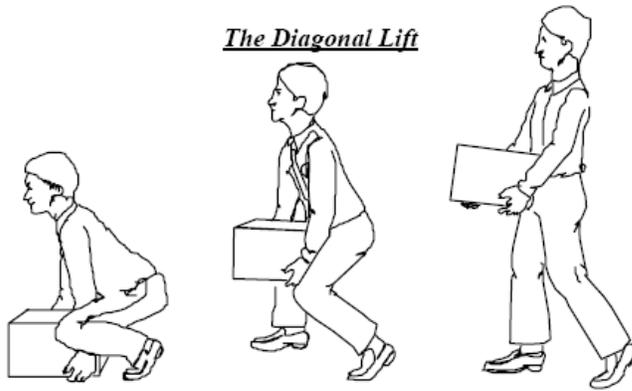
Different "lifting" styling to reduce stress on the back

Keep The Weight Close To The Body



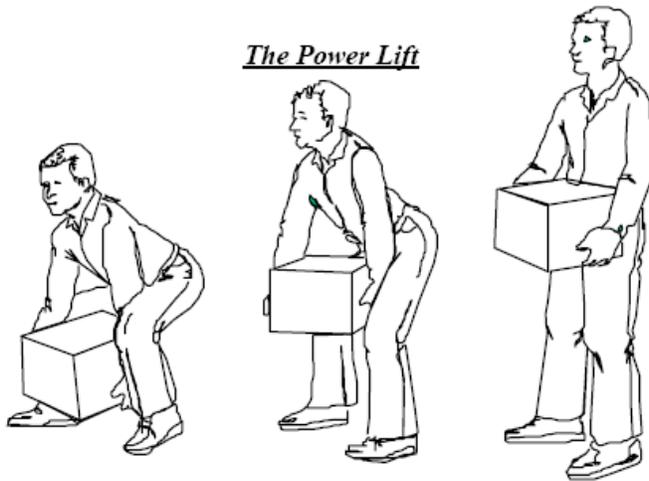
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The Diagonal Lift

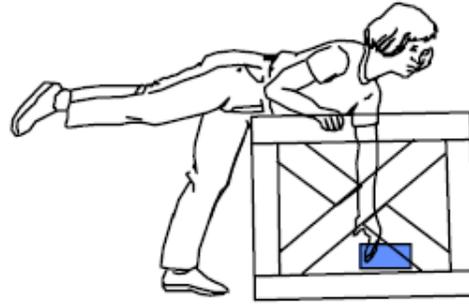
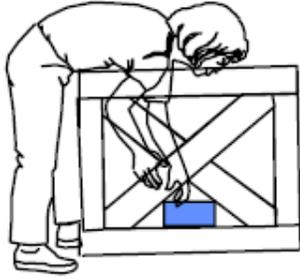


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The Power Lift

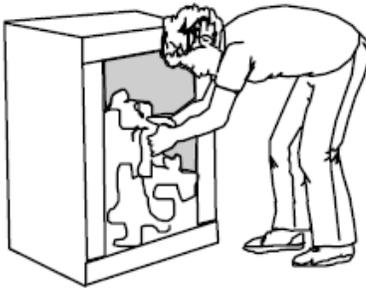


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The Golfer's Lift

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Kneel When Working In A Low Position

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Straight Leg Lift, Bend At The Hips, Not The Back

(Adapted from: The Saunders Group inc.,
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Partial Squat Lift

*(Adapted from: The Saunders Group inc.,
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Pushing, Pulling, Carrying, and Transporting Loads

Generally speaking, lowering is preferable to lifting and pushing is preferable to pulling; however, all these activities have the potential to be stressful to the arms, shoulders, back, and legs.

Factors that influence the ease or difficulty of pushing and pulling are the initial (or breaking) and sustaining forces necessary to move the device, steering, and controlling the unit while in motion, the frequency with which the push/pull task is performed, and the terrain and distance over which the task takes place.

In pushing and pulling tasks it is harder to start a body moving (the initial forces) than it is to keep the body in motion (the sustaining forces). When pushing or pulling, the handler should use his or her own weight to advantage. When pushing the person should lean into the push and when pulling should lean in the direction of travel.

All push/pull tasks require adequate friction between the floor and the operator's shoes to provide adequate traction and avoid slipping.

When pushing, arms should be flexed at the elbow, extended to about half their length, thereby allowing the operator to regulate effort as necessary by flexing and extending the arms. When pulling, arms should be extended, then effort to move the load is transferred to the lower extremities. (See figure 3.)

Carrying tasks have the potential to stress the arms, shoulders, and back in particular. To help minimize these stressors, keep the weight of the load acceptable; keep the load as close to the body as possible; and use both hands in a power grip (rather than a pinch grip) to hold the load.

Other factors that influence the ease of a carrying task are the width (side-to-side) and height of the load, the frequency with which the task takes place, and the distance over which the load is carried.

Ideally, the width of the load should be about as wide as the person's torso.
The height of the load should allow the handler a clear view of the travel path.
Carrying distances should be minimized.

"The easiest way of carrying a load like a crate or a box is holding it by the front corners, with the arms straight, at hip height, so that it does not interfere with the movements of the lower limbs."(See figure 4.)

Loads to be carried to the side of the body (suitcases, grocery bags, brief cases, etc.) should be equipped with suitable top mounted handles, "should be as slim as possible and should clear the ground when the carriers' arm hangs by their side."

Figure 3

Materials handlers should use their weight to advantage when A) pushing or B) pulling an object. Note: In the pushing task the arms are flexed and in the pulling task the arms are extended.

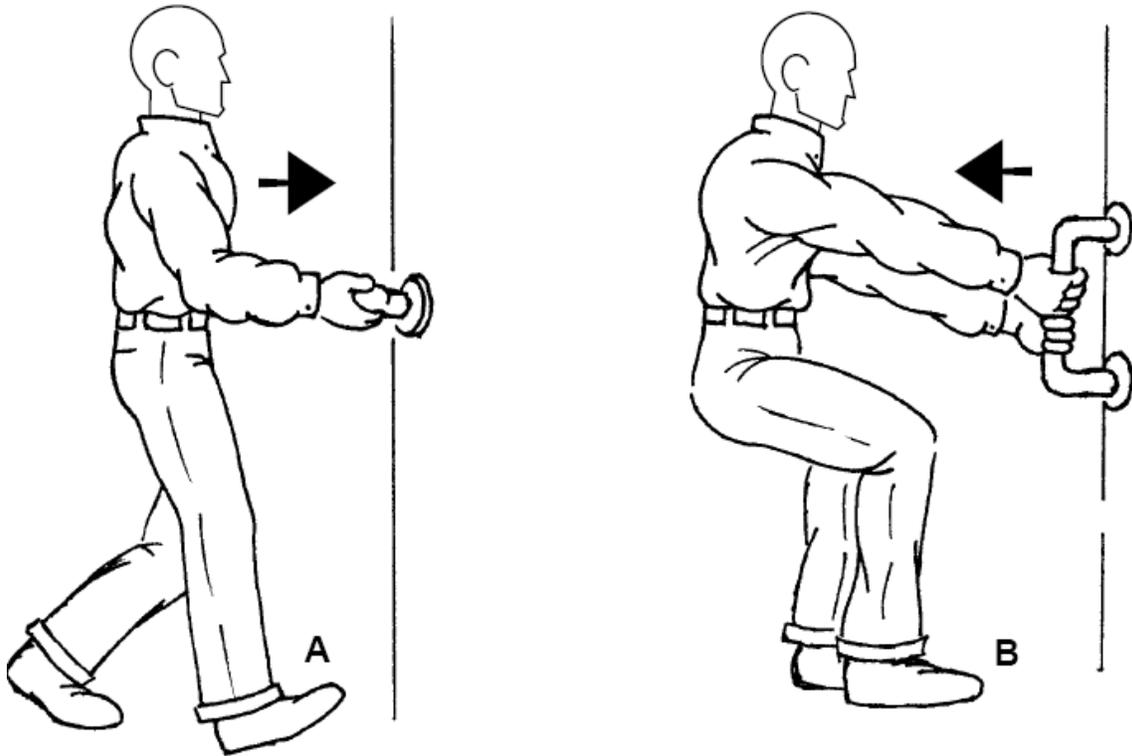
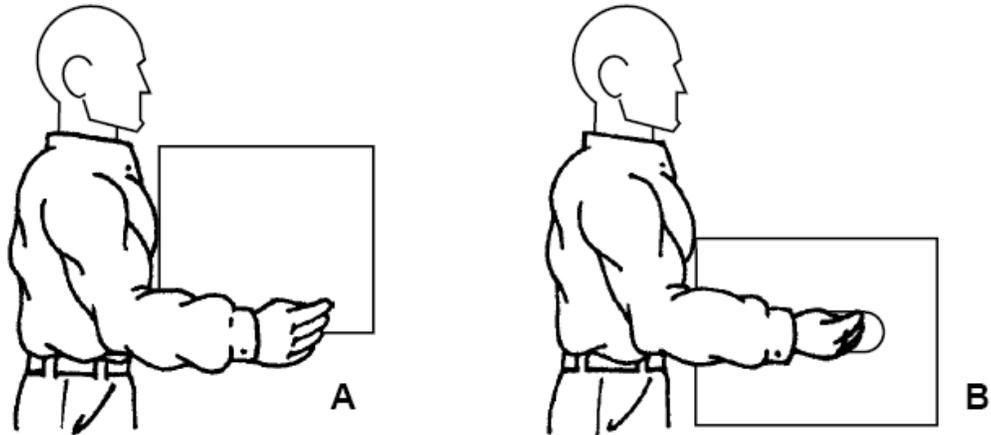


Figure 4

*Carrying boxes; A) with, and B) without hand-holds.
Note: Subject uses a power grip with both type boxes, his arms are extended, and the load is held close to the body.*



(The above material were taken from the Oregon OSHA Back Safety course)