



According to the Bureau of Labor Statistics, more than one million workers suffer back injuries each year, and back injuries account for one of every five workplace injuries.

### The Forces Involved

The amount of force placed on your back under certain conditions can be surprising. Anytime you bend or lean over to pick something up without bending your knees, you put tremendous pressure on your lower back.

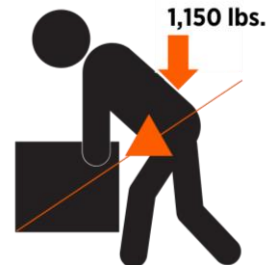
Think of your back as a lever. With the fulcrum in the center of the lever, it only takes ten pounds of pressure to lift a ten-pound object.



However, if you shift the fulcrum to one side, it takes much more force to lift the same object. Your waist actually acts like the fulcrum in a lever system, and it is not centered. In fact, it operates on a 10:1 ratio. Lifting a ten-pound object actually puts 100 pounds of pressure on your lower back.

When you add in the 105 pounds of the average human upper torso, you see that lifting a ten-pound object actually puts 1,150 pounds of pressure on the lower back.

Given these figures, it is easy to see how repetitive lifting and bending can quickly cause back problems. Even leaning forward while sitting at a desk or table can eventually lead to back-related problems.



### Risky Moves

Certain actions are more likely to cause back injuries than others. Anytime you find yourself doing one of these things, you should think: **DANGER!** My back is at risk!

- **Heavy lifting**...especially repetitive lifting over a long period of time.
- **Twisting at the waist** while lifting or holding a heavy load. (This frequently happens when using a shovel.)
- **Reaching and lifting**...over your head, across a table, or out the back of a truck. Lifting or carrying objects with awkward or odd shapes
- **Working in awkward, uncomfortable positions**...gardening, kneeling, tasks that require you to bend over for long periods of time...Also, sitting or standing for too long without shifting.
- When you find yourself in one of these situations, take measures to protect your back by using proper lifting procedures, getting help, turning with your feet instead of with your waist, or taking short breaks to stretch and flex your muscles.



## Preventing Back Injuries

The best way to prevent back injuries is to develop habits that reduce the strain placed on the back. There are some basic things you can do to help.

Avoid Lifting and Bending Whenever You Can! Place objects up off the floor. If you can set something down on a table or other elevated surface instead of on the floor, do it so you won't have to reach down to pick it up again.

Raise / lower shelves. The best zone for lifting is between your shoulders and your waist. Put heavier objects on shelves at waist level, lighter objects on lower or higher shelves.

Use carts and dollies to move objects, instead of carrying them yourself. (Remember that it is better on your back to push carts than it is to pull them.)

Use cranes, hoists, lift tables, and other lift-assist devices whenever you can.

### Use Proper Lifting Procedures

You can't always avoid lifting, but there are ways to reduce the amount of pressure placed on the back when you do so. By bending the knees, you keep your spine in a better alignment, and you essentially take away the lever principle forces. Instead of using your back like a crane, you allow your legs to do the work.

1. Take a balanced stance with your feet about a shoulder-width apart. One foot can be behind the object and the other next to it.
2. Use your palms (not just your fingers) to get a secure grip on the load. Make sure you'll be able to maintain a hold on the object without switching your grip later.
3. Squat down to lift the object but keep your heels off the floor. Get as close to the object as you can.
4. Lift gradually (without jerking) using your leg, abdominal and buttock muscles and keeping the load as close to you as possible. Keep your chin tucked in so as to keep a relatively straight back and neckline.
5. Once you're standing, change directions by pointing your feet in the direction you want to go and turning your whole body. Avoid twisting at your waist while carrying a load.



By following these lifting guidelines and by practicing good body/back management, you can prevent back injuries on the job and at home.

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