

# THE MECHANICS OF LIFTING

## *How Your Back Works*

You may know that back injuries are the most common type of industrial accident. That's because no matter what our jobs, we are constantly using our backs—to support our bodies, to bend, sit, twist, stand, even to lie down. All of these activities put stress on our backs, but at no time are our backs more vulnerable to injury than when we're lifting. Understanding how your back works while lifting can help you avoid unnecessary strain and potential injury.

### Back Basics


Your back is made up of moveable bones (called vertebrae) and shock-absorbers (called discs) between each vertebra. These structures are supported by ligaments and muscles that help keep the back aligned in three balanced curves. (You know your back is aligned correctly when your ears, shoulders, and hips are in a straight line.) When your back's three curves are not in balance, there is a greater likelihood of both back pain and injury.

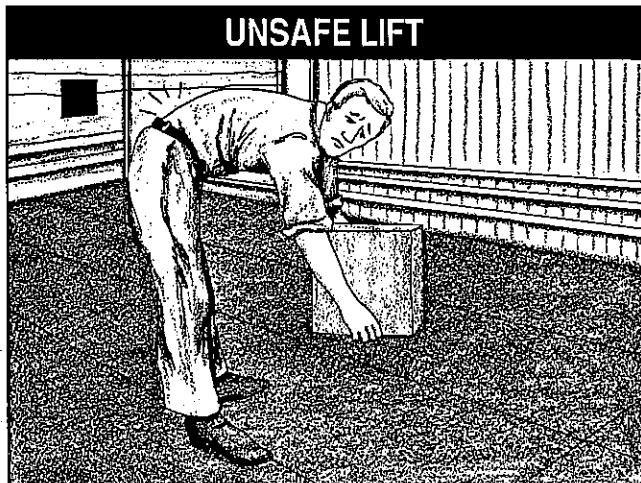
### Lifting Mechanics

When you lift, it's important to keep your back in balance. If you bend at your waist and extend your

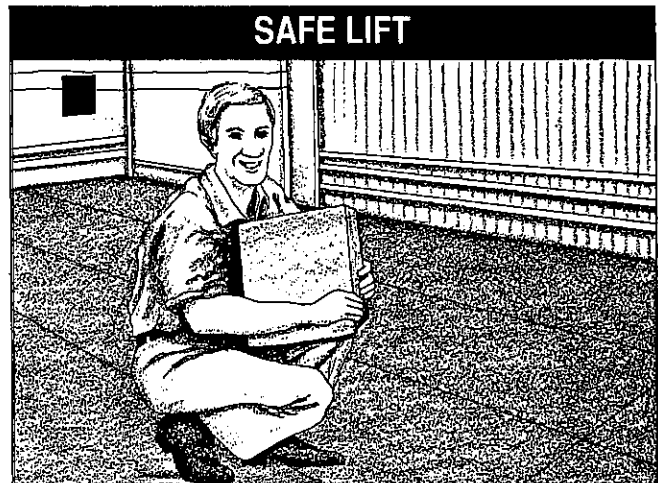
upper body to lift an object, you upset your back's alignment and your center of balance. You force your spine to support the weight of your body *and* the weight of the object you're lifting. This situation is called "overload." You can avoid overloading your back by using good lifting techniques. For example, when you bend at the knees and hug the object close to you as you lift, you keep your back in alignment and let the stronger muscles in your thighs do the actual "lifting." You do not have to extend your upper body and are able to maintain your center of balance.

### Safe Lifting

Safe lifting means protecting your back (and yourself!) while you lift. Before you lift anything, think about the lift—Can you lift it alone? Do you need help? Is the load too big or too awkward? When you do lift, be sure to bend at your knees, hug the load close to your body, and raise yourself up with the strong muscles in your thighs. Remember never to twist while lifting—instead, move one foot at a time in the direction where you want to go and then turn with your leg muscles. Above all, safe lifting means keeping your back in balance and avoiding overload. When you know how your back works, it's easier to understand how you can protect it. 



If you bend at your waist and extend your upper body to lift an object, you upset your back's alignment and your center of balance.



If you bend at the knees and hug the object close to you, your back stays balanced and the muscles in your legs do the lifting.