

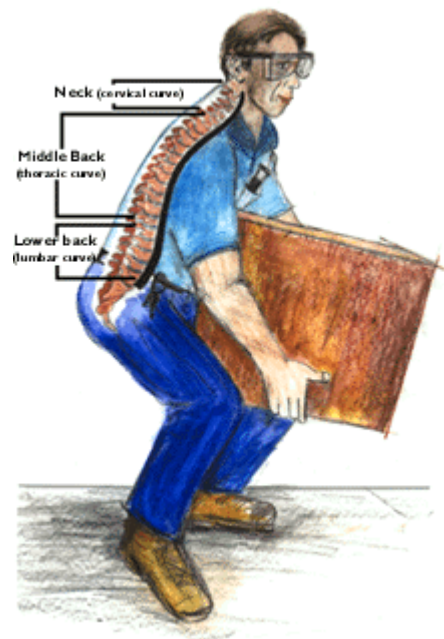


## Workplace Ergonomics

### Lift with Proper Posture

Lifting is strenuous—it requires proper training and technique. By lifting with your large, strong leg muscles instead of the small muscles of the back, you can prevent back injuries and reduce low back pain. There are five steps to follow when lifting an object:

1. **GET CLOSE TO THE LOAD** Get as close to the load as possible— as if you're hugging the object. Having the object close to your body put less force on your low back.
2. **MAINTAIN YOUR CURVES.** Keep yourself in an upright position while squatting to pick up
3. **TIGHTEN YOUR STOMACH MUSCLES**  
Tightening the stomach helps support the spine.  
*Don't hold your breath while tightening the muscles.*
4. **LIFT WITH YOUR LEGS**  
Your legs are the strongest muscles in your body— so use them.
5. **PIVOT DON'T TWIST**  
Turn with your feet, not your back. It isn't built for twisting from side to side.



### **Large or Heavy Loads.**

If a load is too heavy to lift alone, ask for help. Pick one person to coach the lift — this way you lift and lower at the same time.

**Overhead Loads.** If a load is above your shoulders, use a step stool to elevate yourself until the load is at least chest level— preferably waist height. Pull the object close to your body and then lift. Remember to maintain your curves — use your arms and legs to do the work.

## Maintain Your Curves

The muscles in the back are unlike many other muscles in your body— they are almost always in use. They hold your torso in an upright position throughout your day. They assist you every time you pick something up, whether it's a pen or a concrete block. They support posture while you sit in your chair, and they even work at night when you sleep.

In order for you to understand what is good posture and what is bad posture— let's take a look at how your back is designed:



Your back is composed of three natural curves that form an S-shape. When your three natural curves are properly aligned, your ears, shoulders, and hips are in a straight line. Without support from strong, flexible muscles, your back loses its three natural curves. Poor posture can lead to pain and serious injury.

When you use good posture, your back is aligned in three natural curves supported by strong, flexible muscles. Good posture helps prevent back strain and pain.

## Warm Up for Work



Just as an athlete prepares before playing a sport, you too should prepare before work to help prevent back injuries. These slow stretches help prevent back injuries and make your muscles more flexible. Hold each position for 20 seconds and repeat 3 times before work.



## Maintain a Healthy Back with Exercise and Rest

It doesn't take much time to improve the strength and flexibility of your back. In just 10 minutes a day, you can perform a few exercises, which can prevent a lifetime of low back pain!

**Partial sit-ups** strengthen your stomach muscles:

- Lie on your back with both knees bent and your feet flat on the floor. Slowly raise your head and shoulders off the floor, keeping your hands across your chest.
- Work up to 30 repetitions.





**Pelvic raises** strengthen your low back:

- Lie on your back with both knees bent and your feet flat on the floor.
- With arms lying at your sides, tighten stomach muscles, squeeze buttocks, and slowly raise your hips into the air. Hold for 5 seconds and then slowly bring the buttocks back to the floor.
- Repeat 20 times

The **wall slide** strengthens your back and leg muscles:

- Stand with your back against a wall and your feet slightly apart.
- Slide into a half-sit. Hold as long as you can; slide back up.
- Repeat 5 times.

### **Aerobic Exercise**

Aerobic exercise also stretches and strengthens the muscles that support your low back, which combined with healthy eating can also help you maintain your ideal weight. If you're overweight, the extra pounds add to the strain on your low back. Aerobic exercise like walking can help you lose weight.

### **Proper Rest**

The best position for resting the back muscles is lying on your back on your living room floor with a pillow under your knees and a rolled up towel under your neck. You can also lie on your side in the fetal position— bend the knees to reduce strain on the low back and put a pillow between your knees, and under your head and neck to keep them level.



## **Minimize the Impact of Whole-Body & Hand/Arm Vibration**

Whole-body vibration is experienced in any work condition that involves sitting, standing, or lying on a vibrating surface. Excessive levels and durations of exposure to whole-body vibrations may contribute to back pain and performance problems.

### **Hand-arm Vibration**

Vibrating hand tools or work pieces transmit vibrations to the holder, and depending on the vibration level and duration factors, may contribute to Raynaud's syndrome or vibration-induced white finger disorders. These disorders show a progression of symptoms beginning with occasional or intermittent numbness or blanching of the tips of a few finger to more persistent attacks, affecting greater parts of most fingers and reducing tactile discrimination and manual dexterity.

The following recommendations can help reduce the likelihood of developing hand-arm vibration syndromes:

- Select power tools with anti-vibration properties.
- Use handle coatings that suppress vibrations.
- Increase coefficient of friction on handles to reduce force requirements.
- Keep power tools balanced and lubricated to minimize vibration.
- *Job rotation*-have more than one person perform tasks that involve exposure to hand-arm vibration.
- Use vibration attenuation gloves.

### **Hand Tool Use & Selection**

Implementing the following suggestions for proper selection and usage of hand tools will help reduce the likelihood of developing work-related musculoskeletal disorders (WMSDs) in the hands, wrists, and arms:

- Maintain straight wrists. Avoid bending or rotating the wrists; a variety of bent-handle tools are commercially available.
- Avoid static muscle loading. Reduce both the weight and size of the tool. Do not raise or extend elbows when working with heavy tools. Provide counter balance support devices for larger, heavier tools.
- Avoid stress on soft tissues. Stress concentrations result from poorly designed tools that exert pressure on the palms or fingers. Examples include short-handled pliers and tools with finger grooves that do not fit the worker's hand.
- Reduce grip force requirements. The greater the effort to maintain control of a hand tool, the higher the potential for injury. A compressible gripping surface rather than hard plastic should be used.
- Whenever possible, select tools that use a full-hand power grip rather than a precision finger grip.
- Avoid sharp edges and pinch points. Select tools that will not cut or pinch the hands even when gloves are not worn.
- Avoid repetitive trigger-finger actions. Select tools with large switches that can be operated with all four fingers.
- Wear gloves that fit. Tight-fitting gloves can put pressure on the hands, while loose-fitting gloves reduce grip strength and pose other safety hazards.