

# T E A C H   T O O L S

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A guide to assist in training employees.

## *#13 - Preventing Back Injuries*

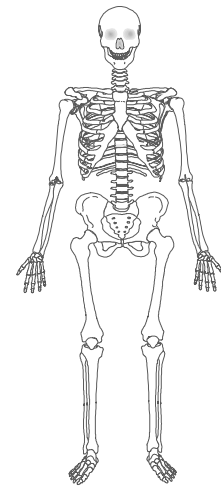
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# Preventing Back Injuries



## ***Meeting Objectives -***

To explain safe lifting techniques and other ways to prevent back strains and injuries. The result should be more awareness of how to lift, sit, stand and otherwise reduce the potential for back injury, a greater use of correct techniques and postures, and a reduction in back strain and injuries.

## ***Suggested Materials to Have on Hand -***

- ☐☐ A box of manageable size and weight for lifting practice
- ☐☐ A demonstrator to show correct lifting methods
- ☐☐ Chair to demonstrate correct sitting posture

## ***Introduction/Overview -***

As you may have learned from personal experience, back injuries can be extremely painful and long-lasting. They can keep you in bed for extended periods of time and occasionally they even require surgery. For some people, back pain doesn't really ever go away.

Back strains and injuries can happen anywhere, but a great many of them happen at work. OSHA has reported that "Back strain due to overexertion represents one of the largest segments of employee injuries in the American workplace. Only the common cold accounts for more lost days of work."

The National Safety Council has stated that overexertion is the cause of about 31 percent of all disabling work injuries. Injuries to the back occur more frequently than do injuries to any other part of the body, so it's very important that we all understand just what types of acts are likely to strain our backs and how to perform tasks in ways that reduce the risk.

Improper lifting is probably the greatest single cause of back pain and injury, so it's worth taking the time to learn how to do it correctly. We'll also look at how we can sit, stand, sleep and perform a variety of tasks in ways that won't harm the back.

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## ***General Hazards -***

To understand why there are so many back injuries, it's useful to understand what's in your back to be injured.

Basically, the back holds up your entire body. The spinal column, which runs down your back, is an s-shaped stack of bones called vertebrae. These vertebrae are connected by ligaments and separated by soft discs that cushion and protect the bones. At the center of the spinal column is the spinal cord, and nerves run from there out to other parts of the body.

The back does its job with the help of muscles attached to the vertebrae. These muscles work with the stomach muscles to keep the spinal column in place and keep the back strong.

When you experience back strain or pain, it's usually related to the muscles or ligaments. The pain results from overusing or stretching those muscle, or moving them in ways they're not meant to move.

You can injure your back with one wrong move, the kind of thing that can happen shoveling snow or by a buildup of stress on weak muscles. Other kinds of back injuries are:

- ☐☐ Muscle spasms, which are usually caused by tension or stress;
- ☐☐ Strains and sprains, the result of too much exertion of weak muscles or incorrect lifting;
- ☐☐ Slipped discs, which are tears or other damage to the discs between the vertebrae, causing the vertebrae to rub together and irritate or damage the spinal nerves;
- ☐☐ Hernias, which are ruptures in the abdominal wall caused by strains from lifting.

There are various tasks and movements, especially lifting, that can lead to back injuries if they're not done properly. But probably the biggest hazard to your back is you. Among the things that make back injuries much more likely are:

- ☐☐ Poor physical condition. The muscles in your back and stomach hold up your back and let it move properly. But when those muscles are weak, they can't do their job very well. You know that regular, sensible exercise is important to general health, and it's very important to a healthy back. Exercise helps keep back muscles strong and flexible.
- ☐☐ Extra weight. When you're overweight, your back has more to hold up. A potbelly, because of its location, is particularly tough on the back.
- ☐☐ Poor posture. The lower back carries the burden of most of our body weight. Poor posture, whether sitting or standing, stresses the back instead of supporting it.
- ☐☐ Stress. When you feel tense, your muscles, including your back muscles, tense up too.
- ☐☐ Overdoing it. Too often, people are afraid to say, "That's too heavy for me." Don't make that mistake. You're not going to seem very strong and tough if you're laid up in bed with a back injury that you got lifting things that were too heavy for you. So don't overestimate your strength. If you think you'll need help, get it!

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## ***Identifying Hazards-***

The way you live and treat your body has a lot to do with how healthy your back is. But even if your back is in good shape, there are a number of tasks and actions that can create trouble if you don't do them properly and in a way that minimizes strain on your back. Among the hazards to the back that may be encountered on the job are:

- ☐☐ Heavy lifting;
- ☐☐ Twisting and lifting at the same time;
- ☐☐ Lifting objects that have odd shapes;
- ☐☐ Reaching and lifting objects;
- ☐☐ Bending and overexerting;
- ☐☐ Lifting items whose weights vary;
- ☐☐ Sitting or standing too long in one position.

There are also potential hazards to your back in other seemingly unrelated activities. You can, for example, injure your back if you slip on an unlit stair or a wet floor. Or you might trip and fall and injure your back simply because you didn't notice an object lying on the floor.

You can also hurt your back while you're sitting if your posture isn't good, or if you lean and stretch awkwardly to reach something instead of getting out of your chair to get it.

The bottom line to identifying back hazards is to become conscious of just how important it is to protect your back. Learn to avoid situations that force your back to do something it's not meant to do or not able to do.

## ***Protection Against Hazards -***

The best way to protect your back against the many hazards it faces is to develop habits that reduce the strain on the back.

- ☐☐ Slow down. Back injuries that result from slips, trips and falls can often be prevented by walking, instead of running, from place to place. It also helps to wear shoes with nonslip soles, and, of course, to look where you're going.
- ☐☐ Stretch first. Your back muscles, and the stomach muscles that help them, benefit from stretching before heavy use. It's a good idea to stretch gently before lifting or performing other back related activity. Gentle stretches at the beginning of the day, and periodically during the day, also help keep your back muscles flexible.
- ☐☐ Rest your back. When you sleep, your back gets a rest from carrying your body around. To give your back the best rest, sleep on a firm mattress. The best sleep positions for your back are on your side with your knees bent or on your back with your knees elevated.
- ☐☐ Avoid lifting. Whenever possible use material handling equipment such as hoists, hand trucks and dollies, rather than your body to lift. And when you transport material on a hand truck, push it, don't pull it.

Another way to minimize the strain of lifting is to break a load down into small, manageable pieces.

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Or, if you have to lift a heavy or awkward object manually, get another person to help you do it.

Look for ways to limit the number of times you have to lift. Plan jobs so materials and tools only have to be moved and placed once. Try to keep materials on shelves, pallets or tables at waist height when possible. Lifting from and to that height is less of a strain than a higher or lower placement.

- ☐☐ Make planning the first step of lifting. You can't eliminate all lifting but you can eliminate some of its hazards if you take the time to plan before you lift.
- ☐☐ Choose the straightest, flattest and clearest route to your destination, even if it's not the shortest.
- ☐☐ Look for places to stop and rest along the way. Remove any objects you might trip over. Make sure the area where you'll unload is clear.
- ☐☐ Check the object you'll be carrying to see if it has rough or jagged edges or slippery surfaces.
- ☐☐ Lift a corner of the object to check that it's not too heavy or unstable for you to carry. If it is, try to separate the load into smaller pieces.
- ☐☐ Wear gloves that give a good grip on what you're carrying, safety shoes with reinforced toes and nonskid soles, and clothing that fits snugly and won't get in the way.
- ☐☐ Warm up before lifting with gentle bends and stretches. Get additional personnel or mechanical help if needed.

### ***Safety Procedures -***

Keep in mind that your back's major job is to carry your body. When you lift the wrong way, your back has to support you and whatever you're carrying. That's where the trouble starts. So the object of safe lifting is to protect your back by letting your legs, not your back, do the work.

Here's how to lift correctly:

- ☐☐ Stand close to the load with both feet firmly on the floor, about shoulder width apart. Point your toes out.
- ☐☐ Squat down close to the load with your back straight, knees bent and stomach muscles tight.
- ☐☐ Place your hands on diagonally opposite corners of the load so one hand pulls the load toward you and one lifts it.
- ☐☐ Grip the load firmly with both entire hands, not just the fingers.
- ☐☐ Bring the load as close as possible to your body. Keep your weight centered over your feet. Tuck your arms and elbows into your side and your chin into your neck.
- ☐☐ Stand up slowly, keeping your back straight and letting your legs do the lifting.
- ☐☐ Make sure you have a good grip and can see where you're going.
- ☐☐ Take small steps, keeping the load close to your body and no more than waist high.

Caution: If you have to change direction while you're carrying a load, don't twist. Twisting is a major cause of back injuries. To change direction, move your feet.

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When you get where you're going, you also have to unload carefully. Here's how to avoid injury when unloading:

- Lower the load slowly, bending your knees so your legs do the work.
- Position your hands so the fingers don't get caught under the load.
- Place the load on the edge of the surface and slide it back.

This technique is the basis of safe lifting. But, since unsafe lifting causes so many injuries, doctors and researchers have also come up with safety tips for nonstandard lifting situations. Here are a few:

### **Safety tips for nonstandard lifting situations:**

- *Objects with awkward shapes.* Squat next to the object with your feet spread. Grip the top outside corner and bottom inside corner. Then follow proper lifting procedures, keeping your back straight and knees bent.
- *Objects in hard-to-get-at locations.* Get as close as possible to the object. With back straight and stomach muscles tight, bend forward slightly at the hips and bend your knees. Grip the object, then let your leg, stomach and buttock muscles do the heavy lifting.
- *Objects in high places.* When you have to get something from, or place something in, a high place, stand on a sturdy ladder. Don't stretch! It's also best to have another person to help you.
- *Raising an object.* When you have to lift something up, try to make the pieces as small as possible. Then lift the object waist high and rest it on a lower shelf or your hip. Bend your knees, lift, and straighten up.
- *Lowering an object.* When you have to bring an object down from a high place, push on it first to test its weight and stability. If it's a size and weight you can move alone, slide it as close as possible to your body. Then get a good grip and slide it down.
- *Two-person lifts.* When you're going to lift with someone, try to find a person who's about your height. Begin by deciding which of you will say where and when to move. At the signal, lift and raise together, following proper procedure. When you're ready to move, keep the load at the same level. Then move and unload together.

### ***Other Back Protection Techniques -***

While lifting correctly is a major factor in protecting your back, it's not the only one. You can also help prevent strain and pain and strengthen your back by sitting, standing and moving in ways that don't put your back out of whack.

Sit up straight. When you sit hunched over, your ligaments end up doing the work the muscles are supposed to do. The result is pressure on the vertebrae, especially in the lower back.

The best posture for your back is to sit up straight, close to the desk or table, with your back against the chair back. If your chair doesn't offer support for your lower back, consider using a cushion or rolled up towel. Your knees should be bent, feet on the floor.

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You can also protect your back by moving correctly while you're seated. If, for instance, you want to reach something off to the side, do it by turning your whole body. Don't twist just part of your body, it's an invitation to back strain.

When you read, hold the pages up so you keep your good sitting posture. When you talk on the phone, lean your elbow on the desk or table to support your arm. Don't cradle the phone in your neck.

And be sure not to sit for too long at a time. Get up every so often and stretch and walk around. If possible, shift occasionally to another sitting position.

Stand tall and straight, but not stiff when you stand. Your shoulders should be even and back. Keep your head up and your pelvis forward. If you have to stand in one place for a while, try to keep one foot raised on a step or other elevation. Shift legs every so often.

Drive with your back straight, knees bent.

Work on your back in a position that keeps your back flat and knees bent. Don't stay in one position too long; get up and stretch.

Shovel so your legs do the lifting, not your back. The best position is to have your hands far apart, legs bent at the knees and back straight.

Working low to the ground, it's best to bend your knees and keep your back as straight as possible. Avoid bending from the waist.

Catch falling objects when you're standing with your back straight, knees bent and feet firmly on the ground. As you catch, let your legs absorb the impact.

Don't jump! Even a jump from a short height like a loading dock can cause a back injury. Use a ladder or steps.

If you feel back pain, stop what you're doing. Don't play doctor with your back; you can't always judge how serious the problem is. If you, or anyone around you, develops back pain on the job, the thing to do is stop, rest and don't move. Have someone send for professional medical attention immediately.

Once the back has been injured, it's important to let it heal and to avoid further strain. In some cases, temporary light-duty work is recommended so that you can rebuild your strength slowly.

### ***Wrap Up -***

As we've discussed, your back is incredibly important. It supports your entire body and you can't afford to damage it. Yet most people experience back pain at some time in their lives, and the back is the most likely part of the body to get injured on the job. Since many back injuries are serious and can leave you with lasting pain, it's very important to do everything you can to prevent them.

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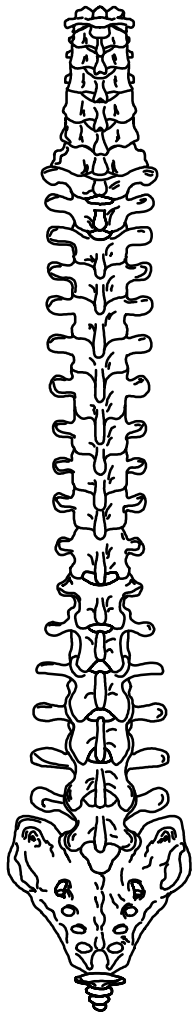
Improper lifting is the greatest single source of back injuries, so concentrate on doing it right.

- Use mechanical aids for lifting whenever possible.
- Break a load into its smallest possible parts before lifting.
- Don't overestimate your strength.
- Plan your route before you lift.
- Lift with knees bent and back straight so your legs, not your back, do the work.
- Move your feet to change direction; don't twist.

Remember to sit and stand in ways that give your back support. Keep your back in mind as you plan and execute any task. And try to stay in good shape with a healthy diet and a regular program of exercise.

You need your back to sit, stand and move. Do your best to protect it and to stay healthy and flexible.





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*Suggested Discussion Questions -*

1. What role does the back play for your body?
2. What are some of the “life-style” factors that affect your back?
3. What part of your body should do most of the work in lifting?
4. What are some of the things you do before you start to lift?
5. What are the basic steps of safe lifting?
6. What kind of movement should you avoid to protect your back?
7. What steps do you follow when unloading?
8. What kind of sitting posture is best for your back?
9. What kind of standing posture is best for your back?



# Back Safety Checklist

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## Develop good back-protection habits:

- Exercise regularly for strong, flexible muscles and avoid being overweight, especially a pot belly.
- Avoid or control stress.
- Don't overestimate your own strength.
- Walk, don't run, to prevent slips, trips and falls.
- Sleep on a firm mattress, either on your side with knees bent or on your back with knees elevated.

## Seek alternatives to lifting:

- Use equipment (hoists, hand trucks, dollies) when possible.
- Push, don't pull, loaded hand trucks or dollies.
- Break a large load into several small ones.
- Get a helper to lift heavy or awkward objects.
- Plan jobs and work areas to minimize the need to move tools and materials.

## Before you lift:

- Plan the straightest, flattest and clearest route to your destination.
- Look for places to stop and rest along the way.
- Remove any objects you might trip over.
- Try to have a waist-high surface for unloading.
- Make sure the area where you'll unload is clear.
- Check the object you'll be carrying for rough or jagged edges or slippery surfaces.
- Lift a corner of the object to check weight and stability.
- Wear gloves with a good grip, safety shoes with reinforced toes and nonskid soles, and clothing that fits snugly.
- Warm up with gentle bends and stretches.

## Lift correctly:

- Stand close to load with feet firmly on the floor, about shoulder width apart, with toes pointed out.
- Squat down close to the load with back straight, knees bent, stomach muscles tight.
- Place hands diagonally on opposite corners of the load so one hand pulls load towards you and one lifts it.
- Grip load firmly with both entire hands, not just fingers.
- Bring load as close as possible to body. With weight centered over feet, tuck arms and elbows into side, and chin into neck.
- Stand up slowly. Keep back straight and let legs do the lifting.
- Check for good grip and ability to see route.
- With load close to body and not above waist high, move forward with small steps.
- Change direction by moving feet, not by twisting.

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### Unload properly:

- Lower load slowly, with knees bent so legs do the work.
- Position hands so fingers don't get caught under load.
- Place load on edge of surface and slide it back.

### Nonstandard loads and lifts:

- Lift awkward shapes by squatting next to object with feet spread. Grip top outside corner and bottom inside corner. Then lift correctly.
- Get as close as possible to objects in hard-to-get-at locations. Keep back straight, stomach muscles tight. Bend slightly forward at hips and bend knees. Grip object then let leg, stomach, and buttock muscles lift.
- Use ladder to reach objects in high places, work with a helper.
- Lift to high places by breaking down load into smaller pieces. Lift object waist high, rest it on lower shelf or hip, bend knees, lift and straighten up.
- Push on object to be lowered to test weight and stability. If no help is needed, slide object as close as possible to body. Get a good grip and slide it down.
- Match heights for two-person lift and decide who says where and when to move. Lift and raise together at signal, using proper technique. Keep load at same level, then move and unload together.

### Sit properly:

- Sit up straight, close to desk or table, back against chair back, knees bent and feet on floor.
- Use cushion or rolled towel if needed to support lower back.
- Turn whole body, don't twist, to reach to the side.
- Hold pages upright while reading.
- Lean elbow on desk while on phone; don't cradle phone in neck.
- Break up long sitting periods with brief stretches and walks.
- Shift sitting positions periodically.

### Stand tall:

- Stand tall and straight, not stiff.
- Stand with shoulders even and back, head up, pelvis forward.
- Raise one foot on elevation if standing at length in one place and shift feet periodically.

### Other back-saving postures:

- Drive with back straight, knees bent.
- Work on back with back flat, knees bent; get up and stretch periodically.
- Shovel with hands far apart, back straight, and legs bent at knees so they do the work.
- To work near the ground, bend knees and not waist, with back as straight as possible.
- Catch falling objects standing with back straight, knees bent, feet firmly on ground.  
Let legs absorb impact during catch.
- Don't jump, even from a short height; use ladder or steps.

### Play it safe:

- Never ignore back pain. Stop activity, rest and report it.

