

# Proper Personal Lifting Techniques

Strains, sprains, hernias, fractures, and bruises are the common injuries associated with manual materials handling. Lifting, carrying, dropping, and lowering are the common physical acts responsible for these injuries. Sprains account for approximately 30% of the lost time injuries in the Air Force. Many of the strains are the direct result of improper lifting techniques, lifting with no assistance, or failure to use required and available material handling equipment.



Your back is the main support structure of your entire body. Along with your muscles and joints, it allows you to move (sit, stand, bend etc.) and to bear weight. But the back is also a delicate, finely balanced structure that can be easily injured if it is not cared for properly. Knowing the basics of back care can make the difference between a healthy back and an aching one!

## A HEALTHY BACK

The back (or spinal column) is composed of 24 moveable bones called vertebrae. Between each vertebra is a cushion-like pad called a disc that absorbs shock? Ligaments support these vertebrae and discs and muscles that keep the back properly aligned in three balanced curves. When any of these various parts becomes diseased, injured or de-conditioned, back problems and pain are almost certain to follow.

## A BALANCED BACK

A healthy back is a balanced back—your cervical (neck), thoracic (chest), and lumbar (lower back) curves are properly aligned (You know your back is aligned properly when your ears, shoulders and hips are "stacked" in a straight line). A healthy back is also protected and supported by flexible "elastic" disc and well-conditioned muscles.

## AN ACHING BACK

A number of physical conditions, such as curvature of the spine (scoliosis), arthritis and herniated (ruptured) discs, can cause back pain, but the majority of backaches are due to poor posture and weak supporting muscles. Improper posture places excess stress on the spinal column. Over time, poor posture can lead to sudden or recurrent back pain. Weak muscles contribute to, and are often responsible for, poor posture since they cannot adequately support the spinal column.

## PREVENTIVE BACK CARE

Once you understand how your back works, and what can go wrong, you're ready to start taking care of your back—for the health of it. By using proper posture (when you sit, stand, lift, recline and move) and by exercising the muscles that support your back, you can help prevent the most common causes of backaches. The result is freedom from back pain and a stronger, healthier back.

## EXERCISE FOR PAIN RELIEF

Exercise plays a central role in both overcoming and preventing back problems. The Following stretching exercises will help relieve the discomfort associated with many minor Sore Back problems.

## WARNING

**Do not attempt any exercises if you are currently experiencing any back pain. Always consult with your doctor before beginning any exercise program.**

**Shrug your shoulders:** This exercise helps release tension in your neck and shoulder muscles. It is especially helpful for those who work on a computer all day...or who spend most of their evening surfing the Web.

**Knees-to-Chest Pulls:** This is a "life-saver" exercise whenever the muscles in your lower back go into spasm. It does a good job of releasing muscle tension and reducing the pressure on your intervertebral disks.

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### Potential Injuries

Our back is a very delicate part of the body through which runs our spinal cord and important nerve roots. The spine is supported by different groups of back muscles. If we are not careful enough, we can easily injure our back muscles, and worse still, the inter-vertebral discs (slipped disc). In serious situations, the dislocated or slipped disc may compress the nearby spinal cord or nerve roots, causing severe pain or even disability.

### Major Causes of Injuries

- ✦ Excessive bending, arching and twisting of the back (spine). For example, stooping, reaching upwards, side way bending, twisting the trunk etc.
- ✦ Manipulating loads away from the trunk.
- ✦ Applying sudden or jerking force on the back.
- ✦ Lifting or carrying loads that are too heavy (beyond one's capability).
- ✦ Inadequate grip on heavy, awkward, hot, sharp or slippery objects.
- ✦ Frequent or prolonged repetitive movements, such as stooping, twisting or stretching the trunk, etc.
- ✦ Un-coordinated team lifting or weight shifting to one side.



Use leg muscles for lifting



Handle loads close to body

### Safety Basics for Preventing Back Injuries

1. Avoid bending, arching, stretching and twisting the body when lifting or moving loads.
  - When lifting up a load from low level, bend your knees instead of bending your back. Use your leg muscles instead of your back muscles to lift up the load.
  - Move the load as close to your body as possible before lifting it up. This will minimize the stress on your back.
  - Avoid handling heavy loads above shoulder height. Use a sturdy stool for reaching heights.
  - When storing things on shelves or racks, put heavier loads or frequently used items at waist height. This will minimize the need for bending the back.
  - Allow sufficient space for maneuvering loads to avoid the need for twisting the body.
  - Lay out the work area so that frequently used materials are put in front of the operators to reduce the need for twisting or stretching.
2. Work at an appropriate pace and have a mental note on the approximate weight of the load to be handled. This could avoid sudden or unexpected force acting on the back during lifting.
3. If practicable, make the load lighter by using smaller containers, splitting the loads etc. Ask for additional helping hands if the load is too heavy to be handled all by you. Mechanical aids should be considered wherever practicable.
4. Arrange your work to void prolonged repetitive lifting motions. Break the repetitive pattern by inserting appropriate rest periods or by doing other jobs.
5. Have a coordinated team for team lifting. Arrange the distribution of loads properly among the team members. A team leader should be appointed to give instructions for coordinating the lift.

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## How to Lift and Carry Safely

Lifting and carrying are power jobs -- when you lift and carry the wrong way, you can damage your back. Back injuries are the most common type of injury in the workplace, causing approximately 900,000 disabling injuries in 2005. Over half of these injuries are from lifting. Back injuries may be difficult to treat and may have lengthy and expensive rehabilitation times. Whether you are lifting at home or at work, make an effort to take care of your back. The National Safety Council recommends a number of tips to prevent unintentional injuries and keep your back strong and healthy.



## Power Lifting Tips

Protect your hands and feet by wearing safety gear.

Size up the load -- tip it on its side to see if you can carry it comfortably. Get help if the load is too big or bulky for one person. Check for nails, splinters, rough strapping and sharp edges.

**Lift it right** -- make sure your footing is solid. Keep your back straight, with no curving or slouching. Center your body over your feet, get a good grip on the object and pull it close to you. Pull your stomach in firmly. Lift with your legs, not your back; if you need to turn, move your feet and don't twist your back.

## Tough Lifting Jobs

**Size up the load** -- Consider the size, weight and shape of the object.

- ✦ **Oversized loads** -- do not try to carry a big load alone; ask for help. Work as a team by lifting, walking and lowering the load together. Let one person call the shots and direct the lift. Use proper mechanical devices for heavy loads.
- ✦ **High loads** -- use a step stool or a sturdy ladder to reach loads that are above your shoulders. Get as close to the load as you can and slide the load toward you. Do all the work with your arms and legs, not your back.
- ✦ **Low loads** -- loads that are under racks and cabinets need extra care. Pull the load toward you, and then try to support it on one knee before you lift. Use your legs to power the lift.
- ✦ **Look for special hazards** -- Does your load include any hazardous substances? Do you know the proper procedures for handling these materials? Is your load balanced properly?

**Wear appropriate protective equipment** -- Are you wearing a hard hat and appropriate PPE for the job and your workplace?

**Use the right equipment the right way** -- Do you have the appropriate dolly, truck or forklift for the job? Is the equipment in good working order?

**Watch out for pinch points** -- Identify potential pinch points, such as rollers, conveyors, grinders and door frames. Be aware of the potential for pinch points during two-person lift operations or when handling odd-shaped or off-balanced loads.

**Check your path** -- Your vision may be obstructed once you start to move your load. Check your path before you get the job rolling.

**Report material damage to your supervisor** -- Tell your supervisor about dented, ripped or jostled

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materials.

**Ask when you're not sure --** If you're not sure what the load contains, which equipment to use or whether you're wearing proper PPE, ask your supervisor.

**Always** ... use your stomach as a low back support by pulling it in during lifting.

**Remember** ... a strong, healthy, powerful back is vital to your job. It also helps you enjoy life. Take pains to avoid injuries by making it a full-time job to take care of your back!

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### Chapter 4

#### MANUAL MATERIAL HANDLING AND LIFTING TECHNIQUES

**4.1. Special Requirements (Hazards and Human Factors).** Strains, sprains, hernias, fractures, bruises and lacerations may result from poor manual material handling and lifting practices. Lifting, carrying, dropping and lowering are the common physical acts responsible for these injuries. Many strains result from improper lifting techniques, lifting with no assistance or failure to use required and available manual material handling equipment.

**4.2. Manual Handling.** Influencing factors when manually lifting materials include the size, shape and weight of the object to be lifted, and distance to be moved. Proper lifting techniques are as important as the weight of the object. Heavy materials or awkward positions may require mechanical assistance or team lifting be used. Refer to paragraph [4.6.3](#) for additional guidance on team lifting.