

PREVENTING BACK INJURIES

TESC ENVIRONMENTAL HEALTH AND SAFETY

Introduction

Back injuries are considered the nation's most prevalent workplace safety and health problem. Approximately 80-90% of the population will have a back injury sometime during their lifetime. Back injuries are seldom the result of a single event, but are usually caused from years of not maintaining a healthy back lifestyle. However, preventing a back injury can be as simple as employing proper lifting and material handling techniques, exercising regularly, eating properly and having good posture.

Structure & Function Of The Back

The back (spinal column) protects the spinal cord, serves as the main structure of the body, provides a lever for lifting and supports the internal organs. The back is composed of vertebrae, discs, nerves, muscles, ligaments and tendons. The vertebrae when lined up in their natural position form 3 curves: the cervical, thoracic and lumbar. This natural position optimizes muscle use by ensuring the back, leg and abdominal muscles work together.



Back Pain & Disorders

The majority of back pain is related to muscle and ligament strains. Typically, these types of injuries heal quickly with no lasting effect on back health. Discs, however, naturally degenerate over time, beginning relatively early in life - usually somewhat after age 30. This degeneration can be accelerated by poor back health such as improper lifting and carrying of objects involved in many day-to-day activities.

A degenerated disc can bulge, or herniate, irritating nerves in and around the disc. A herniated disc can occur with startling suddenness. One day you may bend down to pick up something small or to tie your shoes, but as you straighten up, you experience paralyzing pain. Though your actions were simple, it was years of neglecting the health of your back that contributed to the injury.

Maintaining A Healthy Back

Contrary to popular belief back health involves more than just using proper lifting techniques. There are several other lifestyle factors that contribute to a healthy back:

Good posture whether at home or at work reduces back, neck and shoulder strain.

Learning to relax can reduce stress and muscular tension. The back is sensitive to muscular tension that builds up during the day.

A well balanced diet will keep your weight under control. Carrying extra weight can alter the back's natural curves placing unnecessary stress on the lower back.

Quit smoking, smoking negatively impacts your back by reducing the amount of oxygen and nutrients available to spinal discs needed for good health and healing.

Regular exercise appears to be more effective at preventing back injuries than training programs, quitting smoking and losing weight. Exercising strengthens and improves the flexibility of the back and abdominal muscles. Exercising, also, lessens the severity of a back injury and promotes the healing process.

Using proper lifting techniques lowers stress placed on the back. No single lifting technique works in all situations. Sometimes you have to make the best of a difficult situation. This means always lifting properly when possible whether at home or work.

Biomechanics Of Lifting

The human back operates at approximately 7:1 ratio. This means with the average human trunk weighing about 100 pounds, you begin a lift with a 700 pound load placed on your back. When adding the weight of lifting a 50 pound object ($7 \times 50 = 350$ lb.), you are in fact lifting approximately 1050 ($700 + 350$) pounds, or over half a ton! The back, when lifting, can be viewed a lever with the lower back incurring the greatest stress. The lower back is the area most susceptible to injury as a result of this stress.

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Material Handling Guidelines

When moving heavy and awkward items it may be necessary to ask for help or use a hand or pallet truck, repack a large container into smaller containers or order smaller size packages. And, regardless of the weight of the object always use proper lifting techniques.

Five Lifting Factors To Consider

1. Object weight
2. Object size and shape
3. Frequency of lift
4. Vertical distance of lift
5. Horizontal distance between the object and person

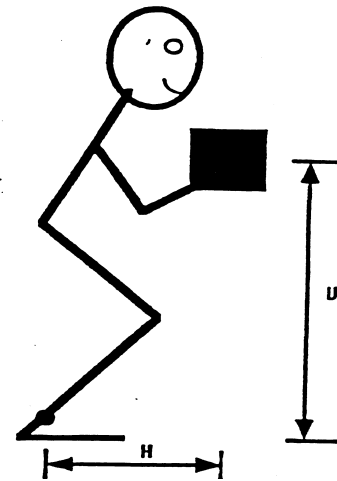
BASIC LIFTING & LOWERING TECHNIQUE

1. Plan the lift (route, obstacles, doors)
2. Estimate the weight of the object (heft/tilt test)
3. Spread feet apart (about shoulder width)
4. Bend your knees
5. Tighten stomach muscles
6. Head up & chin out
7. Securely grip the load
8. Keep the load close to the body
9. Lift slowly & evenly, avoid rapid, jerky motions
10. Avoid simultaneous lifting and twisting

MAINTAIN THE NATURAL CURVES IN YOUR BACK!

To change directions:

- Do not twist the upper body
- Turn feet in the direction of intended travel
- And turn the entire body



Other Back Stressors

Prolonged sitting and standing can also lead to back strain. If sitting for long periods of time it is important to use good posture, frequently change your position, and take regular walk breaks. When standing use good posture, wear soft-soled shoes, use foot supports and do not stand with your legs in a locked position.

Slips, trips and falls are a leading cause of back injuries. Proper housekeeping of spills and debris, and keeping aiseways clear of materials and equipment can significantly reduce the potential for back injuries caused by falls.

Resources At TESC

- EH&S consults on office ergonomics and material handling and can arrange training videos.
- Purchasing consults on ergonomically designed office furniture.
- HRS offers information on stress management

If you have questions or would like additional information contact Environmental Health and Safety at 867-6111.