

BACK INJURY PREVENTION TIPS

Approximately one million people lose time from work each year due to back injuries.¹ Musculoskeletal disorders (MSDs) of the low back and upper extremities are not only an important national health problem; these disorders also impose a substantial economic burden in compensation costs, lost wages and productivity. The estimated annual cost of back injuries in the United States is \$100 billion.² Direct and indirect costs associated with back injuries in the healthcare industry alone are estimated to be \$20 billion annually.³ Additionally, compared to other occupations, emergency medical technicians and paramedics remain among the highest at risk for musculoskeletal disorders.⁴

It is estimated that one in two emergency service workers have sustained back injuries; and, one in four sustain a career-ending injury in their first four years on the job.⁵ Furthermore, lifting is the cause of 62 percent of medic injuries.⁵ Lifting and moving patients, equipment and tools are part of an emergency service worker's job. It is therefore important to understand the risk factors involved in performing these tasks and how to minimize injury potential.

BACK INJURY RISK FACTORS

The risk factors associated with back injuries come from a combination of factors. To reduce the work-related risks of lifting and moving items and/or patients, consider the following factors when designing, planning and organizing work tasks:

- Limit the weight of the object to a maximum of 51 pounds (whenever possible).⁶
- Reduce the reaching distance.
- Keep the heaviest side of the load next to the body.
- Adopt a stable position with feet apart and one leg slightly forward to maintain balance.
- Use a handle for a secure grip or hug the load as close to the body as possible, balance the weight being lifted on both arms.
- Start the lift as close to waist height as possible.
- End the lift as close to waist height as possible.
- Maintain posture with slight bending of the back, hips and knees; lift the load as the legs begin to straighten (lift with the legs, not with the back).⁷
- Avoid twisting the torso - if turning is required, move the feet as the object/patient is carried.
- Reduce the number of times a lift must be repeated.

A visual way to remember some of these tips is to think of a baseball batter and keep the lift within the “strike zone” of the employee.

Back Injury Risk Reduction Tips

Workers and their employers have an opportunity to reduce the risk of back injury before, during and at the end of a lifting task. For in-station tasks, and where possible in the field, consider the following lifting tips.

Before the Lift

- Determine if the object can be lifted with a mechanical assist.
- Evaluate the weight and determine if assistance from a co-worker is needed.
- Move other items out of the way to get as close to the item as possible.
- Organize work areas so items are not stored on the floor.
- Arrange storage areas so items are not stored above shoulder level.
- Clear the pathways so adequate space is available to set the item down easily.
- Store items in containers with good handles or find a spot to grasp the item securely.

During the Lift

- Only carry one item at a time for better visibility.
- Secure a stance and put one foot beside the item if possible.
- Beginning the lift:
 - Keep the item close to the body.
 - Maintain balanced posture allowing for a slight bending of the back, hips and knees.
 - Lift the load as the legs begin to straighten.
- Move feet in the direction the item is being carried.



Ending the Lift

- Keep the item close to the body as it is being placed.
- Move feet in the direction of where the object will be placed.
- Place the item on a surface at waist level (if possible).
- If lowering the item, position the feet with one foot beside where the item will be placed.
- If lifting the object above the waist:
 - Move body forward as the weight is lifted up and outward to reduce the reaching distance.
 - Use a ladder with handrails.

Tips for Patient Handling

Handling and moving patients is one of the more difficult tasks undertaken by emergency service personnel. Moving and handling patients without the needed resources could put the patient and those attempting to move the patient at risk for injury. Consider the following best practices to help reduce these risks.

Administrative Controls

- Identify and communicate the maximum weight that both the patient lifting equipment and ambulances can accommodate.
- Assess the patient's size and weight including the weight of the equipment.
- Assess the patient's ability to assist and support their own weight.
- Know the limitations of the patient transport equipment.
- Know who (and when) to contact for assistance.
- Provide for patient dignity where appropriate.
- Develop guidelines for assessing risks not directly related to patient health.

Onsite Observations (based on established guidelines for scene assessment)

- Evaluate the weight and size limitations of stairs, steps, ramps, porches and decks.
- Identify hazards that may inhibit moving the patient safely (plush carpet, soft ground, inclined surfaces, narrow hallways, etc.).
- Evaluate walking surface conditions (grade, grounds, driveways and walks and interior floor finishes).
- Determine the adequacy of door opening(s).
- Evaluate the location of the patient.
- Evaluate the ability to get the patient handling/lifting equipment near the patient.
- Select and utilize the proper lifting device.

Lifting and Moving the Patient

- Know each individual's physical abilities.
- Attempt to coordinate physical abilities with a partner and apply it to the situation accordingly.
- Think through the dynamics of the lift before attempting to move the patient.
- Lift as a team (communicate).
- Avoid awkward positions as much as possible and use leverage more than muscle strength.
- Use proper lifting techniques and keep the weight close to the lifter's body.
- Use nearby individuals to help facilitate patient transport such as holding doors open and moving items out of the way.
- Whenever possible, limit the lift to the patient and stretcher only. Utilize a follow-up lift for portable equipment such as a medical bag, oxygen and cardiac monitor.

Understanding the primary work-related risk factors that increase the chance of a back injury is the first step in evaluating work tasks. Applying lifting task risk reduction tips to the work task design may help reduce the potential for injury to the lower back. Educating employees in these back injury risk reduction principles may help them to assess and alter their daily tasks to further reduce the potential for work-related back injuries.

RESOURCES

¹ US Bureau of Labor Statistics (n.d.). Injuries, Illnesses, and Fatalities. Retrieved on January 16, 2023 from <https://www.bls.gov/iif/factsheets/msds.htm>

² Institute for Health Metrics and Evaluation (2020). Low back and neck pain tops US health spending. Retrieved from <https://www.healthdata.org/news-release/low-back-and-neck-pain-tops-us-health-spending>

³ Occupational Safety and Health Administration (n.d.). Safe patient handling. Retrieved on January 17, 2023 from https://www.osha.gov/healthcare/safe-patient-handling?_sm_au_=iVVsj2LvSpn0V7s

⁴ The National Institute for Occupational Safety and Health (NIOSH) (n.d.). Musculoskeletal Health Program. Retrieved on January 17, 2023 from <https://www.cdc.gov/niosh/programs/msd/description.html>

⁵ White, D. (2012, November 21). Insights on innovation: A virtual plague could be coming to EMS [blog post]. Retrieved from <https://www.ems1.com/ems-products/patient-handling/articles/1371825-A-virtual-plague-could-be-coming-to-EMS>

⁶ National Institute of Occupational Safety and Health (1996). Revised NIOSH Lifting Equation. [Online] Retrieved from <https://www.cdc.gov/niosh/nioshtic-2/00238738.html>

⁷ Health, Safety Executive (HSE). (2004, Mar 31). Getting to grips with manual handling. ISBN 0 71762828 0