



# Reducing Manual Material Handling Injuries in the Workplace

Injuries that result from manual material handling make up nearly one-third of total workers' compensation injuries. Redesigning work tasks to eliminate conditions likely to cause injuries is the best approach to addressing this exposure. There are certain work conditions, or 'risk factors,' to be aware of:

- 1. Forceful exertion** – such as lifting, carrying or pushing heavy loads
- 2. Awkward postures** – such as twisting at waist, stooping or bending
- 3. Repetitive motion** – such as frequent lifting, reaching, bending pushing, pulling or carrying
- 4. Pressure points** – such as being in contact with or leaning against hard surfaces or sharp edges
- 5. Static postures** – such as maintaining a fixed posture for a long time, e.g., standing at a conveyor line packaging product

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The above risk factors can be addressed by the following improvement options, which often increase overall production efficiency and employee morale:

## Engineering Controls

The first consideration in reducing the above risk factors is called engineering controls. These are task redesigns, workstation rearrangements, weight reduction, tool replacement, etc. Redesign improvements should be a team effort, with management, employees, production and maintenance ensuring all aspects of a task are being considered. Start this evaluation with the highest risk tasks – those that have two or more of the above risk factors, or those that have produced the greatest number of injuries.

- **Eliminate awkward body postures.** Using aids like work positioners and hoists can eliminate tasks altogether, which should be the first exploration. Sometimes sliding items onto a cart or table instead of placing them on the floor to pick them up later is a simple fix. Pushing, pulling or carrying can be avoided using conveyors or hand trucks. For example, packages can be slid from a pallet onto a conveyor by using a scissor lift that keeps the pallet at the same height as the conveyor, eliminating twisting, stooping or bending.
- **Vary the weight/forceful exertion.** Lifting or carrying can be made easier by reducing the weight or number of packages handled at once. There's also the option of increasing workload weight so that it cannot be lifted by employees but must be handled with an aid. Pushing or pulling tasks can be simplified by reducing the load on the cart or installing larger wheels or casters.
- **Reduce reaching.** Workers should not reach out to carry or grab items, because they could place extra stress on the back. Provide handles or grips that can be grasped close to the body. Remove obstructions or other items. Utilize a work platform to maintain items close to the body.
- **Reduce the distance the load must move.** Reduce the vertical height of items when possible. Reduce the distance items must be carried, pushed or pulled by rearranging the department or work task. Reduce distances between stations or utilize pallet jacks or lift trucks.
- **Store materials between shoulder and knee level.** This is considered the power zone and most efficient way to lift. Storing heavy items between this zone is an effective way to reduce injuries.

## Administrative Improvements

The steps below play an important role in overall injury prevention, but they should be used as a last resort once the above control measures are considered:

- **Job rotation.** Rotate employees through different job tasks within the 8-hour work shift. For job rotation to be effective, different muscle groups or body parts must be used. Rotate employees between jobs that vary body postures, weight, force or pace.
- **Adjusting work schedules.** New employees or those that have just returned from an absence should be integrated back into highly repetitive tasks to provide an acclimation period, similar to an athlete in spring training.
- **Introducing breaks.** Having several short breaks throughout the work shift can ease fatigue on muscles. These do not have to be coffee breaks, but can be working breaks. For example, an employee could walk over to retrieve supplies instead of having another employee do so.
- **Work observation.** Observe how employees perform their jobs to make sure they are maintaining correct postures to reduce injury.
- **Training in safe lifting.** This is the most popular approach to preventing back injuries but has proven to be ineffective if engineering controls are not implemented, because stress can be placed on the back regardless of how one lifts.
- **Providing back belts.** This is another common way to reduce back injuries, but research has not concluded that it reduces or prevents injury (refer to the CompWest fact sheet titled Back Belts: Do They Prevent Back Injuries?).

