Course Learning Outcomes for Unit VI

Upon completion of this unit, students should be able to:

7. Recommend ergonomically sound control strategies for workplace situations.
   7.1 Explain the recommended steps in lifting heavy boxes in a safe manner.
   7.2 Identify ergonomically sound strategies for assuring employees use proper lifting techniques.
   7.3 Recommend strategies for prevention of common injuries, including back pain and carpal tunnel syndrome.

Reading Assignment

Chapter 12:
Manual Materials Handling

Chapter 13:
Work-Related Musculoskeletal Disorders

In order to access the following resource, click the links below:


Unit Lesson

This unit will cover manual materials handling and work-related musculoskeletal disorders (WMSDs). Consideration of materials handling is very important in discussing the fundamentals of ergonomics because just about all organizations in the manufacturing and construction sectors require employees to handle materials. As you are well aware, when it comes to handling materials of any sort, you are frequently required to bend, lift, twist, and reach. If these types of movements are conducted frequently and under load, they can cause a range of WMSDs, which we will also consider in this unit.

Moving heavy objects is obviously a job requirement for many individuals. This can include everything from handling sheet metal and structural steel in a metal fabrication shop to manipulating big-box purchases at a retail checkout counter. Handling heavy materials can even apply to an office setting when the parcels truck arrives with 15 boxes of copy paper, or this can apply to the auto mechanic’s shop when removing new tires from the storage rack. Tires can be quite heavy and are awkward to handle. Of course, the weight of the object is not always the only concern. Many items that need to be handled within a given organization might have a manageable weight, but the items may be big and bulky and require twisting at the waist to move the object from one place to another.

Given the discussion above, it is likely that you pinpointed lower back pain and lower back injuries as one of the types of injuries most likely to be sustained as a result of doing some of the jobs described. You are correct! Bending, lifting, and twisting at the waist, particularly when holding a heavy or bulky object, often does lead to lower back injuries. These injuries, however, can be avoided by conducting pre-job medical screening, providing appropriate lifting equipment, doing pre-shift stretching exercises, and through workstation design as you will note in your readings.
Rotator cuff injuries also frequently occur as a result of lifting heavy items by hand. This is a particular problem for airline baggage handlers and is frequently addressed via engineering controls and job rotation strategies (Occupational Safety & Health Administration [OSHA], n.d.).

There are a number of things that can be done to limit injuries and illnesses associated with materials handling hazards. As you may recall from an earlier discussion about the hierarchy of controls, we must first consider engineering controls to eliminate hazards. This can include anything from adjustable height conveyors to various carts and lifting devices or adjustable pallet stands for machine operators to keep their materials at a comfortable height. Indeed, there are entire catalogs filled with devices to make it safer and easier to move and position just about any item that might need to be moved through an industrial facility. Engineering controls can also include workstations designed to minimize the need to lift and twist (Bush, 2016).

Administrative controls are also frequently used to mitigate the likelihood that employees will sustain a WMSD. Depending on the physical demands of a given job, for instance, many employers opt for a pre-hiring physical. Such physicals help to ensure that the employee is capable of the physical demands of the job, and the physicals also establish a baseline for the employee. A healthy back assessment is common as well as a flexibility assessment, lifting assessment, and core muscle strength assessment (Pachman, 2009). It is good to know that a new employee is capable of doing the job according to the job description and that the employee does not have a preexisting condition that could cause problems later; however, employers should limit screening to issues that relate specifically to the job when possible.

Other administrative controls might include job rotation to limit the number of lifts a person has to make during a day or making sure that there are two individuals to lift heavy or awkward objects. Training on proper lifting techniques is also an important way to control lower back injuries. Early identification and conservative treatment are other administrative controls that include subjecting workers to various medical assessments to ensure that workers are not beginning to show signs and symptoms consistent with WMSDs that are the result of cumulative trauma due to repetitive motion over a long period of time. Carpal tunnel syndrome would fit into this category of chronic conditions. Other such chronic conditions might include tendonitis and tenosynovitis (Bush, 2016).

More acute conditions, which are typically tied to an instantaneous event, could include lower back strains or even ulcerated or herniated discs. Lower back issues are one of the most prevalent occupational injuries and illnesses, according to U.S. Bureau of Labor Statistics (BLS) statistics. Another acute WMSD is rotator cuff injuries. This is considered acute because there is usually a specific event tied to the injury. With this said, however, it is important to realize that many acute-injury WMSDs occur after many years of exposure to activities that may contribute to the likelihood of the injury occurring. For instance, a person may experience a rotator cuff injury as a result of throwing luggage onto the cargo hold conveyor at the airport, but the actual cause is the years of abuse sustained by the rotator cuff as a result of doing the job (OSHA, n.d.).

A similar situation is one experienced by Elmer, an older coworker of Adam, who also works at the automobile service department at the big-box store. When Elmer grabbed a tire off of the storage racks, he experienced a sudden pain in his lower back that turned out to be a herniated disc. Again, he did not suffer this for years, but this one motion resulted in severe back pain. OSHA, of course, would expect this to be recorded as an injury like the rotator cuff injury mentioned above because it was tied to an instantaneous event, but we would be remiss in not recognizing the fact that Adam’s coworker has an extremely physical job and that the years of climbing in and out of the floor pit, pulling and replacing tires, and working in awkward positions has likely made a contribution to the injury. This is why it is important to consider all employee job tasks from an ergonomics perspective. One lift may not cause a lower back or rotator cuff to go out, but hundreds of lifts on a daily basis are bound to take their toll.

In this unit lesson, we discussed materials handling strategies to consider in the workplace and common WMSDs. Materials handling strategies were discussed from an engineering and administrative controls perspective. Engineering controls, such as conveyors, various types of carts, and lifting devices are certainly important; however, administrative controls are also quite useful in helping to mitigate materials handling hazards. Various WMSDs were also identified and are discussed in greater depth in your textbook. Please take the time you need to read through your unit materials to get a good grasp on these important concepts as they will likely be of use to you as you continue your career as a safety professional.
References

