Course Learning Outcomes for Unit VII

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

6. Perform ergonomics-related hazard assessments.
   6.1 Perform a hazard assessment of a workstation.
   6.2 Recommend improvements based upon a hazard assessment's findings.

8. Summarize ergonomics-related regulatory efforts and standards.
   8.1 Identify ergonomics standards and recommendations.

Reading Assignment

Chapter 14:
How to Conduct an Ergonomic Assessment and Ergonomic Assessment Tools

Chapter 15:
Ergonomics in the Healthcare Industry

Unit Lesson

We are nearing the end of our discussion surrounding industrial ergonomics. In this unit, we are going to be considering the process of evaluating the employee’s workstation based on the materials presented thus far in the course. As safety professionals, it will be important for you to have an understanding of this process as it is not uncommon for a safety professional to be called upon to conduct such evaluations in the workplace for simpler operations or to organize the appropriate expertise and participate in evaluations of more complex operations. A second topic of discussion for this unit includes ergonomics in healthcare settings. Ergonomics-related injuries and illnesses are one of the primary causes of workers’ compensation claims in the healthcare industry as a result of patient transfer operations. Transferring a patient back and forth between a bed, chair, bath, and so on requires healthcare professionals to lift and maneuver a significant amount of weight from awkward positions. Finally, we will touch on how the Occupational Safety and Health Administration (OSHA) enforces ergonomics-related hazard standards.

Conducting Evaluations

In considering how to go about conducting an evaluation, it is important to understand the job tasks that a given employee has to perform in a typical workday. If you consider Adam’s situation, the hypothetical employee who works in the automotive service center at the big-box store, it should be obvious that a given person may have multiple job tasks at multiple workstations and that the cumulative effects of these job tasks can contribute to occupational injuries. Thus, a thorough ergonomics assessment requires an understanding of all of the job tasks that a given employee does throughout the day.

Observation of the various job tasks performed is important, and, as we learned in previous units, it is good to take a team approach to the assessment. One rule of thumb commonly applied in ergonomics evaluations includes identifying situations where a given employee engages in job tasks that require him or her to do work in a position that is not a neutral position. For instance, when a person is bent over or has to reach above his or her shoulders, this needs to be noted. These positions deviate from a neutral, resting position. Consider Adam’s situation when changing oil from the garage pit; he needs to reach above his head and manipulate things using his hands multiple times a day when changing oil. Other things that need to be noted include
whether the employee has to lift (e.g., lift wheels from the garage floor or new tires from the rack) or perform strenuous tasks.

In conducting such an evaluation, it is necessary to take a number of measurements for future analysis (Lee & Rempel, 2012). Information such as the weight of the objects lifted, the employee reach distances, where the objects are lifted from and where they are placed, and the heights of relevant working surfaces must all be documented. Likewise, it is important to take note of frequency and duration of various activities. For instance, how often does Adam have to lift his hands above his head to remove oil pan plugs and oil filters? How many turns does it take to remove oil filters? How much force is exerted? What kind of tools does he use to make the job easier? We would also want to look at the tire changing and tire rotation processes in addition to the tire replacement process and other activities conducted throughout the day. These processes would also need to be documented to include postures, tools, forces applied, and task frequencies and duration.

In essence, job tasks, task duration, frequency of activities, tools, postures, characteristics of objects lifted, and forces exerted all need to be documented in order to get a complete picture of a given employee’s job. One documentation tool that is very helpful in conducting this evaluation is a video camera. Cameras have been used for decades to evaluate employee movements throughout the day in ergonomics evaluation. Of course, a person using a video camera should have training on how to document employee motions for ergonomics evaluations (Paquet, Mathiassen, & Dempsey, 2006). Measurements taken during the evaluation, such as workstation heights, forces applied, job task frequency and duration, and object weights, can also be documented in the video footage, although it is also important to take good notes as well. If something happens to the video footage, one does not want all of that time and effort to go to waste.

Once the documentation is acquired, the information can then be compared to guidelines that have been published by various sources such as the National Institute for Occupational Safety and Health (NIOSH) lifting guide, the Rapid Upper Limb Assessment (RULA), and the Rapid Entire Body Assessment (REBA) (Stack, Ostrom, & Wilhelmsen, 2016). Assessment tools such as these can be useful for safety professionals to establish parameters to serve as a basis for improving job design and decreasing the likelihood of job tasks that result in work-related musculoskeletal disorders (WMSDs). Properly taken video footage can also be analyzed by individuals with expertise in ergonomics. For instance, some large corporations have ergonomists on staff who can evaluate video footage, along with properly documented evaluation materials. This individual may then be able to make recommendations to improve the job under evaluation.

One last item to mention with respect to ergonomics evaluations that would be conducted anywhere, including healthcare facilities, is that evaluations should also include employee interviews. Employee input is very important as this information can help to identify sources of stress and strain that may not be noticeable in just observing the employee doing his or her job. In addition, this is also an opportunity to learn about activities the employee does outside his or her job that can affect workplace injuries. Consider an airline luggage handler who is also an avid bowler, for instance. One would need to consider this kind of information when considering the likelihood of rotator cuff injuries. Another example might be a situation where an employee like Adam is also a competitive weight lifter. This information would be useful to know in conducting an ergonomics evaluation for his job tasks.

**Health Care**

Obviously, Adam's job requires a great deal of exertion, and the job tasks he performs carry a level of risk with respect to sustaining WMSDs. Indeed, there are some jobs that seem to be prone to these types of disorders. As noted in Chapter 15, for instance, healthcare workers and the movement of patients and equipment are large contributors to the overall WMSD problem here in the United States. There is plenty of documentation found within the textbook, and OSHA also identifies this as a significant problem. Part of the required reading for this unit is the OSHA webpage, “Guidelines for Nursing Homes: Ergonomics for the Prevention of Musculoskeletal Disorders.”

Healthcare workers are at a significant risk for these types of injuries because of the required movement of patients/residents throughout the workday. Consider that even lean adults tend to weigh over 100 pounds, and many adults weigh well over 200 pounds. These individuals are often unable to move from place to place on their own and need to be transferred. Humans can also be somewhat awkward to move due to the weight distribution, jointed appendages, and the need to be careful not to injure the patient.
It also needs to be considered that patients or residents may also need to be moved frequently throughout the day. A given resident in a long-term care facility, for instance, may need to be moved from his or her bed to a chair or wheelchair, or the resident may need to be transferred from a wheelchair into a bath for bathing or for other therapeutic reasons. The resident may also need to be wheeled to the cafeteria and ultimately transferred back into bed at the end of the day. Some residents also need assistance dressing themselves, which requires that the patient be moved and physically manipulated.

Because of all of this, lower back injuries are quite common in the healthcare professions, to the extent that it is warranted to give this issue special treatment. There are also a number of controls that have been put into place to assist employers in the healthcare industry to ensure that lower back injuries are minimized such as the development of a variety of patient lifting devices as well as proven administrative controls such as scoring patient mobility on a scale and requiring specific lifting protocols based on mobility. Protocols for less mobile patients may require actions such as the use of a gait belt, two-person lifts, or the use of a patient lifting device.

**OSHA Regulations**

Given the amount of information out there on the subject of ergonomics in various work settings, it might surprise you to discover that OSHA does not actually have a standard dealing with workplace ergonomics. There was an effort at the end of the Clinton administration to promulgate an ergonomics standard, and a Final Rule was published. However, this OSHA standard was very controversial and was actually rescinded by Congress shortly after the Bush administration took the reins. Since this point in time, OSHA has been enforcing ergonomics-related issues using Section 5(a)(1) of the Occupational Safety and Health (OSH) Act, which states that employers are required to keep their workplaces free of recognized hazards. OSHA uses existing, industry-related standards and guidelines to demonstrate recognition of hazards for the purpose of issuing citations under Section 5(a)(1) of the OSH Act.

Asking what regulations cover ergonomics is kind of a trick question. OSHA does not have a specific regulation; rather, it is required to apply a much more difficult test of demonstrating that a given employer did not keep the workplace safe from recognized hazards. OSHA, however, has produced a number of useful recommendations for a number of industries that have been identified as having a high incidence of ergonomic-related injuries and illnesses. You can find out a lot more about how OSHA handles ergonomics-related issues by spending some time on OSHA’s ergonomics website (OSHA, n.d.).

**Conclusion**

In this unit lesson, we have considered the ergonomics evaluation process and have paid some specific attention to the tools and processes for conducting such an evaluation using a physically intense job as an example. We have also touched on some specific ergonomics-related issues that are specific to the healthcare industry and have touched on the importance of understanding workers’ activities outside of the workplace as important for conducting a thorough evaluation for the workplace. Finally, we considered OSHA’s approach to handling ergonomics-related issues in the workplace. Hopefully, this unit lesson and your readings will help to provide you with some additional perspectives that will be useful to you in your role as a practicing safety professional.

**References**


**Suggested Reading**

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

Consider reading the Occupational Safety and Health Administration (OSHA) webpage below, which covers the ergonomics in nursing homes as well as some guidelines and tips for nursing home staff.