Course Learning Outcomes for Unit II

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

3. Discuss body-centered design for mitigating common workplace stressors.
   3.1 Identify ways to improve a workplace based upon measurements of a specific area.
   3.2 Explain how a stretching routine can mitigate hazards related to common workplace stressors.

4. Explain prescribed practices for training and instruction related to workplace ergonomics.
   4.1 Define administrative controls and how they affect the work environment.

Reading Assignment

Chapter 4:
Office Ergonomics

Chapter 5:
Administrative Controls and Stretch and Flex Program

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


Unit Lesson

This unit will center on Chapters 4 and 5 of the textbook. The take-home messages for the two chapters include the ideas of measuring and building a workstation for an office worker and applying the concept of administrative controls to help reduce the potential for cumulative traumatic disorders. Such disorders are common for office workers who spend a good portion of the day typing or reading from a computer screen. We also see additional hazards based on poor ergonomics in the use of handheld electronics. Take a look at where you are right this minute as you review these materials on your computer or other electronic device. What does your workstation look like? Is there anything that can be done to your working space that might make the job easier and more accommodating?

Stretch and Flex

One additional concept found in these chapters is the idea of stretching and flexing while at work to avoid those pesky soft tissue injuries that can oftentimes become workers’ compensation cases. It was not too long ago that the idea of stretching and flexing was not considered useful in an industrial setting, but this is now something that is commonly done in facilities throughout the world. During the initial phase-in stage of the stretch and flex initiative, getting workers to participate was like asking them to give up their birthdays. Even today, on large jobsites throughout the country, workers of all ages and sizes undertake the daily routine of stretching and flexing before engaging in their assigned job tasks. The fact that these stretch and flex movements actually cut down on soft tissue injuries is, of course, important and worthwhile as it can help to mitigate work-related musculoskeletal disorders (WMSDs).
The stretch and flex is one form of administrative control in that it is an organizational procedure implemented to avoid occupational injuries and illnesses. Another important administrative control frequently implemented to deal with ergonomic hazards involves alternating workers’ tasks to avoid any type of cumulative traumatic disorder (Stack, Ostrom, & Wilhelmsen, 2016). When we talk about alternating workers’ tasks, what are we referring to?

**Administrative Controls**

Consider a scenario common to meat packing facilities. Review of injury and illness logs suggests that individuals who perform the same cuts on thousands of pieces per day in a specific operation are beginning to experience symptoms consistent with tendonitis, tenosynovitis, and even carpal tunnel syndrome. Every effort has been made to assure the workstation is as accommodating as possible from an engineering perspective. Knife handles are specially designed to keep wrists in as neutral a position as possible, and knife sharpening is certainly stressed to minimize the force that needs to be applied to cuts. The job, however, still requires repetitive motion with some force applied. Of course, one advantage of the meat packing plant setting is that there are hundreds of operations throughout the facility. One way to eliminate the number of forceful cuts for a given employee, therefore, might include rotating employees to different stations that require different activities and the use of different muscle groups. For instance, there are also sawing operations, cleaning operations such as pushing a squeegee, and other operations that involve the use of different sets of muscles. Such an administrative control is common in industry to limit exposure to a variety of workplace hazards although it is important to remember that the first line of protection is implementation of engineering controls.

By now, you should understand that there are several different ways to help reduce and prevent injuries on the job. You may have already covered the hierarchy of controls in other courses, which requires that one consider engineering controls first, administrative controls second, and personal protective equipment (PPE) as a last resort. There have been many different engineering controls placed into effect to avoid unnecessary injury, and many affect our daily lives. The use of automatic inflating air bags in automobiles is just one example. This engineering control has saved countless lives and is so much more effective than the protection that an arm over one’s face could provide. Think about what you are doing in your occupation right now. What type of engineering controls, administrative controls, and PPE are you utilizing in order to keep safe from injury? If you are the safety person, what are some of the engineering and administrative controls that you have recommended over the years to mitigate workplace hazards?

**Office Workers**

Many people work within the office environment, and some have work-related musculoskeletal disorders that have developed over time. The office workspace does not seem nearly as dangerous as an iron worker’s workspace, for instance, which may require the iron worker to climb steel building structures when the building is being constructed. Yet, with the sheer number of people required to work in office settings, the workers’ compensation injuries and related costs can be staggering if proper controls are not implemented in the workplace. The human body is not meant to be in one position, especially sitting, for extended periods of time while holding the wrists in an awkward position and manipulating things with fingers. If the workspace is not set up correctly, ergonomic-related injuries and illnesses are likely to occur (Lee & Rempel, 2012).

Additionally, employee workstations are typically assigned. Employees are hired or may be promoted, and it is not uncommon for employees to simply be moved around to an open spot. The desk may not be the right height, the keyboard may be misaligned, and the monitor may not have adjustments to bring it to an appropriate eye height. There may even be an annoying background noise like an air compressor on the other side of the wall that jump-starts three or four times an hour, the lights may not be bright enough, and the glare from the light hitting the screen may be too much. Often, employees are too afraid to say anything about difficulties they might be experiencing with their new workstations.

It becomes incumbent on the safety person to seek out individuals who have been transferred to a new workstation to make sure that their workstation is appropriate and not something that is going to cause problems. A broad spectrum of issues should be considered. One such item might include the age of the worker. Older workers may need special considerations related to vision, hearing, and mobility issues, for instance. Those types of issues are not always going to be obvious. Also, not every worker will be willing to volunteer information about his or her limitations, and this unwillingness on the part of the employee to be forthcoming may require that you, the safety person, spend some time investigating the employee’s
situation. Quietly observing employees doing their jobs can help to alert you of any special issues that need to be addressed.

Of course, as previously mentioned, the top 10 list of most dangerous occupations does not include office work, yet many long-term WMSDs occur in offices, and a lot of these disorders can be either directly or indirectly attributed to the office chair. Take a look at the chairs you use, and then review the section in the textbook that relates to the appropriately designed office chairs. There are several pages dedicated to just the chair. The textbook’s emphasis on properly designed chairs makes sense given the amount of time we spend sitting. If a chair cannot be adjusted to accommodate an appropriate arm reach, for instance, shoulder strain and neck problems might result. Allowing workers to get up and move around fairly frequently also seems to make sense and can help to reduce static loading. Thus, it is important that chairs be designed to help workers do their jobs comfortably (Stack, Ostrom, & Wilhelmsen, 2016). This helps to enhance efficiency and reduce potential occupational injuries and illnesses related to working in awkward postures.

Also, since entering electronic information allows for mistakes to be corrected easily, handwriting has become a thing of the past, and keyboard use has increased considerably as compared to the days of the typewriter. This has led to an increase in the incidence of carpal tunnel syndrome in office settings. The carpal tunnel is essentially a narrowing of the tunnel in the wrist that allows nerves, tendons, and vessels to enter the hand from the forearm. Constant hyperextension of the hand on the wrist causes the tunnel to pinch down on the median nerve. This is probably one of the most common and most well-known cumulative traumatic disorders. For those of you who have had this problem, you know how challenging this issue is. Wrist supports, medication, and surgery are used to fix it. Sometimes, even with all of that, it still is a problem. Take a close look at Figure 4.13 on page 91 in the textbook, and get a better understanding of the issues.

The lighting issue is something that needs to be addressed as well. Inadequate lighting for the employee is a significant problem and can cause significant eye strain. The symptoms of eye strain are headache and irritability. Spend some time looking this over in the textbook. Proper lighting is important for sustained productivity as even annoyances can cause an employee to be less productive than he or she might otherwise be.

Noise pollution at the office workspace is also an issue. The amount of damage done to the nerve cells in the inner ear due to constant and pernicious noise can be cumulative, and hearing loss is irretrievable. The amount of noise in the office environment will typically not be as loud as the noise found on a foundry floor with the constant pounding of a 100-ton press, but noise in the office or on the plant floor can certainly impinge on employee productivity and overall comfort on the job and can create unnecessary stress. Frequent exposure to loud noise can cause permanent hearing loss.

It is important, therefore, that all aspects of the work environment be evaluated in considering whether the employee’s workstation is ergonomically sound. This is important from not only an employee safety perspective but also from a quality and productivity perspective. For instance, who do you think is more likely to be more productive and produce higher quality work — the employee working at a well-designed workstation, or the employee who is sitting on a poorly adjusted chair, has poor lighting, and has to listen to an annoying humming sound all day? Indeed, ergonomics is an important part of the safety program, but it is also very important with respect to work quality and productivity.

One final example of ergonomics and how it fits into the safety, quality, and production paradigm is from the movie Saving Private Ryan (Bryce, Gordon, Levinsohn, & Spielberg, 1998). During one of the first scenes of the movie, a secretary working in the typing pool realizes that there are three letters going to the same address in Iowa. If you look closely at the surrounding work area of the typist, you can see just what ergonomics means. The typewriter was set on the desk. The letters to be typed were on a stand next to the typewriter. The typewriter surface was far below the typist’s eye level. The typist sat in a straight-backed chair, and she sat in a posture that was surely not very comfortable. Now, look at today’s workstations and how they have improved. They have improved; have they not? That is the question you should ask of yourself when looking at your employees’ workstations.
References

