Ergonomics in the Workplace – Quick Tips



“Ergonomics” comes from two Greek words: ergos, meaning work, and nomos, meaning laws. Ergonomics is the science of designing the workplace to accommodate the worker. A Polish scientist and educator by the name of Wojciech Jatrzebowski first introduced ergonomics more than 150 years ago. However, ergonomics principles were not widely used until World War II when keeping up with the fast pace of manufacturing war products created physical and psychological problems. Teams of engineers, psychologists, anthropologists and physiologists were brought together to help solve these problems. This was not recognized as ergonomics until much later. Instead, terms such as “engineering psychology” and “human engineering” were used.

The goal of ergonomics, or fitting the job to the worker, is prevention of work-related musculoskeletal disorders (WMSDs). WMSDs are soft tissue injuries that affect the muscles, nerves, blood vessels, ligaments and tendons. According to Bureau of Labor Statistics (BLS) 2018 injury, illnesses, and fatality data, WMSDs accounted for 31 percent of all worker injury and illness cases that resulted in days away from work.

According to the Occupational Safety and Health Administration (OSHA), the primary risk factors for WMSDs are:

- Exerting excessive force
- Performing repetitive tasks
- Working in awkward postures or the same posture for long periods
- Localized pressure to a body part
- Vibration

These risk factors are exacerbated by cold temperatures and when risk factors are combined. The goal of a comprehensive workplace ergonomics program is to identify and eliminate these risk factors.

High Risk WMSDs Occupations

Investment and Return

Most workplace modifications are relatively inexpensive, especially when you compare the cost to the benefits you can gain. Simple modifications, such as adjustable chairs, footrests or work platforms, can significantly reduce workplace stress.

Corrective Measures

Applying ergonomics principles in the workplace can be very beneficial. Alleviating

workplace stress results in improved productivity, efficiency and employee morale. As well as decreased lost work days, employee turnover; and decreased workers' compensation claims and costs related to WMSDs.

Investing in employee ergonomic awareness training is also important. Employees need to be trained on ergonomic issues to aid in identifying problem areas within their jobs. Employee participation is an excellent method of reducing ergonomic issues. Front line employees can often identify problem areas that could go unnoticed. Employee suggestions need to be acknowledged and taken seriously. The goal of employee participation is to stimulate thinking about problem solving, create and maintain interest in safety, and increase morale.

Employee training also needs to address the common risk factors for WMSDs and the importance of reporting their symptoms as early as possible. Early reporting is crucial to initiating corrective measures that can prevent permanent physical damage.

Employee Evaluation

It is important to evaluate the physical capacities of all employees. It's not unusual to see a petite person lifting heavy objects from the floor to a location way over his/her head, while in the same area a very tall person will be sitting at a small work station, hunched over trying to perform light-duty work. Obviously, in this situation, it would be better to switch job responsibilities or incorporate some type of rotation. Although this may be an over-simplification, it does show the importance of considering the physical capacities of employees and placing them where they can perform most efficiently.

Ironically, many employers spend much more time examining the physical limitations of their machinery than their employees' capacities. For example, if an employer is looking for a crane, an engineer would compare a variety of cranes before making the final decision. The engineer would look at all the cranes' capabilities and limitations and learn about the maintenance schedule, maximum lifting capacities, turning radius, etc. Employees are long-term investments, too, and should receive similar treatment. After all, if a crane breaks down, it can be fixed by replacing the defective part. Employees do not have that option, and quite often, never fully recover from injuries or illnesses.

Employers can supply their workers with ergonomically designed work tools, furniture and supplies and direct employees to use them per the manufacturer's specifications. However, this is only the first step. It is very important to get individual employee feedback. Each individual is different, and each worker has their own history that may determine special requirements for ergonomic devices.

Regulatory Issues

Although there is no federal OSHA regulation specific to workplace ergonomics OSHA does expect employers to proactively address WMSD risk factors based on the recommended practices for a safety and health program OSHA does cite employers under the General Duty Clause, for workplace conditions or practices that could or have caused WMSDs. To assist employers in development of a safety and health program that addresses ergonomic hazards both, OSHA and the National Institute of Occupational Safety and Health (NIOSH) have developed a library of occupation and industry specific guidelines:
OSHA

- Ergonomics Program Management Guidelines for Meatpacking Plants. OSHA Publication 3123, (1993).

- Beverage Distribution Hazard Alert Letter. OSHA, (August 18, 2011).
- Solutions for the Prevention of Musculoskeletal Injuries in Foundries. OSHA Publication 3465, (2012).
- Guidelines for Nursing Homes: Ergonomics for the Prevention of Musculoskeletal Disorders(PDF). OSHA Publication 3182, (2003, Revised March 2009).
- Guidelines for Shipyards: Ergonomics for the Prevention of Musculoskeletal Disorders(PDF). OSHA Publication 3341, (2008).
- Guidelines for Retail Grocery Stores: Ergonomics for the Prevention of Musculoskeletal Disorders(PDF). OSHA Publication 3192, (2004).
- Prevention of Musculoskeletal Injuries in Poultry Processing(EPUB| MOBI). OSHA Publication 3213, (2004, Revised 2013). Also available in Spanish(EPUB | MOBI).

NIOSH

- Evaluation of Carpal Tunnel Syndrome and Other Musculoskeletal Disorders at a Poultry Processing Plant. NIOSH Health Hazard Evaluation (HHE) Report 2014-0040-3232 (March 2015, Revised June 2015).
- High Prevalence of Carpal Tunnel Syndrome in Poultry Plant Workers. NIOSH Science Blog, (April 6, 2015).
- Ergonomic Solutions for Retailers: Prevention of Material Handling Injuries in the Grocery Sector(PDF). DHHS (NIOSH) Publication No. 2015-100, (October 2014).
- Ergonomic Guidelines for Manual Material Handling(PDF). DHHS (NIOSH) Publication No. 2007-131, (2007).
- A Guide to Selecting Non-Powered Hand Tools(PDF). DHHS (NIOSH) Publication No. 2004-164, (2004). Also available in Spanish (PDF).
- Elements of Ergonomics Programs: A Primer Based on Workplace Evaluations of Musculoskeletal Disorders(PDF). Publication No. 97-117, (March 1997).

In addition to these guidelines, OSHA’s also developed and is continuously updating their “Ergonomics” landing page where all these guidelines and additional information can be found. It’s a great resource for employers with links to all of the latest WMSD resources from both OSHA and the National Institute for Occupational Safety and Health (NIOSH).

Sources

www.osha.gov/sltc/ergonomics

www.cdc.gov/niosh/topics/ergonomics

Bureau of Labor Statistics Injuries, Illnesses, and Fatalities Data 2018

Frequently Asked Questions

Q: What if I am an employer in an industry for which OSHA does not develop industry-specific guidelines?

A: If there are no guidelines specific to your industry, as an employer you still have an obligation under the General Duty Clause, Section 5(a)(1) to keep your workplace free from recognized serious hazards, including ergonomic hazards.

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