

OE-3: 2016-02

February 2016

## **Ergonomically Correct Equipment Can Decrease the Risk for Work Station Injuries**

### **PURPOSE**

This Operating Experience Level 3 (OE-3) document provides information that managers and workers at Department of Energy (DOE) facilities can use to improve productivity and comfort, while also decreasing the risk for musculoskeletal disorders (MSDs) and injuries when working at or around a computer work station for extended periods.

### **BACKGROUND**

According to the Occupational Safety and Health Administration (OSHA), disorders/injuries that affect muscles, nerves, and tendons are one of the leading causes of lost workday injury and illness. MSDs form over the course of time as a result of exposure to ergonomic and individual risk factors. Three primary ergonomic risk factors are high task repetition, forceful exertions, and repetitive/sustained awkward postures. High task repetition (e.g., typing or using the mouse) can contribute to the formation of MSDs, especially when combined with other risks factors such high force and/or awkward postures. Awkward postures place excessive force on the joints and overload muscles and tendons around the affected joint.

However, risks for work-related MSDs can be prevented or mitigated by applying ergonomic principles to design the workplace, including work flow and furniture, to fit the person performing the job. Successfully implemented and used, an ergonomic process continually identifies ergonomic risk factors and puts control measures in place to reduce or eliminate ergonomic risk

factors. Continually improving this process by practicing ergonomic principles can increase worker productivity, and reduce risks for work-related MSDs.

### **THE ISSUE**

According to the Bureau of Labor Statistics, in 2011, 33 percent of all worker injury and illness cases were the result of MSDs. Although injuries occur in a wide variety of jobs, the focus of this OE-3 is the office environment, specifically work performed at a computer work station. Employers are responsible for providing a safe and healthful workplace – and, implementing an ergonomics process is critical to address this responsibility.

Poorly designed computer workstations can lead to lower productivity, increased worker discomfort, and potential MSDs. Adjustments to a workers' workstations and work tasks can mitigate these issues. Elements of an effective ergonomic process/program include the following items:

- Management defining clear goals and objectives for the process, discussing them with workers, assigning responsibilities, and communicating clearly with the workforce that management is committed to continually improving ergonomics.
- Continuous training and education that enables workers to recognize ergonomic risks, be aware of early signs of ergonomic injury, and understand the workplace ergonomics program/process and its benefits. Workers should be able to recognize early symptoms of MSDs and report them early in order to get the risk addressed before it can lead to an injury.

- Implementing a participatory approach within the ergonomic program, where workers are directly involved with safety and health professionals in assessing work, developing solutions, and implementing changes. Workers should be encouraged to identify potential ergonomic hazards, voice concerns, make suggestions, and engage with appropriate experts on continuously improving the safety of their workplaces.
- Scheduling ergonomic assessments on a timely and regular basis to identify ergonomic risks and identify problem areas before serious illness results in lost productivity and job-loss claims.
- Continually evaluate processes and corrective actions to ensure ergonomics improvement is not a one-time fix.

#### **DISCUSSION: WORKPLACE ISSUES**

According to the author of *Ergonomics Done Right*, December 10, 2015, ergonomics is not just the “bottom line.” Fitting the job to the person and reducing MSDs means workers will be able to continue their non-work activities too, such as playing on their softball teams, knitting, or picking up their children. The author points out that there’s no such thing as a fix that’s too small when it comes to making jobs better. The author also recommends making five free fixes to improve the work environment, such as bringing work closer to you to reduce awkward postures, and storing heavy items, such as boxes, off of the floor. You should be able to reach everything on your workstation within one arm’s length without leaning forward (at least for the items you use most frequently).

*So, what is the first step?*

Perform a self-assessment of your workstation by using a checklist such as the checklist available on the OSHA website, [https://www.osha.gov/SLTC/etools/computerworkstations/checklist\\_evaluation.html](https://www.osha.gov/SLTC/etools/computerworkstations/checklist_evaluation.html). This checklist can help you create a safe and comfortable computer workstation.

If you still have issues that need resolution after completing the self-assessment, request an ergonomic assessment of your work station by either contacting your supervisor, the Federal Employee Occupational Safety and Health (FEOSH) point of contact (if you are a Federal employee), or your employer's occupational safety and health professional. OSHA’s website has further information and guidelines. (See References.)

Employees that telecommute should understand the basic principles of setting up a home office to reduce MSDs.

*What are some recommended changes that will make a difference?*

#### Alter Your Posture throughout the Day

The human body is designed to move. Static postures result in tired muscles, slouching, slumping, and other poor postures. This in turn puts extra pressure on the neck and back. To help prevent this, change positions frequently. One way is to take a break from sitting in an office chair every half hour for two minutes in order to stretch, stand, or walk. In some cases, a height adjustable desk that allows the user to alternate sitting and standing is a good option. Mobile devices are frequently used and posture is important in order to prevent conditions like ‘text neck’ (injury or pain caused by looking down for extended periods).

#### Check Your Chair

A chair should have many adjustable options, such as height, seat pan depth, armrest height, armrest width, and lumbar support. Note that one type of ergonomic chair will not necessarily work for everyone. Different chair model options should be available, and workers should have the opportunity to try different ones out.

Ergonomists do not recommend kneeling chairs since there is no back support and the user’s weight is supported on the knees and thighs. The user must remain cognizant of posture or is likely to slouch. Similarly, exercise balls are not recommended as an office chair. Their use in the office may cause more problems since they

increase the risk of developing low back discomfort and sustaining an injury due to their unstable nature.

Other accessories that can be considered for a work station:

- Monitors – single and dual; should be adjustable (height, angle depth, etc.). Adjust the computer screen(s) so that the top of the screen is at eye level; the chin should be slightly tucked in while viewing the monitor(s).
- Keyboards - split keyboards and smaller footprint keyboards are options.
- Keyboard trays – trays are adjustable with regard to angle and height.
- Mice and trackballs- mice should fit the contour of the hand.
- Document Holders – especially recommended for employees who type from hard copy reference materials, to bring the reference material to the correct height.

OSHA has a purchasing guide regarding computer accessories located at:

[https://www.osha.gov/SLTC/etools/computerworkstations/checklist\\_purchasing\\_guide.html](https://www.osha.gov/SLTC/etools/computerworkstations/checklist_purchasing_guide.html).

## REFERENCES

*Ergonomics: Prevention of Musculoskeletal Disorders in the Workplace*

<https://www.osha.gov/SLTC/ergonomics/index.html>

*Computer Workstations eTool*

<https://www.osha.gov/SLTC/etools/computerworkstations/index.html>

*Computer Workstations eTool, Self-Evaluation Checklist*

[https://www.osha.gov/SLTC/etools/computerworkstations/checklist\\_evaluation.html](https://www.osha.gov/SLTC/etools/computerworkstations/checklist_evaluation.html)

*Five Easy Workplace Fixes for Your People in Ergonomics Done Right*, December 10, 2015, at <http://www.humantech.com/five-easy-workplace-fixes-for-your-people/>

*Ergonomics*

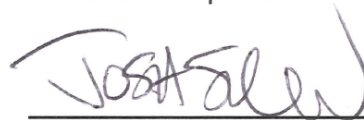
<https://www.nlm.nih.gov/medlineplus/ergonomics.html>

*An Ergonomic Chair?*

[http://www.ors.od.nih.gov/sr/dohs/HealthAndSafety/Ergonomics/Pages/ergonomic\\_chair.aspx](http://www.ors.od.nih.gov/sr/dohs/HealthAndSafety/Ergonomics/Pages/ergonomic_chair.aspx)

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This OE-3 document requires no follow-up report or written response.



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