

# Safety Newsletter

December, 2012.

## This Month's Topic: Office Ergonomics

**H**ave you ever thought of the many things you do while you are at your computer work station? What is your body posture while you are performing general computer functions, such as keying, mousing, or writing? How long do you work at your computer without taking breaks?

By changing the way you interact with your computer equipment and furniture, you may be able to reduce your risk of injury, increase productivity, work quality, morale, and reduce absenteeism.

Ergonomics is the science of adjusting your work environment to fit your body and make it most comfortable to minimize your chances of injury.

Musculoskeletal disorders (MSD) are conditions that affect the part of the body that is subjected to repeated stress, strain or both. MSD occurs when a part of the musculoskeletal system is called on to work harder, stretch farther, impact more directly or otherwise function at a greater level than it is prepared for. The initial impact to the affected area may be minute, but it is the buildup of this that causes the disorder.

Work-related Musculoskeletal Disorder (WMSD) develops from repeated stress and strain to the body's muscles, tendons, ligaments, joints and nerves. The back, shoulders, neck, arms, and hand are the most commonly affected. WMSD is the single largest class of injury claims in office-related injuries at approximately 60% of overall office injury cost claims.

The most common causes of MSDs in the office include:

- ✦ Extended Periods of unnatural posture while using the computer
- ✦ Sitting in the same position for extended periods of time
- ✦ Poor ergonomic work station setup

### Good Working Positions

**T**o understand the best way to set up a computer workstation, it is helpful to understand the concept of neutral body positioning. This is a comfortable working posture in which your joints are naturally aligned. Working with the body in a neutral position reduces stress and strain on the muscles, tendons, and skeletal system and reduces your risk of developing a musculoskeletal disorder (MSD). The following are important considerations when attempting to maintain neutral body postures while working at the computer workstation:

- ✦ Hands, wrists, and forearms are straight, in-line and roughly parallel to the floor.
- ✦ Head is level, or bent slightly forward, forward facing, and balanced. Generally it is in-line with the torso.
- ✦ Shoulders are relaxed and upper arms hang normally at the side of the body.
- ✦ Elbows stay in close to the body and are bent between 90 and 120 degrees.
- ✦ Feet are fully supported by the floor or a footrest may be used if the desk height is not adjustable.
- ✦ Back is fully supported with appropriate lumbar support when sitting vertical or leaning back slightly.
- ✦ Thighs and hips are supported by a well-padded seat and generally parallel to the floor.
- ✦ Knees are about the same height as the hips with the feet slightly forward.

Regardless of how good your working posture is, working in the same posture or sitting still for prolonged periods is not healthy. You should change your working position frequently throughout the day in the following ways:

- ✦ Make small adjustments to your chair or backrest.



### Good working positions



The user's torso and neck are approximately vertical and in-line, the thighs are approximately horizontal, and the lower legs are vertical



The user's torso and neck are straight and recline between 105 and 120 degrees from the thighs



The user's thighs are inclined with the buttocks higher than the knee and the angle between the thighs and the torso is greater than 90 degrees. The torso is vertical or slightly reclined and the legs are vertical

# Safety Newsletter

 December, 2012.

## This Month's Topic: Office Ergonomics

- ✦ Stretch your fingers, hands, arms, and torso.
- ✦ Stand up and walk around for a few minutes periodically.

### Work Process Recognition

Even when the design of the workstations is correct and environmental factors are at their best, users can face risks from task organization which can intensify the impact of other risk factors, such as repetition. Additionally, failing to recognize early warning signs could allow small problems to develop into serious injuries. Addressing task organization factors and medical awareness can help minimize the risk of developing musculoskeletal disorders (MSDs) and stop the progression to injury.

### Prolonged periods of Activity

#### *Potential Hazard*

Computer work, whether it's for a job or for fun, may appear to be a low effort activity when viewed from a total body perspective, but maintaining postures or performing highly repetitive tasks for extended periods can lead to problems in localized areas of the body. For example, using a mouse for a few minutes should not be a problem for most users, but performing this task for several uninterrupted hours can expose the small muscles and tendons of the hand to hundreds or even thousands of activations (repetitions). There may not be adequate time between activations for rest and recuperation, which can lead to localized fatigue, wear and tear, and injury. Likewise, maintaining static postures, such as viewing the monitor, for a prolonged period of time without taking a break can fatigue the muscles of the neck and shoulder that support the head.

#### *Possible Solutions*

Provide variation in tasks and workstations so there is time to recover from the effects of activity. There are several ways to provide recovery time for overused muscles.

Utilize an adjustable workstation so users can easily change their working postures. The use of easily adjustable furniture, for example, allows you to frequently change seated postures, which allows different muscle groups to provide support while others rest.

Ensure that there is enough work space so you can use each hand alternately to perform mouse tasks. This allows the tendons and muscles of the free hand to rest.

Substitute keystrokes for mousing tasks, such as Ctrl+S to save, Ctrl+P to print. Especially if your job is highly mouse intensive

- ✦ High repetition tasks or jobs that require long periods of static posture may require several, short rest breaks (micro breaks or rest pauses). During these breaks users should be encouraged to stand, stretch, and move around. This provides rest and allows the muscles enough time to recover.
- ✦ Alternate tasks whenever possible, mixing non-computer-related tasks into the workday. This encourages body movement and the use of different muscle groups.



The user's legs, torso, neck, and head are approximately in-line and vertical

### Stretching



Stretching during micro breaks

# Safety Newsletter

 December, 2012.

## This Month's Topic: Office Ergonomics

### Medical Awareness

#### *Potential Hazard*

Employees who have not been adequately trained to recognize hazards or understand effective work practices designed to reduce these hazards are at a greater risk of harm. Without proper medical awareness, Musculoskeletal Disorders (MSD) signs and symptoms may go unnoticed and un-addressed. For example, users who do not understand the risk of bad body postures or techniques do not have the knowledge to actively participate in their own protection. Detection and reporting delays can result in more severe injury.

#### *Possible Solutions*

Computer users should take the time to obtain general ergonomics awareness training on the following issues:

- ✦ Factors related to specific computer components that may increase discomfort or risk of injury,
- ✦ Being aware of discomfort (signs and symptoms), and
- ✦ How to correctly use and adjust components and environmental factors.



Be aware of MSD signs

“It’s easy to get caught up in work and ignore our body’s warning signs of overuse or fatigue. Luckily there are great tools you can download to your computer such as EVO, Big Stretch, or Time Out (Mac) that will help remind you to break up those long periods of sitting and repetitive motions. And don’t forget, your eyes get tired too – every 20 minutes or so take a moment to look away from your computer screen and let your eyes focus on an object in the distance.”

-Ginger Sevilla  
Manager, Operations & Business Development