

# Safety Newsletter

## December, 2013

### This Month's Topic: Office Ergonomics and MSDs

#### Alisto Engineering 2013 Safety Statistics

Motor Vehicle Accidents/ Total Miles Driven (01/01/13 – 11/15/13)	Lost Work Days/ Total Work Days (01/01/13 – 11/15/13)	Occupational Injuries and Illnesses (01/01/13 – 11/15/13)
0/ 213,697miles	0 days/ 222 days	0

**M**any of us rely heavily on computers to help us perform our work - for some, dedicated computer work is necessary, while others multi-task throughout the day.

#### Musculoskeletal Disorders (MSD) in the Workplace

Ergonomic injuries are often described by the term "musculoskeletal disorders" or "MSDs." (Also known as cumulative or repeated trauma, repetitive strain injuries or repetitive motion injuries)

Work related MSDs (including those of the neck, upper extremities and low back) are one of the leading causes of lost workday injury and illness. Workers in many different industries and occupations can be exposed to risk factors at work, such as lifting heavy items, bending, reaching overhead, pushing and pulling heavy loads, working in awkward body postures and performing the same or similar tasks repetitively.

Even when the design of the workstation 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.

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.

There is no single "correct" posture or arrangement of components that will fit everyone. However, there are basic design goals to consider when setting up a computer workstation or performing computer-related tasks.

Appropriate placement of the components and accessories for the workstation will allow you to work in neutral body positions, help you perform more efficiently, and work more comfortably and safely.

*"Sit smart! The key to good posture while sitting at your desk is: Your thighs and torso should form a 90-degree angle and both feet should be flat on the floor (if your feet do not reach the floor comfortably, rest them on a footstool) and align your pelvis so that it supports the spine. Sitting and standing straight can make you look taller and thinner!"*

**Ayana Carroll**  
 Human Resources Manager,  
 Alisto Engineering Group, Inc.

#### Examples of MSDs:

- Carpal tunnel syndrome
- Tendinitis
- Rotator cuff injuries (a shoulder problem)
- Epicondylitis (an elbow problem)
- Trigger finger
- Muscle strains and low back injuries

#### Warning Signs of MSD:

- Pain
- Muscle tightness
- Numbness or tingling in the arm, leg, finger, or hand, especially in the fingertips at night
- Decreased range of motion in the joints
- Decreased grip strength
- Swelling of a joint or part of the arm, hand, finger(s), or leg
- Fatigue, achiness, discomfort



#### MSD Contributing Factors:

- **Repeated or prolonged** reaching, twisting, bending, working overhead, kneeling, squatting, holding fixed positions or pinch grips
- **Repetitive work** with the same types of motions over and over again using the same muscles, tendons, and joints
- **Forceful exertions** when the amount of muscular effort is expended to hard or sharp surfaces
- The body or body parts press against **hard or sharp surfaces**
- **Continuous or high intensity vibration** with tools, vehicles, equipment or platforms
- **Combined exposure to several risk factors** may place workers at a higher risk for MSDs than does exposure to any one risk factor.

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### Good Working Positions

To 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:

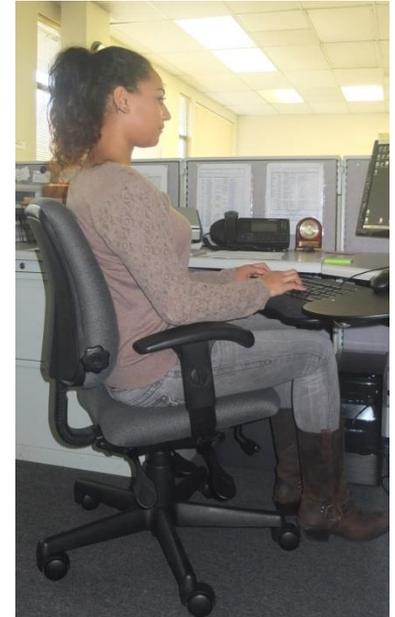
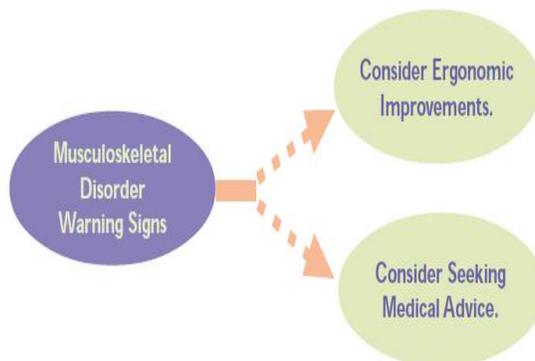
- Hands, wrists, and forearms are straight, in-line and roughly parallel to the floor.
- Head is level, or bent slightly forward, forward facing, and balanced. Generally it is in-line with the torso.
- Shoulders are relaxed and upper arms hang normally at the side of the body.
- Elbows stay in close 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.
- Stretch your fingers, hands, arms, and torso.
- Stand up and walk around for a few minutes periodically.

MSDs are difficult to diagnose and difficult to treat in later phases. Take action as soon as you become aware of warning signs. Early action can prevent the loss of function and serious injury. If an injury does occur, seek medical attention promptly and follow Alisto guidelines for reporting work-related illnesses and injuries.

Addressing task organization factors and medical awareness can help minimize the risk of developing musculoskeletal disorders (MSDs) and stop the progression to injury.



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

### References:

1. <https://www.osha.gov/SLTC/ergonomics/>
2. <http://www.cdc.gov/niosh/topics/ergonomics/#comp>
3. <https://www.osha.gov/SLTC/etools/computerworkstations/index.html>
4. <https://www.osha.gov/SLTC/ergonomics/identifyprobs.html>
5. <https://www.osha.gov/ergonomics/FAQs-external.html>
6. <https://www.osha.gov/SLTC/ergonomics/controlhazards.html>
7. [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_id=9638&p\\_table=STANDARDS](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=9638&p_table=STANDARDS)

Model: Shawna Williams