

Ergonomic Program

What is ergonomics?

Ergonomics is a multi-disciplinary science of adapting human characteristics and capabilities to the work environment to improve human health, performance and optimal productivity. Ergonomics impacts our daily lives and influences the design of tools at work, appliances in our homes, and computer workstations, including monitors, mice, and keyboard and seating.

Ergonomics emphasizes designing the workplace to fit the employee rather than the employee fitting the workplace. The goal of an ergonomic program is to minimize injury and illnesses due to chronic physical and psychological stresses, while maximizing comfort, productivity, and efficiency.

Why is ergonomics important?

“One size fits all” is contrary to ergonomics and is not a practical solution for ergonomic issues. Human work populations vary greatly in physical size and capabilities. Adjustable workstations, office equipment, and several sizes of hand and power tools help employees maintain a neutral posture which can be maintained throughout the day. By adhering to the neutral position, comfort is increased and the potential for physical risk factors are decreased.

Musculoskeletal disorders (MSDs) or repetitive strain injuries are musculoskeletal disorders that result from repeated exposure to physical risk factors. Risk factors affect tendons, ligaments, nerves, muscles and bones. Risk factors in the workplace are caused by sustained awkward postures, repetitive motions, using excessive force or compression.

In 2005, the Bureau of Labor Statistics reported sprains and strains accounted for 41% of all occupational injuries and illnesses involving days away from work. Another 10% of workers had pain (back and other), carpal tunnel syndrome, and tendonitis that resulted in lost time. Many employees experience these conditions and do not lose time from work but suffer pain and discomfort throughout the workday.

What standards or guidelines apply to ergonomics?

OSHA’s approach to ergonomics to address MSDs and to reduce injuries and illnesses in the workplace is to develop industry-specific and task-specific guidelines and web based training assistance. The enforcement of ergonomics includes inspections and citations issued under the General Duty Clause and issue ergonomic hazard alert letters where appropriate. For additional information see Safety and Health Topics – Ergonomics: <http://www.osha.gov/SLTC/ergonomics/index.html>.

OSHA has also developed Electronic training called eTools that provided extensive information on Computer Workstation ergonomics: <http://www.osha.gov/SLTC/etools/computerworkstations/index.html>. Another ergonomics resource recently published is *Ergonomic Guidelines for Manual Material*

Handling developed by DHHS and NIOSH, which can be downloaded from the OSHA web site.

Voluntary consensus groups have produced existing standards for office ergonomics include BIFMA's ergonomics standard, *Ergonomics Guidelines G1-2002*, developed for extensive computer users. This document relates to the International Organization for Standardization ergonomic requirements for offices, ISO 9241 parts 3 ("Visual display requirements") and 5 ("Ergonomic requirements for office work with visual display units"). <https://bifma.org/secure/orderform.html>

How can I get a workstation evaluation?

Evaluations are conducted by a Health/Safety Officer with Environmental Health & Safety. It is suggested that employees use ErgoSmart to become familiar with basic workstation design and the neutral position before requesting a site evaluation. Employees who are experiencing significant discomfort or have filed a Workers' Compensation claim may bypass the software training and to expedite their evaluation request. Direct requests for personal evaluations to Environmental Health & Safety at (480) 965-1823 or ehs@asu.edu.

How do I access ErgoSmart and other training resources available at ASU?

Environmental Health & Safety provides a free software-based training program, ErgoSmart <http://www.asu.edu/uagc/EHS/ErgoSmart/index.htm>, for helping employees improve their awareness of office ergonomics including workstation design and proper posture, or the neutral position. The program also includes guided stretching exercises and a questionnaire for performing an office workstation evaluation. ErgoSmart is available to all ASU employees.

The ErgoSmart software-based training program is self-paced and includes an educational information, guided stretching exercises, and a questionnaire for performing an office workstation evaluation. Department or group ergonomic training at ASU can be provided by contacting Environmental Health & Safety at (480) 965-1823 or ehs@asu.edu.

Increase your comfort at your workstation by reviewing sections of this program. The design of this web site is flexible so from the main menu you can explore sections that relate to your immediate need such as "How to Setup Your VDT" and "VDTs and Your Health."

Another aspect of the web site is the self-evaluation feature available by selecting "VDT Workstation Evaluation". This self -help program identifies problems and will assist you in focusing on possible causes of discomfort. Recommendations follow the completion of the self-evaluation that will be helpful to improving workstation issues and work practices.

If problems persist and additional assistance is needed, contact EHS 5-1823 or ASKEHS@asu.edu.

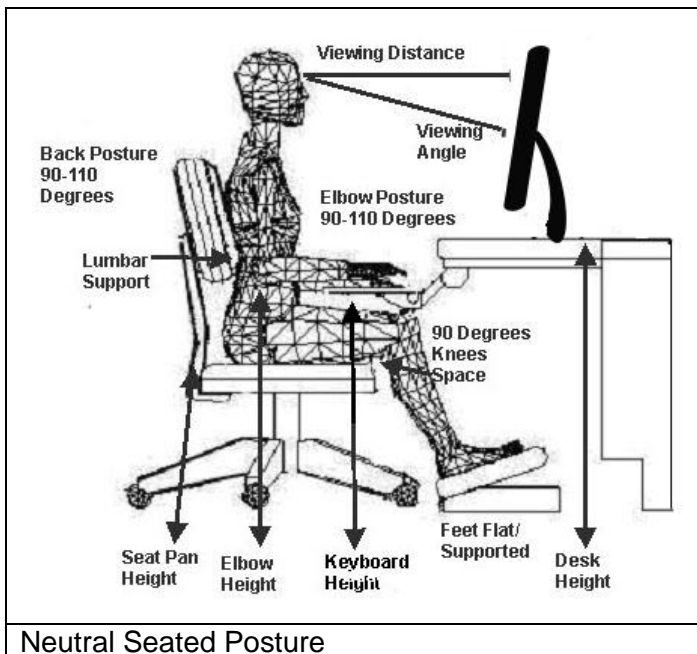
Common Problems

Computer users are increasingly required the mouse to a great extent due to the need for internet browsing, text editing, and graphics programs. Mouse use is becoming a major source of discomfort to computer users. One common problem is placing the mouse too far from the user and not at the same level as the keyboard. The result is an unsafe posture that is not in a neutral position and causes discomfort to the shoulder, forearm, and wrist.

The neutral posture consists of:

- Keeping you wrists straight
- Forearms bent between 90 and 120 degrees.
- Shoulders should be relaxed and remain at your sides and without interference from chair arms.
- Feet are fully supported by floor or footrest.
- Back is fully supported with appropriate lumbar support when sitting vertical or leaning back slightly.
- Thighs and hips parallel to the floor, hips slightly above the knees.
- Knees at a 90 degree posture.

The "neutral posture" is recommended to minimize stress and strain to soft tissues and prevent injury.



Solutions

Position the mouse at the same level as the keyboard and not at a location that causes contact stress to the forearm and wrist. If the neutral posture cannot be attained on the desk surface, consider a keyboard tray. The keyboard tray should include an area for the mouse, be adjustable vertically and able to be used in a negative slope tilting downward

from the body. Tray designs are also available that allow the mouse to be positioned above the 10-key pad. This design is limited for users not regularly using the tho10-key pad. However, the shoulder and arm are able to be positioned closer to the body.

Figure 2: Problem: Mouse position causes reaching (Photos from OSHA eTool)



Figure 3: Solution: Appropriate mouse placement



Under the “VDTs and Your Health” section try some to the exercises at you desk to relieve stiffness and aching. Exercises relieve stress from prolonged static positions and give your body a chance to repair itself. Taking a short break to conduct these exercises will also help to prevent fatigue. Below is an example of the neck stretch exercise designed to relieve stiffness and discomfort to the head and shoulders.

Figure 4: Exercise example from the ErgoSmart Web Site



Neck Stretch

Relax your shoulders.
Lower your chin to your chest and count to 10.
Rotate your head placing your left ear on your left shoulder and count to 10.
Rotate your head placing your right ear on your right shoulder and count to 10.
Relax and repeat.

Where to Find ASU Approved Furniture

Are you in need of a chair or keyboard tray? Set up an appointment to visit the contract furnishings showroom located in the University Services Building at 1551 S. Rural. This is a chance to try seating and view furniture systems. The showroom provides samples of furniture that are designed to promote comfort while providing efficient and productive layouts. Contact ASU Purchasing Furniture Group, Liz Chandler at 965-0578 (http://uabf.asu.edu/furnishing_services).

For more information see the following links on ergonomic-related issues

ANSI

<http://webstore.ansi.org/SdolInfo.aspx?sdoid=39> ISO ICS 13 Environmental Health Protection.

BIFMA

<https://bifma.org/secure/orderform.html>

Computer Ergonomics OSHA eTool

<http://www.osha-slc.gov/SLTC/etools/computerworkstations/index.html>

California DOSH Publications

<http://www.dir.ca.gov/dosh/PubOrder.asp>

Ergonomic Program Elements

<http://www.cdc.gov/niosh/ephome2.html><http://www.cdc.gov/niosh/ephome2.html>

Ergonomics: A Simple Definition/Neutral Position

<http://www.pp.okstate.edu/ehs/training/ergo.htm>

Ergonomic Supplier

<http://www.alimed.com>

Ergonomic Supplier

http://www.labsafety.com/store/dept.asp?dept_id=53

Ergonomics Safety and Health Topic OSHA

<http://www.osha.gov/SLTC/ergonomics/>

Human Engineering Design Data Digest

http://hfetag.dtic.mil/hfs_docs.html

NIOSH Safety and Health Topic: Ergonomics and Musculoskeletal Disorders

<http://www.cdc.gov/niosh/topics/ergonomics/>

Washington OSHA Training Tools

<http://www.lni.wa.gov/Safety/TrainTools/Videos/default.asp>

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