



SAF • T • GRAM

"A gram of safety is worth a pound of cure."

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Welcome from the Office of Compliance!

Welcome to the first issue of the Environmental Health and Safety Office (EHSO) *Saf-T-Gram* to reach all OU campuses.

The EHSO is one of several departments which now reports to the Director of Compliance. I was appointed as the Director in April 2003, and we have been working non-stop since that time developing policies and procedures to protect all of you. We have a great compliance team, some members of whom are your environmental health and safety specialists.

You may contact any of the EHSO employees with questions regarding environmental, health or safety issues at the contact information provided on page 4 of this newsletter.

Debra L. Chionopoulos
Director of Compliance and University Privacy Official

Workstation Ergonomic Guidelines

Sources: <http://www.osha.gov/SLTC/etools/computerworkstations/positions.html>
<http://w3.ouhsc.edu/ehso/Ergo.htm>

While OSHA does not have a regulatory standard for workstation ergonomics, they do provide extensive information on minimizing workplace injury through ergonomic principles which adjust the job to the worker and reducing physical stress. Keep in mind, the best ergonomically designed workstation will not prevent injury if the proper work practices and techniques are not in place to prevent repetitive movements, reduce muscle strain, and improve productivity. This article provides a checklist for evaluating your workstation and recommendations for modifying the arrangement to provide optimal comfort.

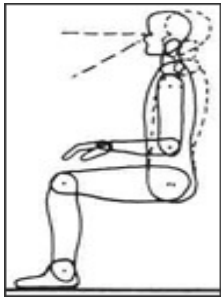
NEUTRAL BODY POSTURE

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. The following are important considerations when attempting to maintain neutral body postures while working at a 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 floor or footrest.
- * 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.

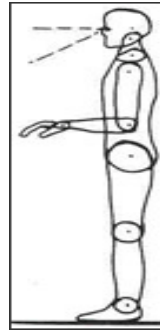
These four reference postures are examples of body posture changes that all provide neutral positioning for the body.

Upright Sitting Posture



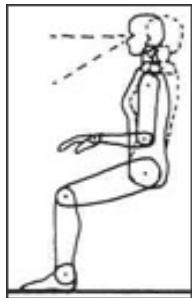
The user's torso and neck are approximately vertical and in-line, the thighs are approximately horizontal, and the lower legs are vertical.

Standing Posture



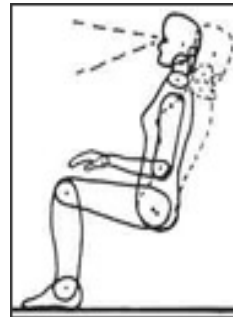
The user's legs, torso, neck, and head are approximately in-line and vertical. The user may also elevate one foot on a rest while in this posture.

Declined Sitting Posture



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.

Reclined Sitting Posture



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

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.

Posture Evaluation Tools

- Are your shoulders relaxed? (reduces stress)
- Are your elbows bent at 90-120 degrees? (helps keep wrists straight)
- Are your wrists straight? (keeps pressure off muscles, tendons and nerves in wrist and hand)
- Are your ears, shoulders, and hips lined up vertically? (maintains proper sitting posture)
- Are you positioned square in front of the monitor and keyboard, not be twisted or contorted in any manner?

CHAIR

Sitting places more stress on the lower back than standing or lifting. Proper sitting posture is essential in reducing stress on the lower back. To be seated properly in your chair your feet must rest flat on the floor or on a foot rest (you should use a foot rest if your chair does not adjust low enough or if your work surface is too high.) The key is to not only have your feet flat on the floor (or supported by a foot rest), but also to have your thighs parallel with the seat pan so your legs form approximately a 90 degree angle at the knees.

If your chair has a vertically adjustable back with an outward contour in the lower back section (the lumbar support), adjust the back of your chair so the lumbar support fits in the small of your back. If the chair does not have a lumbar support, place a rolled up towel or small pillow in the curve of your lower back for support. If the chair back is adjustable forward and backward, adjust the angle to what is comfortable for you, and where your trunk and upper legs form an angle somewhere between 90-120 degrees.

If your chair has arms, they should not interfere with you getting close to your work. In addition, when you assume the typing position with your arms resting comfortably at your side, the chair arms should be at a height where they just barely contact your elbows. The chair arms should not noticeably elevate your shoulders or force you to move your arms out to use them.

Chair Evaluation Tools

- Is your chair height adjustable so that your thighs are horizontal, feet rest flat on the floor or on a foot rest, knees are bent forming approximately a 90-120 degree angle, and arms and hands are comfortably positioned at the keyboard?
- Is your chair back contoured to support the lower back and fit the curvature of your spine, or do you have a pillow or lumbar support added?
- Is there room (1" - 4") between the front edge of the seat pan and the back of your knees?
- Does your chair allow you to get close to your work?
- Do your chair arms allow you to sit with your shoulders relaxed and not elevated?
- Is the chair mounted on no fewer than 5 casters?
- Does the seat pan have a "waterfall" front edge design? (provides an even distribution of body weight)
- Does your backrest lock in place into a position that provides a firm back support?

WORK SURFACE/KEYBOARD/POINTING DEVICE

If your work surface is adjustable, first adjust your chair as mentioned above. Rest your arms comfortably at your side and raise your forearms to form a 90-120 degree angle with your upper arms. Adjust your work surface so the home row of your keyboard (the row which has the letters a,s,d...) is at approximately elbow level. If your work surface is too high and not adjustable, adjust your chair to bring your elbows to the home row level of the keyboard. If you raise your chair, then make sure your feet are properly supported.

In order to maintain wrists and neck in the straight neutral positions, you should sit square in front of the monitor and keyboard. The wrists should be kept straight. Bent wrists cause pressure on the hands and the carpal tunnels of the wrists, and long term repetition of this can lead to cumulative trauma disorders.

A wrist rest pad helps to reduce the amount of stress on the wrists and hands when not typing. Select a thick, soft wrist pad to minimize soft tissue compression. Ideally the wrist rest should be constructed so the pad height matches the front (toe) height of your keyboard. Always keep wrists straight while typing and ONLY use the wrist rest when you are not typing. A wrist rest pad can also reduce stress to the wrists by preventing them from coming in contact with the sharp edge of the desk or keyboard tray.

If you use a pointing device (mouse, trackball, touch pad, etc.), make sure it is at the same level and approximately the same distance as your keyboard. Reaching for your pointing device or having it at a higher level than your keyboard can cause stress. Keyboard drawers or other types of keyboard support devices can increase the amount of desk space but can force you further away from your primary work surface, and if not large enough to hold the mouse as well, puts your mouse at a higher level.

Work Surface Evaluation Tools

- With your chair adjusted properly, is your work surface at approximately elbow level?
- Are your shoulders relaxed and not elevated when you work at your work surface?
- Is there approximately a 90 degree angle between your forearms and upper arms and are your elbows close to your body?
- Are your wrists in line with your forearms, not bent upwards, downward, or side-to-side, and kept straight when typing?
- Do you have a wrist rest to prevent contact with sharp or square edges on your work surfaces and ONLY use it between typing?
- Are you square in front of your keyboard, and is your keyboard centered so that the center of the alphabet (not the center of the keyboard) is in line with the center of your body (unless you are performing extensive 10-key)?
- Is your keyboard flat (i.e., are the legs on the back of the keyboard NOT extended)?
- Is your pointing device (mouse, trackball, touch pad) at the same level as your keyboard?

MONITOR ADJUSTMENT

Once you have your chair and work surface height adjusted, adjust your computer monitor so the top of the screen is at or just below eye level with minimal glare. Placing the top of the monitor at eye level reduces unnecessary neck strain. Wearers of bifocals and trifocals often unknowingly tilt their heads backwards so they can read the screen through the lower portion of their glasses. This can sometimes lead to neck, shoulder, and back discomfort. Potential solutions include either lowering your monitor or purchasing glasses designed specifically for working at the computer.

Monitor Evaluation Tools

- Is the viewing distance to your computer monitor somewhere between 20"-40" (approximately an arm's length)?
- Is the top of your computer screen at or just below eye level?
- Do you adjust the contrast or brightness of the screen to a comfortable level as the light in the room changes? (This may have to be done more than once a day.)
- Is your computer monitor positioned to minimize glare or reflections from overhead lights, windows, and other light sources?

