



Title: Computer Work Stations			
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PURPOSE: To establish guidelines for safely working at computer (video display terminal) work stations.

SCOPE: Hospital wide.

DEFINITIONS:

Computer work station: Typically includes a computer monitor, keyboard, mouse, and hard drive.

Neutral Position: At the keyboard and mouse, arms are comfortably at the sides, elbows bent at approximately 90 degrees, forearms parallel to the floor, knees slightly below hips, and wrists straight.

PROCEDURES:

I. Proper Computer Work Station Design

An acceptable work station will allow the operator to sit with good posture, see the screen clearly, and easily reach the keyboard, mouse and documents. Poorly designed work stations can lead to discomfort and disorders of the back, neck, shoulders, arms and hands. The best work station design will allow independent height adjustment of the monitor, keyboard and chair. Refer to OSHA's Computer Workstation Checklist in Appendix A for additional guidelines.

A. General Recommendations

1. Work surface should be adequate to support the keyboard, mouse, monitor, and documents.
2. Monitor, keyboard and mouse should be directly in front of the user so the user does not have to turn to type or view the monitor.
3. Documents should be at the same height and distance as the screen. Document holders are recommended for ease in reading hard copy, while typing.
4. Consider alternating computer typing with other tasks, every 20-30 minutes, to avoid fatigue to the wrist and other areas.

B. Computer Monitor

1. Monitor and document should be easily viewed so that the worker's head isn't turned to the side or tilted up or down.

2. Top line of the screen should be just below eye level to keep the neck straight. Most newer computer monitors are height and tilt adjustable. Screens that tilt vertically and swivel horizontally help the worker adjust the best viewing angle.
2. Monitors should be placed about 18-30 inches away from the worker for viewing for easy readability.
3. Screen contrast and brightness should be easily adjustable.
4. Screen characters should be clearly displayed.

C. Keyboard and Mouse

1. Use a neutral position when using the keyboard and mouse. Arms should be comfortably at your sides with elbows bent at approximately 90 degrees, forearms parallel to the floor, knees slightly below hips, and wrists straight.
2. Keyboards should be detachable so the angle and position can be adjusted.
3. Keyboard and work surface edges should be rounded. Gel wrist rests may be used to protect wrists and palms from hard or sharp edges and to help keep the wrists in a neutral position. However, resting wrists on a wrist rest during keying can put pressure on nerves. Wrist rests should be made of soft but supporting material and be the same height as the front edge of the keyboard.
4. The mouse shape and buttons should be comfortable and easy to operate. The user should not have to extend their arm for long duration to operate the mouse.

D. Computer Chair

1. An adjustable chair is recommended for most computer workstations. Adjustable components may include seat height, seat size, seat slope, backrest height, backrest depth, and backrest tilt and armrest.
2. The chair must have a five star base for stability.
3. Sufficient room for the legs underneath the work surface must be provided for knee room height, knee room width, and knee room depth.

II. Work Environment

An acceptable computer work environment is one which will allow for the reduction of eyestrain, fatigue and general discomfort.

A. Glare and Lighting

Reflections or glare sources in the operator's field of vision can make it difficult to read the screen. Sources of glare may be windows, shiny surfaces, or unshielded lighting fixtures. To prevent glare, the monitor and keyboard should be perpendicular to windows and between, not directly under, overhead lights.

Controlling glare may require eliminating the source or simply repositioning the computer. Overhead fluorescent lights may need to be equipped with diffuser grids. Windows may have to be covered.

Screen filters may be used to reduce glare. Most types of filters, however, reduce

character brightness and clarity as well. Filters can also be used to change the color of the display. A hood over the screen may also be used to shield glare. However, the operator should not have to sit in an awkward position in order to see the screen under the hood.

Office lighting should be sufficient for reading documents without interfering with display legibility. Illumination levels should be in accordance with applicable standards. If lighting from the ceiling and windows is reduced to prevent glare, it may be necessary to use a moveable task light. The task light should not shine on the monitor.

B. Heat and Humidity

Computers and associated equipment emit heat. Computer rooms and offices are usually air-conditioned for the benefit of this type equipment. Relative humidity of 30 - 60 percent is recommended for comfort. Sufficient humidity is important to prevent static electricity which can disrupt electromagnetic display and memory functions.

III. Computer Work Station Assessments

EH&S conducts computer work station (office ergonomic) assessments, as requested. Contact EH&S at 4-6783 to request an assessment.

INQUIRIES/REQUESTS: Environmental Health and Safety
L1-059 HSC
Zip 8017
Main Office: 444-6783
FAX: 444-6845

RELATED FORMS: OSHA VDT Workstation Checklist (Appendix A)

RELATED DOCUMENTS: ANSI/HFS 100-1988 *American National Standard for Human Factors Engineering of Visual Display Terminal Workstations*
ANSI/IESNA RP-1-1993 *Office Lighting*
ANSI/ASHRAE 55-1992 *Thermal Environmental Conditions for Human Occupancy*

Appendix A

OSHA Computer Workstation Checklist

Appendix D-2 to §1910.900: COMPUTER Workstation Checklist

Using this checklist is one, but not the only, way an employer can comply with the requirement to identify, analyze and control SD hazards in COMPUTER tasks. This checklist does not require that employees assume specific working postures in order for the employer to be in compliance. Rather, employers will be judged to be in compliance with paragraph (k) and (m) of OSHA’s standard if they provide the employee with a COMPUTER workstation is arranged or designed in a way that would pass this checklist.

If employee exposure does not meet the levels indicated by the Basic Screening Tool, you may STOP HERE.

WORKING CONDITIONS	Y	N
The workstation is designed or arranged for doing COMPUTER tasks so it allows the employee’s...		
A. Head and neck to be about upright (not bent down/back).		
B. Head, neck and trunk to face forward (not twisted).		
C. Trunk to be about perpendicular to floor (not leaning forward/backward).		
D. Shoulders and upper arms to be about perpendicular to floor (not stretched forward and relaxed (not elevated)).		
E. Upper arms and elbows to be close to body (not extended outward).		
F. Forearms, wrists, and hands to be straight and parallel to floor (not pointing up/down).		
G. Wrists and hands to be straight (not bent up/down or sideways toward little finger).		
H. Thighs to be about parallel to floor and lower legs to be about perpendicular to floor.		
I. Feet to rest flat on floor or be supported by a stable footrest.		
J. COMPUTER tasks to be organized in a way that allows employee to vary COMPUTER tasks with other work activities, or to take micro-breaks or recovery pauses while at the COMPUTER workstation.		
SEATING The chair...	Y	N
1. Backrest provides support for employee’s lower back (lumbar area).		
2. Seat width and depth accommodate specific employee (seatpan not too big/small).		
3. Seat front does not press against the back of employee’s knees and lower legs (seatpan not too long).		
4. Seat has cushioning and is rounded/has “waterfall” front (no sharp edge).		
5. Armrests support both forearms while employee performs COMPUTER tasks and do not interfere with movement.		
KEYBOARD/INPUT DEVICE The keyboard/input device is designed or arranged for doing COMPUTER tasks so that..	Y	N
6. Keyboard/input device platform(s) is stable and large enough to hold keyboard and input device.		
7. Input device (mouse or trackball) is located right next to keyboard so it can be operated without reaching.		
8. Input device is easy to activate and shape/size fits hand of specific employee (not to big/small).		
9. Wrists and hands do not rest on sharp or hard edge.		
MONITOR The monitor is designed or arranged for COMPUTER tasks so that...	Y	N
10. Top line of screen is at or below eye level so employee is able to read it without bending head or neck down/back. (For employees with bifocals/trifocals, see next item.)		
11. Employee with bifocals/trifocals is able to read screen without bending head or neck backward.		
12. Monitor distance allows employee to read screen without leaning head, neck or trunk forward/backward.		
13. Monitor position is directly in front of employee so employee does not have to twist head or neck.		
14. No glare (e.g., from windows, lights) is present on the screen which might cause employee to assume an awkward posture to read screen.		
WORK AREA The work area is designed or arranged for doing COMPUTER tasks so that...	Y	N
15. Thighs have clearance space between chair and DT table/keyboard platform (thighs not trapped).		
16. Legs and feet have clearance space under COMPUTER table so employee is able to get close enough to keyboard/input device.		

ACCESSORIES	Y	N
17. Document holder , if provided, is stable and large enough to hold documents that are used.		
18. Document holder , if provided, is placed at about the same height and distance as monitor screen so there is little head movement when employee looks from document to screen.		
19. Wrist rest , if provided, is padded and free of sharp and square edges.		
20. Wrist rest , if provided, allows employee to keep forearms, wrists and hands straight and parallel to ground when using keyboard/input device.		
21. Telephone can be used with head upright (not bent) and shoulders relaxed (not elevated) if employee does COMPUTER tasks at the same time.		
GENERAL	Y	N
22. Workstation and equipment have sufficient adjustability so that the employee is able to be in a safe working posture and to make occasional changes in posture while performing COMPUTER tasks.		
23. COMPUTER Workstation, equipment and accessories are maintained in serviceable condition and function properly.		
PASSING SCORE = "YES" answer on all "working postures" items (A-J) and no more than two "NO" answers on remainder of checklist (1-23).		