

Computer Ergonomics

The goal of ergonomics is to improve the health, safety, and efficiency of both the worker and the workplace. Computer ergonomics addresses ways to optimize the computer workstation to reduce the specific risks of computer vision syndrome, neck and back pain, and carpal tunnel syndrome. It also reduces the risk of other disorders affecting the muscles, spine, and joints.



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Computer Workstation Ergonomics

Work Area

Work Ahead Sign

The work area should be large enough to accommodate the worker, allow the full range of motions involved in performing required tasks, and provide room for the equipment and materials that make up the workstation. Use a headset for lengthy or frequent telephone work. Place the items used most frequently directly in front of the user. Avoid overcrowding computer work areas.

Furniture

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Standard furniture cannot accommodate everyone's needs. A taller person may need a one-time adjustment to have their work surface raised somewhat; a shorter person may need a footrest or other accessories. Adjustable furniture may be needed in situations where people share or use the same workstation.

Chair Adjustments

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The back of the chair should have lumbar support. It may be useful to use a rolled towel, lumbar roll or cushion, or any lumbar support that provides and enhances good posture. Adjust the height of the chair so that feet rest flat on the floor. Use a footrest if your feet do not rest flat on the floor after adjusting the chair height. The thighs should be parallel to the floor, and the knees at about the same level as the hips. The backs of the knees should not come in direct contact with the edge of the seat pan. There should be 2-4 inches between the edge of the seat and the back of the knee. Have some space (2-3") between the top of your thighs and the underside of your workstation. Don't use armrests to slouch. Chair arms should not noticeably elevate your shoulders or force you to move your arms away from your body to use them.

Desktop

Desktop-desert

The desktop should be organized so that frequently used objects are close to the user to avoid excessive extended reaching. The work surface should have a matte finish to minimize glare or reflections. The area underneath the desk should always be clean/uncluttered to accommodate the user's legs and allow for stretching. If a fixed-height desk is used, add a keyboard tray that adjusts vertically to provide added adjustability.

Monitor

Monitor-lizard

Once the chair and work surface height are properly adjusted, the computer monitor should be placed so the top of the screen is at or just below eye level when seated in an upright position. Ensure that the surface of the viewing screen is clean. Adjust brightness and contrast to optimum comfort. Position monitors at right angles from windows to reduce glare. Position monitors away from direct lighting, which creates excessive glare, or use a glare filter over the monitor to reduce glare. Adjust the monitor tilt so ceiling lights do not reflect on your screen. Be at the same distance from your eyes as the display screen to avoid frequent changes of focus, and you should be able to look from one to the other without moving your neck or back.

Keyboard

Keys-board

Adjust your chair properly with arms resting comfortably at your side, and raise your forearms to form a 90-degree angle with your upper arms. Adjust keyboard height so your shoulders can relax and allow your arms to rest at your sides. Position the keyboard directly in front and be close to the user to avoid

excessive extended reaching. Forearms parallel to the floor (approximately 90-degree angle at the elbow). Rest your hands in your lap when not entering data. A padded wrist rest will help to keep your wrist in a straight and neutral position while typing and keep your arms off the sharp edges of the work surface. Do not rest your wrists or hands on a palm or wrist rest when you are keying. Press the keys gently. Do not bang them or hold them down for a long period of time.

Mouse

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Place the mouse, trackball, or other input device directly in your immediate reach zone to offer natural comfort and maximum hand-to-eye coordination. The mouse should be placed adjacent to the keyboard and at the same height as the keyboard. Avoid extended and elevated reaching for the keyboard and mouse. Do not bend your wrist upward. Make sure you are sitting high enough for the workstation to be slightly below elbow height so that your hand rests naturally on the mouse. Mousing demands a certain level of surface stability; if used on a keyboard tray, the tray should not wobble or tip. Do not rest your hand on the mouse when you are not using it. Test different models of mousing devices, trackball, or other input devices. Consider the shape and size of the devices, how comfortably it fits into your hand, ease of operation, and any special features that might make your job easier.

Lighting

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The lighting in most office environments is too bright for optimal screen viewing. Supplemental desk lighting is better than overhead lighting for reading or printed copy. Close drapes/blinds to reduce glare. Adjust lighting to avoid glare on the screen (light source should come at a 90-degree angle, with low-watt lights rather than high). Avoid intense or uneven lighting in your field of vision. Place the monitor at a 90-degree angle to windows (where possible). Reduce overhead lighting when possible. Use indirect or shielded lighting where possible. Walls should not be painted with a reflective finish. Use a glare screen or monitor shield to reduce glare from overhead lighting.

Work Habits

Dynamic Sitting

Dynamite

It is important to change positions periodically. Sitting in one position or leaning on your arms for an extended period of time can interfere with circulation. "Dynamic sitting" refers to not staying in one static position for extended periods of time. When performing daily tasks, alternate between sitting and standing or take small walking breaks throughout the day.

Take Breaks

Break

Repetitious static work (working at the computer) is very fatiguing on your upper extremities as well as your eyes. It is important to take breaks from working at the computer every 20 to 40 minutes so your body can rest and recover. Taking a short break (3 to 5 minutes) does not mean you must stop working. Other activities, such as talking to a coworker, making copies, filing, etc., can be done during breaks from typing.