



University of North Carolina Wilmington

Environmental Health & Safety – Workplace Safety

Ergonomics

Ergonomics is the science of the design of equipment and workstations to reduce operator fatigue, discomfort and injury. To remain safe and healthy on the job, employees must move, lift, sit and perform various tasks in ways that do not result in what are called musculo-skeletal injuries (MSDs).

The University of North Carolina Wilmington Ergonomic Program is based on information provided by The Ergonomics Center at NC State University to assist employees in being conscious of how they are working. Additional information can be found on their website: <https://www.ergocenter.ncsu.edu>.

Even when using "ergonomically designed" equipment, chairs and workstations, employees need to be sure they are working as ergonomically correct as possible and doing what is best for their body by reducing the stressors of work methods.

Workstation setup:

- When setting up your workstation and job materials, items used most frequently (multiple times daily) should be placed within immediate forearm reach.
- Items used less frequently (once or twice a day) can be within a full arm's reach.
- Those items seldom used (once or twice a week or less) may be placed farthest away.

Workstation adjustment:

- Adjust the chair height so that the elbows are the same height as the work surface (keyboard tray or desk)
- If the feet do not touch the floor at this chair height, obtain a footrest to support the feet
- Adjust the chair backrest height so that the round part of the backrest fits into the lumbar curve of the spine
- Adjust the chair armrests so that they are slightly lower than the elbows. If the armrests cannot be adjusted and tend to confine the arms, have them removed
- Place the keyboard and mouse as close together as possible, at the same height and depth.
- Place the keyboard and mouse directly in front of the body, within forearm reach.
- Adjust the height of the monitor so that the top row of characters is at eye level. For Bifocal wearers, lower the monitor further to minimize neck bending
- Adjust the tilt of the monitor downward to minimize glare from overhead lights
- Place the monitor about arm's length away from you
- Place the document holder at the same height and depth as the monitor screen

ErgoTips for the Office™

What can you do to make your office fit you better?

Properly adjust your chair:

- Adjust the chair height so that the elbows are the same height as the work surface (keyboard tray or desk)
- If your feet do not touch the floor at this chair height, use a footrest
- Adjust the backrest height to support the lower back (small of the back)
- Adjust the seat depth such that the backs of the knees do not touch the front edge of the seat
- Adjust the armrests so they are slightly lower than the elbows
- Adjust your position frequently throughout the day

Optimize workstation layout:

- Frequently used items should be placed within a forearm reach
- Items used less frequently (once or twice a day) can be within a full arms' reach
- Infrequently used items may be placed farthest away

Properly position the monitor:

- Place the monitor directly in front of the keyboard
- Position it approximately an arm's length away
- The top row of characters is at eye level (for bifocal wearers, it may need to be lower)
- Place the document holder at the same height and depth as the monitor

Properly adjust your keyboard & pointing device:

- Position them directly in front of your body
- Place them at the same height
- Place them as close to each other as possible on the worksurface

Take periodic rest breaks to promote a change in position and provide an opportunity for muscles to relax. If possible, break for 30 seconds approximately every 30 minutes.



THE ERGONOMICS CENTER
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Advancing the Science of Ergonomics in the Workplace™
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Office Workstation Adjustments

To be performed in the following order



1 Chair (see *Office Chair Adjustment* handout)

2 Keyboard, Pointing Device and Workstation Height

Keyboard and pointing device should be located on the same level and directly in front of you. While working, your elbows should be bent at approximately 90°, with wrists straight and shoulders relaxed. If the keyboard and pointing device are on the work surface and that level is too high, raise the chair and provide a footrest. If using an adjustable keyboard tray, adjust the tray to appropriate height and angle enabling straight wrists and 90° elbow angles.

3 Monitor and Document Holder

The monitor should be placed directly in front of you, and approximately an arm's length away. Set the height of the monitor so that the first line of lettering on the screen is at the same height as your eye height. If you wear bifocals, adjust slightly lower than eye height. A document holder should be placed between the keyboard and the monitor, or just to the side of the screen, to minimize head rotation.

4 Equipment Layout and Leg Clearance

Place most frequently used close to you, and less frequently used items farther away.

Place the phone on the side of the hand you use to answer it in order to reduce reaching and twisting across the body. Consider moving the printer across the office to promote getting out of your chair regularly. Remove obstacles that interfere with proper positioning at the workstation. Leg room should be kept clear of items that get in the way of sitting close enough to your workstation.

5 Glare

If your workspace has a window, position the monitor perpendicular to the window. Use blinds to regulate natural light levels. The monitor should be tilted as close to vertical as possible to minimize glare from overhead lighting. Glare from overhead lighting can be further minimized by reducing lighting levels. Consider the use of task lighting to balance against an overall darker workspace.



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Office Chair Adjustments

To be performed in the following order

1 Seat Pan Height

Adjust seat height so that your feet are flat on the floor and your thighs are parallel to the ground (knees at 90° angle). The height is raised by pulling up on the paddle while your weight is off the seat pan, and lowered by pulling up the paddle while your weight is on the seat pan. This setup enables good circulation to the lower leg and sitting back against the backrest of the chair. Improper adjustment of the seat pan can lead to contact stress on the back of the thigh, the base of the pelvis or low back.

2 Lumbar Support Height

The lumbar support height adjustment is raised by lifting up on the back rest. It is a ratchet mechanism so in order to lower the height, the back rest must be raised to its highest position, lowered to the lowest position and ratcheted up to its desired position. Adjust backrest height so that the lumbar support is located in the small of the back (approximately belt loop height). Angle the back rest between 90° and 110° allowing yourself to lean slightly back. Lift the paddle (3), adjust the angle to your preference, and release the paddle to lock the back rest into place.

3 Seat Pan Depth

Seat pan should support as much of your legs as possible without touching the back of your knees. A clearance of approximately three fingers width between back of knees and front of seat pan is recommended. To adjust the length of the seat pan, lift the paddle and rotate your hips to lengthen or shorten the seat pan. Then release the paddle and reposition yourself in the seat pan. This promotes good circulation to the lower leg and sitting back against the backrest of the chair.

4 Arm Rest Height and Width

Adjust armrests so they are slightly below sitting elbow height and are level. Arm rests should not prevent you from getting close to your work area. If the arm rest contacts the worksurface and prevents you from getting close enough, then lower the arm rest height until you can position yourself close enough to the worksurface. Unscrew the knob located under the seatpan, adjust the arm rest width, and tighten the knob. The width should be set so the arms are close to the body, without hip interference when getting out of the chair. If you would prefer to remove the arm rests from your chair, loosen the knob until the rest slides out.



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