

Office Ergonomics

A Quick Reference Guide



NC STATE UNIVERSITY



THE ERGONOMICS CENTER
OF NORTH CAROLINA

Advancing the Science of Ergonomics in the WorkplaceSM

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Things to Look for in a Chair

Height and angle adjustable backrest

Well-defined lumbar support

Height and width adjustable armrests

Height, angle, and depth adjustable seat pan

Five legs to prevent tipping



Chair Adjustments

Adjustments in order of performance

1. Seat Pan Height and Angle

Adjust seat height so that your feet are flat on the floor and your thighs are parallel to the ground (knees at 90° angle). 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 and Backrest Angle

Adjust backrest height so that the lumbar support is located in the small of the back (approximately belt loop height). Angle back rest between 90° and 110° allowing yourself to lean slightly back. If you prefer sitting upright while working, use the backrest lock to lock the backrest in an upright position.

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. This promotes good circulation to the lower leg and sitting back against the backrest of the chair.

4. Armrest Height and Width

Adjust armrests so they are slightly below sitting elbow height. The width should be set so the arms are close to the body, without hip interference when getting out of the chair. Armrests should not prevent you from getting close to your work area.

5. Other Chair Considerations

When choosing between chairs, consider ease of adjustment. Can all adjustments be made while you are seated in the chair? Also, consider the durability of the fabric and foam, and the contour of the seat pan. The best way to know if a chair is going to fit you before you purchase it to try it over an extended period.

Things to Look for in a Workstation



Workstation Adjustments

Adjustments in order of performance

1. Chair (see left page)

2. Keyboard, Pointing Device and Workstation Height

Keyboard and pointing device should be located on the same level and directly in front of you. Your elbows should be bent at a 90° angle, wrists straight, and shoulders relaxed while working. 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° lower arm to upper arm posture.

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 materials 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.

Troubleshooting Discomfort

Check the suggested areas if discomfort develops in the designated areas:

Neck

- ✓ Screen height and alignment
- ✓ Source document
- ✓ Telephone cradling
- ✓ Looking down to portable electronics

Low back

- ✓ Seat pan height depth and angle
- ✓ Backrest height and angle
- ✓ Reaches and twisting

Buttocks and Legs

- ✓ Seat pan height, depth, and angle
- ✓ Seat pan padding
- ✓ Sitting for extended periods



Shoulder

- ✓ Armrest height
- ✓ Keyboard and pointing device location and height
- ✓ Telephone location
- ✓ Carrying laptop or heavy bags

Wrists

- ✓ Keyboard and pointing device location and height
- ✓ Keyboard slope and tilt (e.g. Lower keyboard feet to straighten wrists)

If you are experiencing discomfort, report the symptoms to your supervisor and seek appropriate medical attention.

Additional Office Equipment Considerations

Articulating Keyboard Trays

Choose a mouse-forward design that keeps the keyboard and pointing device on the same level. Mouse-forward designs help reduce the distance the user reaches to the pointing device. The tray should be level or slightly tilted away from the user to promote straight wrist posture

Alternative Pointing Devices

The pointing device should match the size of the user's hand. Different sized pointing devices are available. Trackballs are one alternative to helping reduce the shoulder and elbow movement and to change finger activation if needed.

Alternative Keyboards

Split or natural keyboards can be used to put the hands and wrists in more neutral position. Keyboards without numeric keypads can be used reduce the reach to the pointing device.

Wrist Rests

Wrist rests should not interfere with proper hand and wrist positioning. The rest should be used as a rest, not a support while using a keyboard and/or pointing device.

Telephone Headset

A headset should be considered for jobs that require prolonged or frequent telephone calls, or if one or both hands are required for multi-tasking while on the phone.

With all recommendations, additional considerations may apply. Please consult an Ergonomics Center of North Carolina ergonomist for guidance or further information.