



● *Frisbie Memorial Hospital*

● *Marsh Brook Rehabilitation Services*

● *Wentworth-Douglass Hospital*

COMPUTER WORKSTATION ERGONOMICS

INTRODUCTION:

Employees utilizing computer workstations typically remain in the same position for extended periods of time. It is, therefore, important that their posture is good and reduces stress, overuse, or pressure to any soft tissue to assist in reducing risk of cumulative trauma. The employees' knowledge of this posture as well as furniture which encourages good posture is important. Periodic breaks will also allow recovery time for muscles that are utilized while keying. The following are recommendations for posture as well as furniture with respect to computer workstation.

1. **Posture:**

Head/Neck: Straight, not looking down, up, or to one side.

Shoulders: Comfortably resting at side.

Back: Upright and straight with good lumbar support.

Elbows: Bent comfortably at 70° to 90°.

Wrists: Relatively straight with support available for when fatigued.

Fingers: Relaxed and light strokes on keys.

Knees/Hips: At approximately 90° of flexion.

Feet: Both feet supported either flat on floor or on foot rest.

2. **Chair:**

- Should be adjustable in height, so that it may be adjusted relative to keyboard enabling computer user to achieve posture above.
- The back should provide good lumbar support and should be also adjustable up and down as well as front to back.
- The seat pan should have a waterfall front to decrease any pressure to legs. Seat pan should be adequately wide for employee utilizing the chair.
- Seat depth should be deep enough to support the upper legs, but not so deep that there is pressure on the posterior aspect of the knee.
- Arm rests remain controversial. If they are used, special attention should be placed so that they do not prevent the employee from getting adequately close to the keyboard (the above posture may be achievable). They should also not place any pressure points along soft tissue of the forearm as major upper extremity nerves do course along this area of the forearm.
- Wheels are usually recommended with good base support.
- Swivel of the seat may be important based on the job tasks of the individual at the computer workstation.

3. Keyboard:

- The keyboard should be flat on workstation, i.e. legs on the back should not be up. A forward tilt of the keyboard increases dorsiflexion of the wrists which leads to awkward posture.
- The keyboard should have 3-4" of space between the edge and the edge of the workstation. A wrist rest is usually recommended in this space because it allows the employee to rest wrists and maintain neutral posture of the wrists when they fatigue. It is important that the wrist rest not be used continuously, but be utilized as a periodic rest. The wrist rest should be padded and at relatively the same height as the keyboard.
- The edge of the table should be rounded, again to avoid pressure points to volar forearms.
- The keyboard should be positioned at a height which will allow the employee to achieve the posture noted above.
- Often times, a keyboard tray is recommended. One that is adjustable up and down will allow the height to be adjusted with the height of the employee.

4. Foot Rest:

- A foot rest may be necessary if the height of the chair is increased to accommodate the keyboard but the feet can no longer rest on the floor.

5. Mouse:

- The mouse should be in a position usually on the employee's dominant side which again allows the employee to achieve the posture above.
- If an adjustable keyboard tray is utilized for the keyboard, it should be an extended version which includes the mouse. Otherwise, there will be frequent reaching up to the desk height to manipulate the mouse.

6. Monitor

- The monitor should be at a height relative to the employees' seated position that allows the eyes to look straight ahead to the area most utilized. It should be far enough away to allow comfortable viewing, usually 18-26".
- A document holder is recommended if the employee is required to enter data from documents. The document holder should be at the height of the monitor, positioned at easy viewing, typically next to the monitor screen. This will decrease any repetitive or sustained cervical rotation/flexion to view documents.

7. Layout of Other Frequently Used Items:

- In general, other items utilized frequently at a workstation, such as the telephone or writing area, should be within a comfortable reach such that the employee may still maintain posture listed above. In general, the more frequently the item is used, the closer it should be to the employee.

8. Periodic Breaks:

- It is recommended that periodic breaks be taken from workstation to allow those muscles being used to recover. Such breaks may be stretching breaks and, if possible, one in which standing is included.