Office Ergonomics

Controlling Stressors to Prevent Musculoskeletal Injuries

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What is a musculoskeletal disorder?

MSDs are soft-tissue injuries caused by sudden or sustained exposure to repetitive motion, force, vibration, and awkward positions. These disorders can affect the muscles, nerves, tendons, joints and cartilage.

Musculoskeletal discomfort can occur anywhere in the body and typically is not caused by a single traumatic event, but is due to micro trauma to tissues that does not heal during rest.
ERGONOMICS = Controlling the Exposure to those Stressors = Fitting the Task to the Worker
Common Ergonomic Risk Factors

- Awkward posture
- Sustained posture
- Repetition
- Discomfort
- Contact Stress
- Musculoskeletal Disorder
Workstation design and layout considerations

Work Zones

1. **Primary** (Frequent reaches): w/in or close to same area/level as typing
2. **Secondary** (Infrequent reaches)
3. **Tertiary Zone** (Occasional reaches)
POSTURE

CORRECT SITTING POSTURE

- Upper back straight with shoulders relaxed at sides
- Backrest of the chair supports curve in the lower back
- Hips as far back on the chair as possible
- Adjustable seat for optimal height
- Line of sight = eye level or bifocal level slightly below
- Arms relaxed at sides with upper arm and lower arm forming a 90° angle. Wrists straight with fingers relaxed
- Lower legs at a 90° > 110° angle to thighs with adequate legroom above
- Feet flat on the ground or resting on a footrest
Contact Stress

Contact stress is pressure on the body by a hard edge/surface. This can reduce circulation and obstruct nerve signals leading to swelling, tingling or discomfort.

Hard desk edge against forearm.

Front edge of seat against calf.
Awkward Posture  Neutral Posture
Awkward Posture  Neutral Posture  Awkward Posture
POSTURE

Keyboard Trays

• Shared workstation,
• Typing surface too low or too far from body

GOOD

BAD
Do I need an ergonomic keyboard?

Ergonomic keyboards do one thing:
Prevent ulnar deviation

One size/shape fits all is not the ergonomic solution
POSTURE

Or a Mouse?

VERTICAL

One size DOES NOT fit all

HORIZONTAL
MONITOR POSITIONING
Height and Glare Considerations

DUAL MONITORS

Use if monitors are used nearly equally

Use if the in-line monitor is used majority of the time

HEIGHT OF MONITOR IS THE SAME, WHETHER SINGLE OR DOUBLE

LINE OF SIGHT, not straight viewing
Sitting Position at Home
Sitting Position at Home
Sitting Position at Home
Common discomfort producing **postures** when using a laptop as a primary computer

Head down to view screen which is too low: Headache, neck and shoulder discomfort.

Arms reaching forward: Middle and upper back discomfort, especially between the shoulder blades.

Lack of back support: Low back and hip discomfort.
Controlling Posture and Contact Stress with Laptop Use

- Peripheral keyboard and mouse
- Raise laptop screen to line of sight
- Adjust chair and working surface as before
Controlling **Repetition** (and **sustained posture**)

**BREAKS**

- Get out of your chair and **walk**.
- **Alternate** typing tasks with other tasks.
- Take **stretch** breaks every 20-30 minutes.

**EYE BREAKS**

- **Lubricate**: blink, yawn, close
- **Exercise**: rotate
- **20-20-20 focus change**: Every 20 minutes, take a **20-second break** and focus your eyes on something at least **20 feet away**.
REST BREAK SOFTWARE

WorkRave Break Software

[Images of software interfaces and instructions]

Move the eyes
Look at the upper left corner of the outside border of your monitor. Follow the border slowly to the upper right corner. Continue to the next corner, until you get around it two times. Then, reverse the exercise.

Exercises player:

Rest break for 9.06 minutes
## Computer user discomfort reports

<table>
<thead>
<tr>
<th>Discomfort</th>
<th>Commonly caused by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>Monitor height/distance not ideal</td>
</tr>
<tr>
<td>Neck Pain</td>
<td>Incorrect monitor height</td>
</tr>
<tr>
<td>Arm/Shoulder Pain</td>
<td>Extended reach to keyboard/mouse/other</td>
</tr>
<tr>
<td>Shoulder tension</td>
<td>Keyboard and mouse too high</td>
</tr>
<tr>
<td>Forearm/elbow</td>
<td>Clawing of the scroll wheel</td>
</tr>
<tr>
<td>Wrist</td>
<td>Awkward posture during typing, contact pressure</td>
</tr>
<tr>
<td>Low back</td>
<td>Unsupported feet, chair not adjusted to fit, incorrect tilt</td>
</tr>
</tbody>
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RESOURCES

https://www.ehs.washington.edu/workplace/ergonomics


- Sample Ergonomic Equipment in the Access Technology Center (ATC) located at Mary Gates Hall Room 064