Agenda

• General considerations
• Chair
• Input devices
• Monitor(s)
• Phone and document holders
• Tips and next steps
Objectives

• List key elements of chair fit
• Determine correct position for computer input devices
• Identify unsafe postures and recommend corrective strategies
• Recommend appropriate placement of monitors
• Discuss appropriate telephone use and paper document placement
General Considerations

• Fit the tools to the user

• Simple adjustments make a big difference

• Content is intended to provide basic guidance in assessing work station set-up and common undesirable work habits
Horizontal Work Zone

- Frequently used items should be within "normal" reach range
  - Optimal biomechanical advantage
  - Reduces risk of injury
- Items used less frequently should be located within the "maximum" reach range.
- Infrequently used items can be stored beyond these reach ranges.
Vertical Work Zone

- Ideal vertical work zone between hip and shoulder height
  - Optimal biomechanical advantage
  - Reduced risk of injury
Principles for Work Station Set-up

- Diagram illustrates generally appropriate work station set-up
- Guidelines – not rules
- Must observe the employee while working
- Concepts for standing work are same as for seated work

- MOVEMENT IS CRITICAL
  - Encourage frequent short rest breaks
  - Changes in posture
  - Stretch breaks
Work Station Set-Up Diagram

- Head positioned over shoulders
- Neck, shoulders relaxed
- Upper arms comfortable by sides
- Elbows comfortably close to trunk
- Forearms parallel to floor
- Wrist straight
- Keyboard flat
- Document at same elevation and distance as monitor
- 18-28 inches horizontal line-of-sight
- 15° declination normal sight line
- Knees lower than hips
- Open knee angle
- Feet flat on floor or stable footrest
Chair Set-Up
Chair Fit

- Five key elements in determining chair fit:
  1. Seat height – thighs parallel to floor or knees slightly lower than hips
  2. Seat depth – ensure backs of lower legs are not compressed by front of seat
     - Rule of thumb: 1"-2" of clearance between seat and backs of lower legs
     - Space may be greater in individuals with long legs
Chair Fit

- Key elements continued:
  3. Seat width – should comfortably accommodate user's hips
  4. Back rest – should support lumbar (lower) spine and allow torso to rest at 90-110°
  5. Armrests – adjust or remove
    - user is not prevented from getting close to work surface
    - shoulders not in shrug position
Behavior Tip: Seated Work

- Even when the work station is set up to ideally fit the user if there is little or no variation in posture then there is static loading of the muscles and joints.

- Encourage users to stand, or recline in the chair, to take phone calls if there is no need to be simultaneously working on the computer.

- Suggest following the 20/20 rule: take at least a 20 second rest break from keying and mousing every 20 minutes. Remember to occasionally focus on something distant to give the eyes a break.
Input Devices
Determining Keyboard/Mouse Surface Height

- Shoulder roll technique
Determining Keyboard/Mouse Surface Height

- If input devices are not at the correct level, modify by:
  1. Changing height of the desk, if possible
  2. Changing height of the chair; may need to add footrest to feet
  3. Installing an adjustable keyboard platform wide enough to accommodate both keyboard and mouse
Input Devices

- Input devices should be close enough to allow the upper arms to remain relaxed at sides
- Palm/wrist rests can be used if reach distance is not increased and user does not "rest" when actively keying and mousing
- Avoid working with wrists in an extended position
Challenge question

• If you determine the work surface is too high based on your assessment presented above how might you correct the discrepancy?

• If you determine the desk is too low what might you consider?
Behavior Tip: Safe Keyboard Use

- “Float” hands and wrists when keying
- Okay to rest forearms on armrests
  - shoulders are not in a shrug position
  - upper arms remain relaxed at the sides.
- Take hands off the keyboard and mouse whenever possible
Placement of input devices

- Right-handed users tend to overreach for the mouse
  - Mouse placed too far away from keyboard
  - Conventional extended keyboard design
  - Mouse is placed on a different surface and/or height than keyboard
Challenge question

• If you observe the user exhibits overreaching what might you consider doing?
Behavior Tip – Safe Mouse Use

Common Mistakes

• Resting on the wrist
• Over extending the wrist
• Propelling the mouse using "windshield wiper" technique
• Holding the fingers in a hover position over the mouse buttons

Corrections

• Mouse should fit hand size
• Wrist should float above work surface
• Fingers are relaxed over buttons
• Use entire arm to propel the device
Monitor(s)
Single Monitor Placement

- Single monitor placement:
  - Aligned to user's midline
  - Placed at a comfortable visual distance that supports a balanced head over shoulders posture
  - Positioned at a height that avoids tipping the head back or down
Multi-Monitor Placement

One Screen Primary

- Align primary screen to user's midline with secondary monitor to the side and angled in

Equal Use of Both

- Screens should be set on either side of user’s midline and angled in
Challenge question

- If you observe a user tipping the head back to see the screen what interventions might you need to consider?

- What if the screen is low and promotes dropping the chin to look down?

- If the user habitually moves the head forward in a "turtle neck" posture what might you suspect?
Telephone Headsets and Document/Copy Holders
Telephone Accessories

NOT recommended!
Copy Holders
Tips and Next Steps
Tips and Next Steps

• Start with small adjustments
• Be creative
  – Don’t rush out to buy new equipment!
  – Example: phone books make great foot rests!
• Evaluate each other
• Give yourself a break!
  – Stretch breaks
  – Movement breaks
Test Your Knowledge
What risks can you identify?
What items are set up properly?
What risks do you see?
What risks can you identify?
What risks can you identify?
A Little Humor.....
Summary

• General ergonomic considerations
• Chair
• Input Devices
• Monitor(s)
• Phone and Document Holders
• Tips to eliminate or alleviate risks
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Thank you!