Library Ergonomics

Presented by:

Environmental Health and Radiation Safety
What is Ergonomics?

- Ergonomics is the science of fitting workplace conditions and job demands to the capabilities of the working population.

- EHRS: assesses work-related factors that may pose a risk of musculoskeletal disorders (MSDs) and makes recommendations to alleviate them.
Symptoms of MSDs

- Numbness or a burning sensation in the hand
- Reduced grip strength in the hand
- Swelling or stiffness in the joints
- Pain in wrists, forearms, elbows, neck, or back
- Reduced range of motion in the shoulder, neck, or back
- Dry, itchy, or sore eyes
- Blurred or double vision
- Aching or tingling
- Cramping
- Weakness
Risk Factors

- Repetition
- Awkward posture
- Forceful exertion
- Contact stress
- Vibration
- Static posture
- Heavy lifting
- Environmental factors
  - Heat/Cold
  - Lighting
  - Noise

Frequency, Intensity & Duration

Fatigue and Injury
Shelving
Risk Factors for Shelving Tasks

- Weight of books
- Reaching and bending
- High repetition rate of tasks
Tips for Safe Shelving

- Reaching overhead puts stress on your shoulders, arms and upper back
- Use foot stool when shelving books on high shelves
Tips for Safe Shelving

- Carrying too many books while shelving can put stress on your arms and shoulders
- Carry only the book being shelved

INCORRECT

CORRECT
Tips for Safe Shelving

• Bending at the waist puts stress on your back
• Squat when shelving books on low shelves
• Keep your back straight

INCORRECT  CORRECT  CORRECT
**Tips for Safe Shelving**

- Lifting heavy books can put stress on your wrists, arms and shoulders.
- Use two hands to lift heavy books, such as bound volumes of serials.
- Use two-handed power grip to disperse load and maintain neutral hand positions while shelving.
Tips for Safe Shelving

- Pinch grip strength is approximately 25% of the strength of using the whole hand, increasing the risk of wrist injury.
- Avoid use of a pinch grip when shelving.

INCORRECT

CORRECT
Tips for Safe Shelving

• Switch back and forth between using your left and right arms for shelving to lessen the weight and strain on your dominant arm, hand and wrist

• If practical, locate heavy books at waist height
Book Carts
Risk Factors for Book Carts

- Awkward wrist, hand and arm postures
- Strain on shoulder and back muscles
- Collisions
Tips to Prevent Accidents While Using Book Carts

• Walk at a normal or slow pace while pushing a cart
• Ensure that the book cart allows sufficient foot space for your natural gait
• Keep the book cart close to your body
Tips to Prevent Accidents While Using Book Carts

• *DO NOT* use a damaged cart, particularly one with faulty wheels
• *DO NOT* use a cart in which your vision is obstructed, whenever possible
Tips for Maneuvering Book Carts Safely

- In general, push rather than pull the book cart
- Pull book carts when exiting elevators
- Pull carts through swinging doors
- Push from the end, not the sides
Wrist Posture Using Book Carts

INCORRECT

CORRECT
Tips for Maneuvering Book Carts Safely

• Get help when moving a large or fully loaded cart

INCORRECT
Tips for Maneuvering Book Carts Safely

• Use carts with handles, whenever possible
Inspecting Book Carts

• Prior to using a book cart, check for the following
  ❖ Loose and/or worn out wheels
  ❖ Stability
  ❖ Ease of movement
  ❖ Ease of maneuverability

It is important to maintain all book carts, paying particular attention to the wheels
Lifting and Carrying

- Do not carry too many books at one time
Position and Posture

• The body (and all parts of the body) is/are strongest in the **neutral** or straight position.
Lifting and Carrying

- Get help when lifting large, heavy or awkward loads
- Carry loads close to the body
- Place heavy loads at waist level, whenever possible
- Take a step and turn rather than twisting
Work Organization
Work Organization

- Take stretch breaks
- Vary tasks, whenever possible
- Switch hands and arms
- Work at a comfortable pace
  - Too fast a pace does not allow the body to recover from repetitive or forceful motions
Office Ergonomics
Repetition
Reducing Repetition

- Job Rotation
- Micro-breaks or pauses
- Voice recognition
- Others?
Awkward Postures

- Wrist
- Shoulder
- Neck
- Back
Focus on Your Posture

- Elbows at sides, forearms parallel to floor
- Wrists in neutral position
- Good back support
- Feet flat on floor
- Head and neck facing forward and straight
- Relax shoulders
Neutral Position
Chairs - posture
Chairs- armrest

- Relaxed
- Armrest too High
- Armrest too High & Wide
Keyboard Awkward Postures

- Wrist Postures
Keyboard Tray Adjustments
Keyboard Height
Keyboard Tray Mouse Position

INcorrect

Correct
Monitors

• Monitor Position
  ✅ Aligned with keyboard and mouse
  ✅ Top third screen in direct line of sight (except when wearing bifocals)
  ✅ Arms length away

• Glare
  ✅ Position at right angle to window
  ✅ Position away from direct light
  ✅ Modify lighting
Monitor Position

INCORRECT

CORRECT
Documents

CORRECT
Documents Within Easy Reach
Phone Placement Within Easy Reach and on Non-dominant Side

INCORRECT

CORRECT
Using a Laptop

• **Occasional users**
  - Sacrifice neck posture rather than wrist posture
  - Sit back in a comfortable chair and adjust laptop

• **Full-time users**
  - Position screen like workstation monitor
  - Use separate keyboard and mouse
Laptop Ergonomics
Training Resources

Knowledge Link

- Protecting your Back

EHRS Website

HumanTech Office Ergonomics
Ergonomics for Life
Ergonomics for Life

• Ergonomics Off the Job
  ❖ Home computer use
  ❖ Hobbies
  ❖ Sports

• Protecting from RSIs is a 24-Hour Job
Awkward Postures
Stretches

- Stretches should be done with slow, fluid motions
- Stretches should not hurt
- Check with your physician if you have or have had an injury
Stretches

• Neck Exercises
  ❖ Lengthens and strengthens neck muscles
  ❖ Releases tension from poor posture
Stretches

- Finger and Wrist Exercises
  - Loosens stiff fingers, hands and wrists
  - Hands will become more flexible
Stretches

• Shoulder and Upper Back Exercises
  ❖ Releases shoulder and neck tension
  ❖ Counteracts shoulders that hunch forward
Thank you!

Please reach out to EHRS with any questions. 215-898-4453