

Library Ergonomics

Presented by:

Environmental Health and Radiation Safety

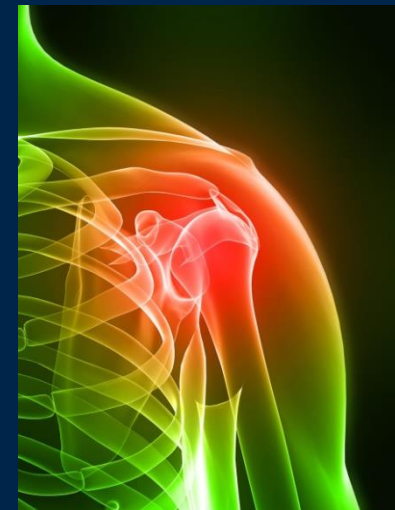


What is Ergonomics?

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

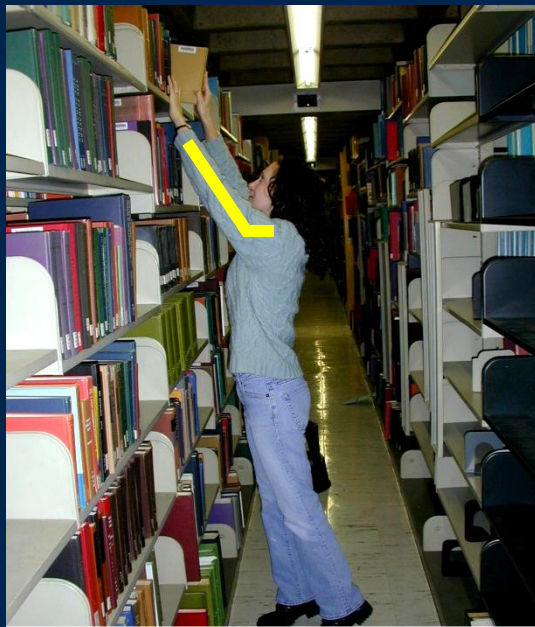
Risk Factors for Shelving Tasks

- 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



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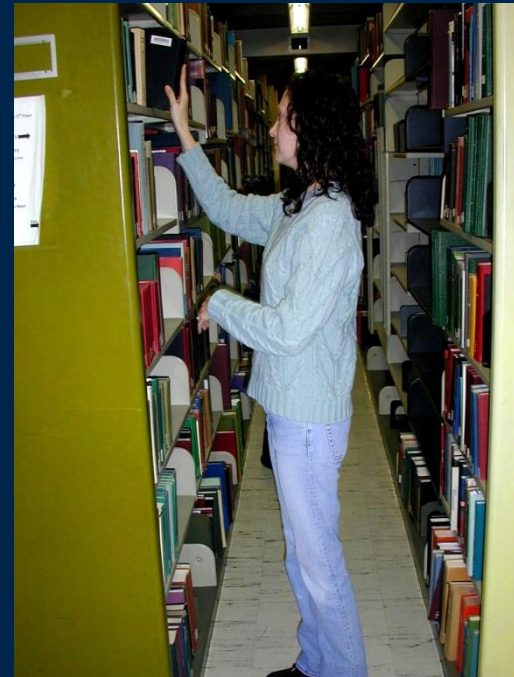
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Tips for Safe Shelving

- 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



INCORRECT



CORRECT



POWER GRIP

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



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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

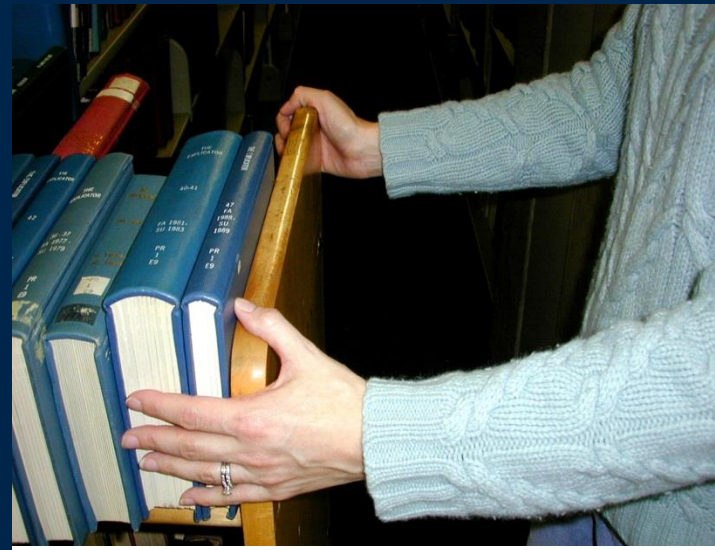
- *DO NOT* use a damaged cart, particularly one with faulty wheels
- *DO NOT* use a cart in which your vision is obstructed, whenever possible

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



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Wrist Posture Using Book Carts



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Tips for Maneuvering Book Carts Safely

- Get help when moving a large or fully loaded cart



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

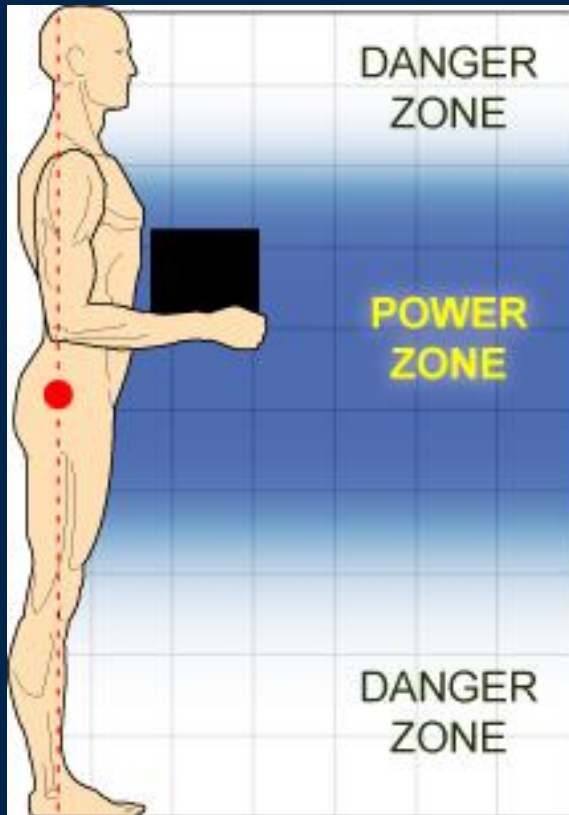
It is important to maintain all book carts, paying particular attention to the wheels

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



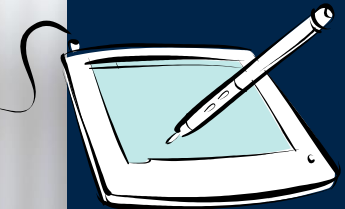
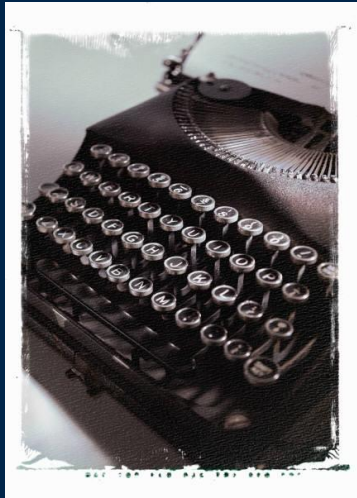
Work Organization

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?



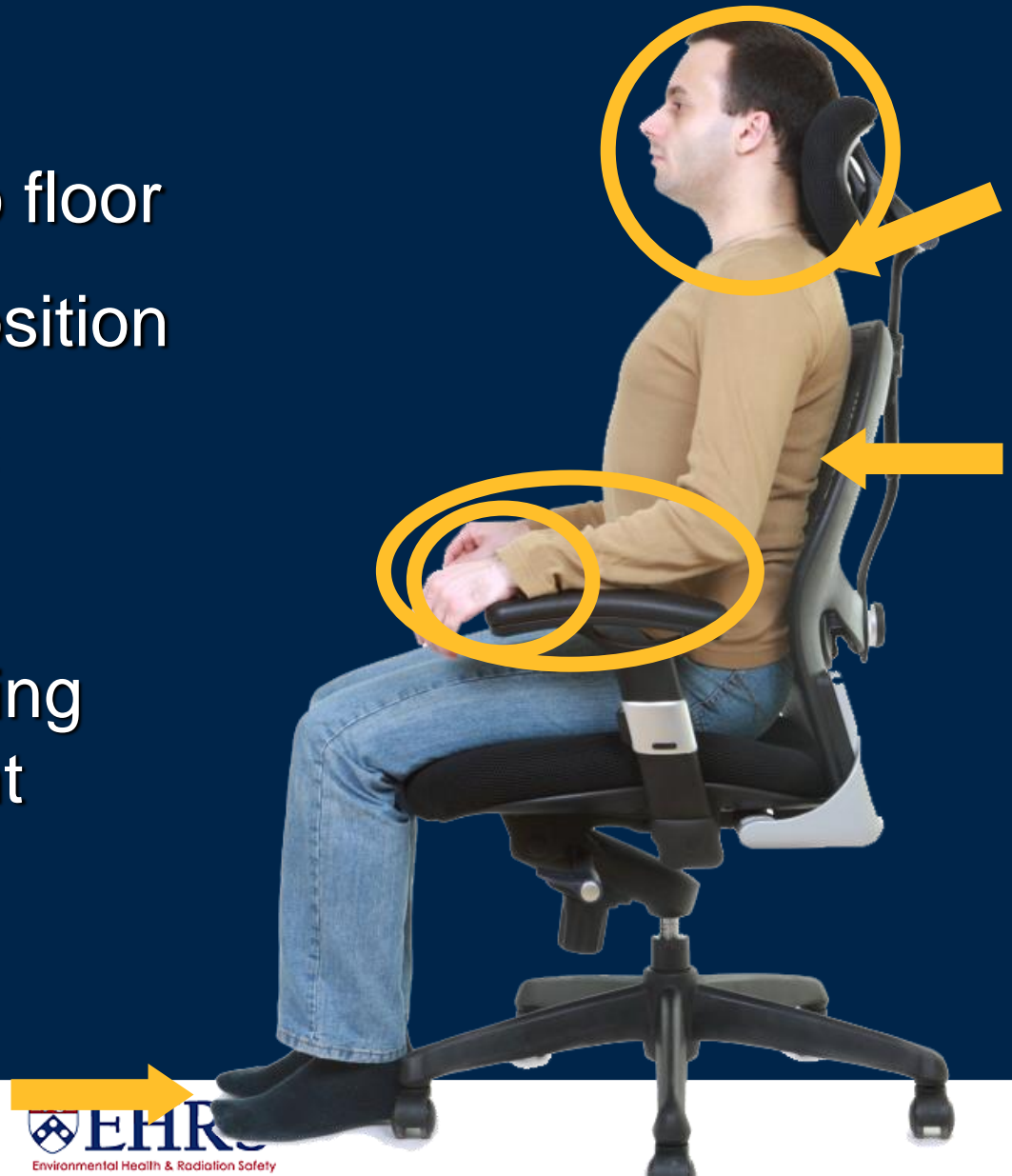
Awkward Postures

- 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



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Chairs- armrest



Keyboard Awkward Postures

- Wrist Postures



Keyboard Tray Adjustments



Keyboard Height



Keyboard Tray Mouse Position



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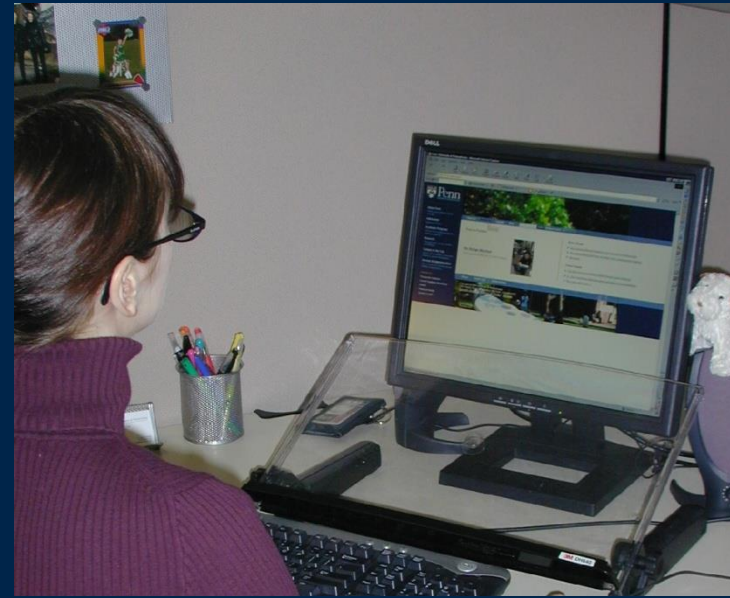
Monitors

- 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



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Documents



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Documents Within Easy Reach



Phone Placement Within Easy Reach and on Non-dominant Side



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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](#)

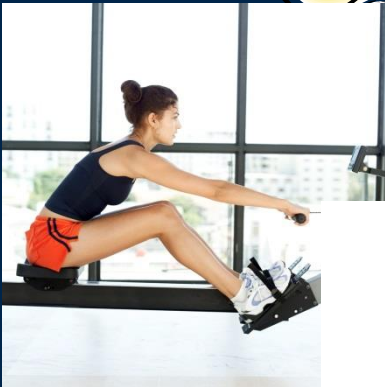
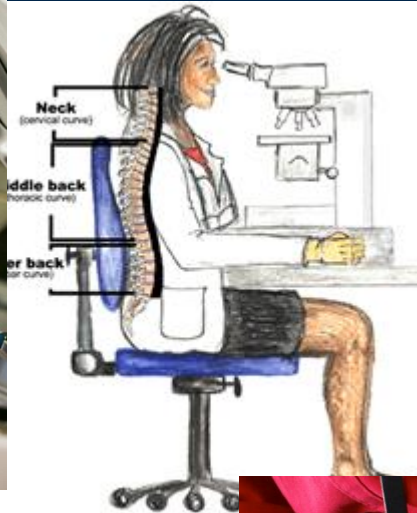


Ergonomics for Life

Ergonomics for Life

- Ergonomics Off the Job
 - ❖ Home computer use
 - ❖ Hobbies
 - ❖ Sports
- Protecting from RSIs is a 24-Hour Job

Awkward Postures



As a Sit Stand with a Backrest

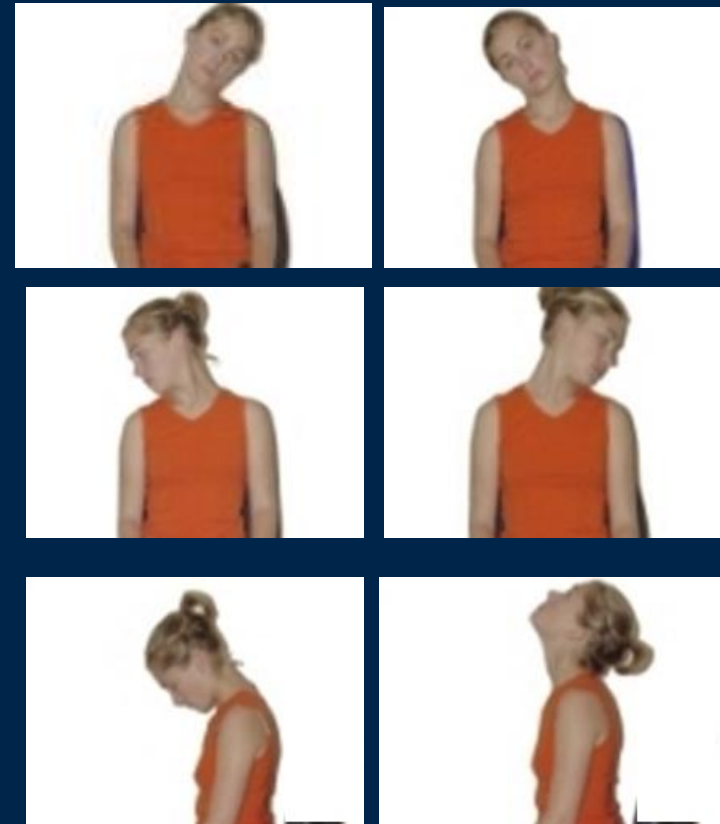


Stretches

- 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