

# WORKING AT HOME

PRESENTED BY:  
GINGER EDGECOMBE DORSEY, Ph.D.  
APHIS ERGONOMICS PROGRAM MANAGER



APHIS ERGONOMICS

**Work Healthy**



2012

# Ergonomics

- Definition: Fitting the job to the worker.  
(Fitting the home to the resident.)
  
- Goals:
  - Work in postures that place the least amount of stress on our bodies.
  
  - Ensure components of the home can accommodate and support our working needs.
  
  - Decrease risk of injury/illness.
  
  - Enhance productivity.

# What You Will Learn

- ❑ Methods to reduce your risk for discomfort when working at home.
- ❑ How to achieve the best workstation set-up.
- ❑ Exercises/stretchches.
- ❑ How to obtain assistive technology.

# Ergonomic Disorders and Injuries

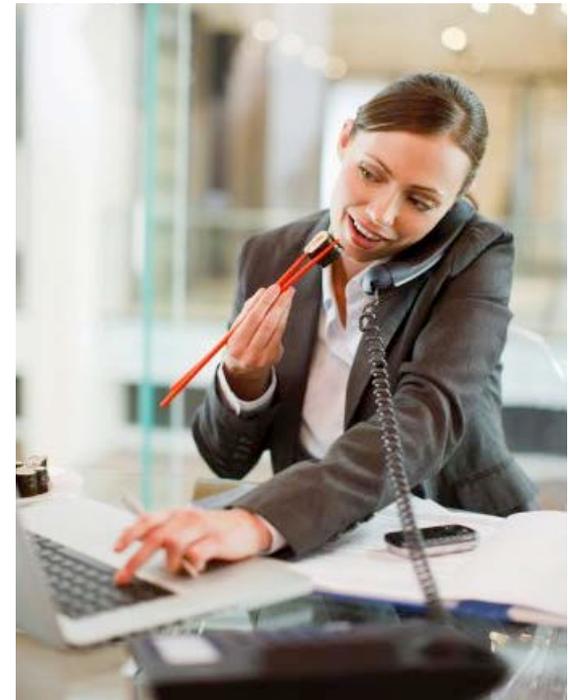
The absence of a sound ergonomics environment can lead to a variety of physical ailments named work-related musculoskeletal disorders (WMSDs), cumulative trauma disorders (CTDs), or repetitive strain injuries (RSIs).

# WMSDs, CTDs, and RSIs

- Disorders of the muscles, joints, nerves, tendons, ligaments, cartilage, or spinal discs.
- Mainly occur in the neck, back, arms, and wrists.
- Reflect gradual or chronic development.

# Causes of WMSDs

- Awkward/Deviated Postures
  - Cradling the telephone between the neck & shoulder
  - Viewing the monitor off-center
  
- Highly Repetitive Work
  - Keyboarding
  - Lifting
  
- Excessive Force
  - Mousing
  - Stapling



# Awkward Postures

- Extended reaching
- Twisting
- Slouching
- Raised shoulders
- Bent wrists



# Home Office – Ideal Set-up



# Home Office: Current Set-ups



# Home Office Ergonomic Elements

- Chair
- Workstation/Desk
- Keyboard
- Pointing Device
- Monitor
- Laptop Computer
- Lighting
- Work Habits

# Chairs



# Ergonomic Chairs

- A properly designed & adjusted chair will provide appropriate support to the back, legs, buttocks, and arms.
- Contact stress, overexertion, and fatigue may be reduced.
- Proper circulation is promoted to the extremities.

# Ergonomic Chair Features

- Chair Height
  - Do feet rest flat on floor or on a footrest?
- Chair Recline or Tilt
- Lumbar Support
  - Height adjustable.
  - Firm?
- Seatpan Depth
- Armrests
  - Height and width adjustable arms are a must.



# Seatpan Depth – Supports our weight!

Seatpan too long



Seatpan too short



Seatpan at right depth

# Lumbar Support

Do they have adequate support?



# Ideal Chairs



# Chair Supplements

- Lumbar support
- Chair Pillow/Wedge
- Footrest



# Ergonomic Chair Resources

- BodyBilt: [www.ergogenesis.com](http://www.ergogenesis.com)
- Herman Miller: [www.hermanmiller.com](http://www.hermanmiller.com)
- Steelcase: [www.steelcase.com](http://www.steelcase.com)
- Local “Healthy Back Store”
- Local Office Supply Store
- Various Chairs: <http://www.aphis.usda.gov/mrpbs/emssd/chairs.shtml>

**\*A successful chair trial is recommended before purchasing.**

# Workstation/Desk



# Workstation/Desk

- Standard furniture cannot accommodate everyone's needs.
  
- Add a keyboard tray if a fixed-height desk and standard monitor, keyboard, and mouse are used.
  - Remove pencil drawer.
  - Remove fixed keyboard tray if necessary.

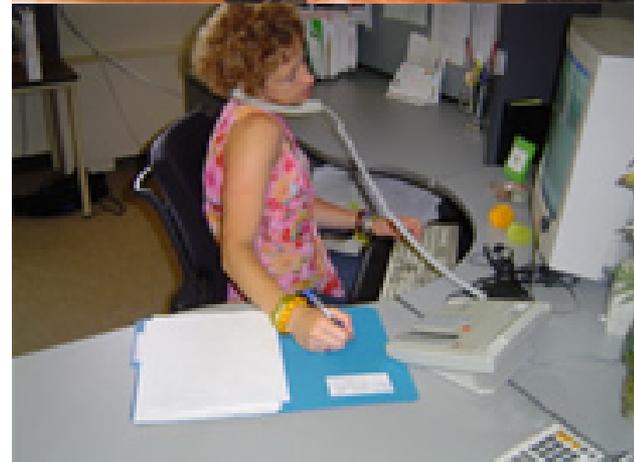
# Adjustable Keyboard Trays

Consider an adjustable keyboard tray with an articulating arm and mouse extension.



# Desk/Workstation

- ❑ Place document holders between monitor and keyboard.
- ❑ Use a footrest if feet do not rest flat on the floor.
- ❑ Clear area underneath the desk to accommodate legs and allow for stretching.
- ❑ Use a headset or speaker phone to avoid neck and shoulder discomfort for frequent phone usage.



# Keyboards



**Natural Keyboard**

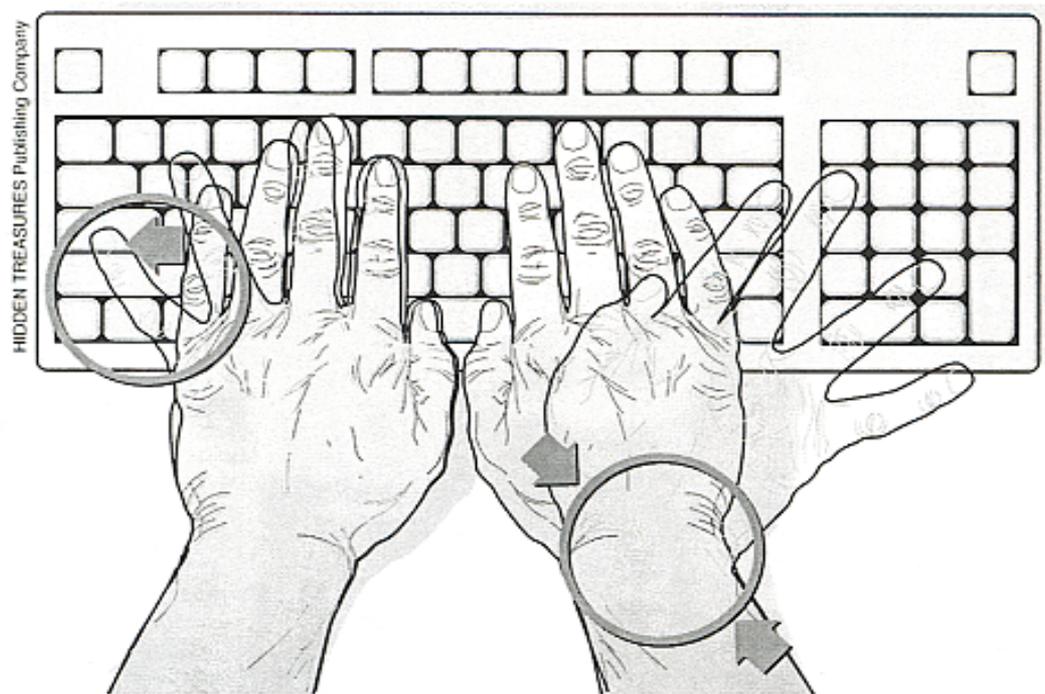


**Split Keyboard**



**Scooped Keyboard**

# Deviating from Body's Midline



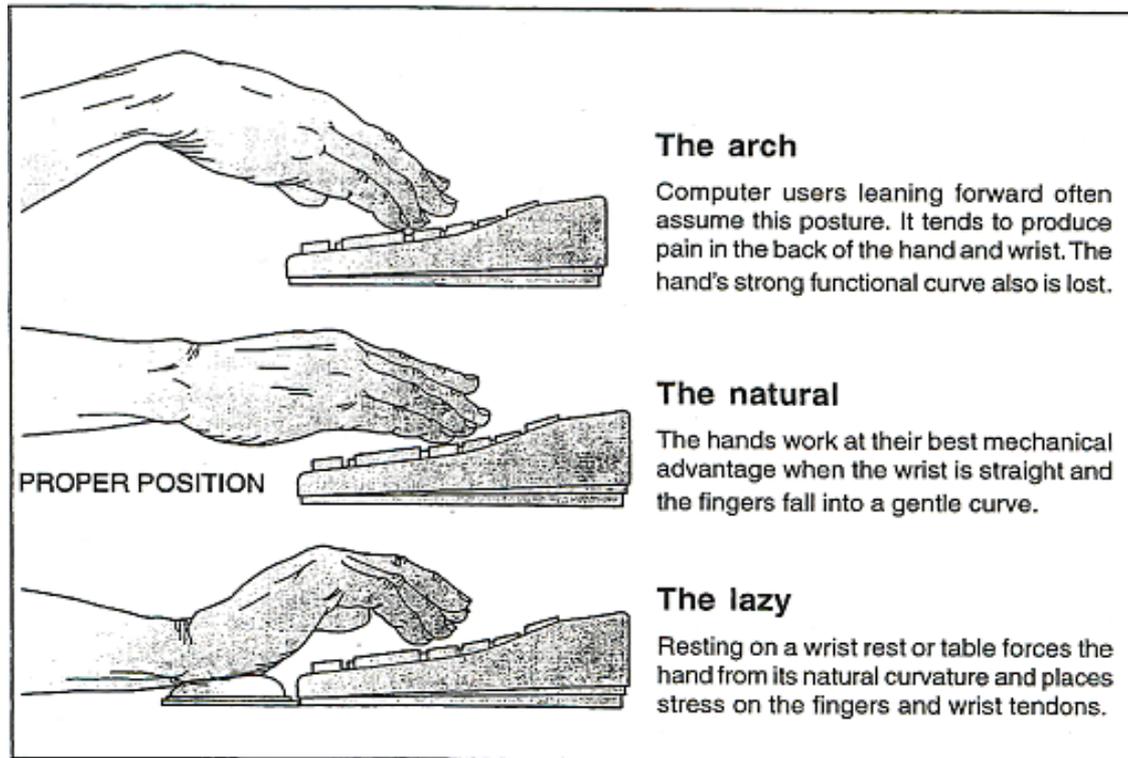
# Keyboard Height

- ❑ Adjust the keyboard height so that you have approximately a 90 to 120 degree angle in the elbow.
- ❑ You should be able to relax your shoulders and allow your arms to rest at your sides.
- ❑ Your forearms should be approximately parallel to the floor while keyboarding (i.e. just above your lap).
- ❑ Position the keyboard close to the you.

# Keyboard Tilt

- The keyboard should be lying flat or slightly titled away (e.g., negative tilt) from you.
- Your wrists should be in a neutral position while keyboarding.
  - The wrists should be flat or have a slight extension.
  - The wrists should not be excessively deviated towards the midline of the body or away from the midline of the body.

# Wrist Postures



# Common Wrist Postures

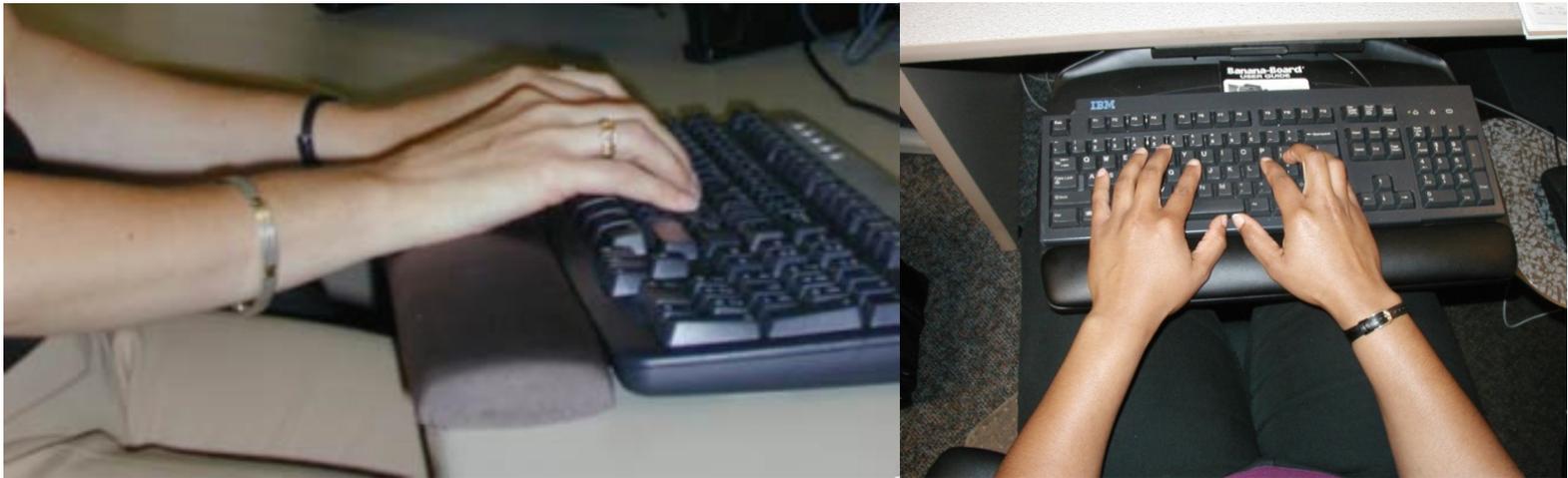


# Keyboard Usage

- Rest hands on a palm support or in lap during rest pauses.
- Avoid resting wrists on hard/sharp surfaces/edges while keyboarding or using the mouse.
- Use soft, easy key strokes.



# Palm Supports vs. Wrist Rests



# Pointing Devices



# Mouse Placement

- The pointing device (e.g., mouse, trackball) should be located adjacent to and at the same height as the keyboard.
- You should be able to rest your forearm on the desk without excessive reaching.
- The angle between the your arm and ribs should be less than 45 degrees.

# Mouse Placement – Good or Bad?



# Mouse and Keyboard Use

Consider an adjustable keyboard tray with an articulating arm and mouse extension.



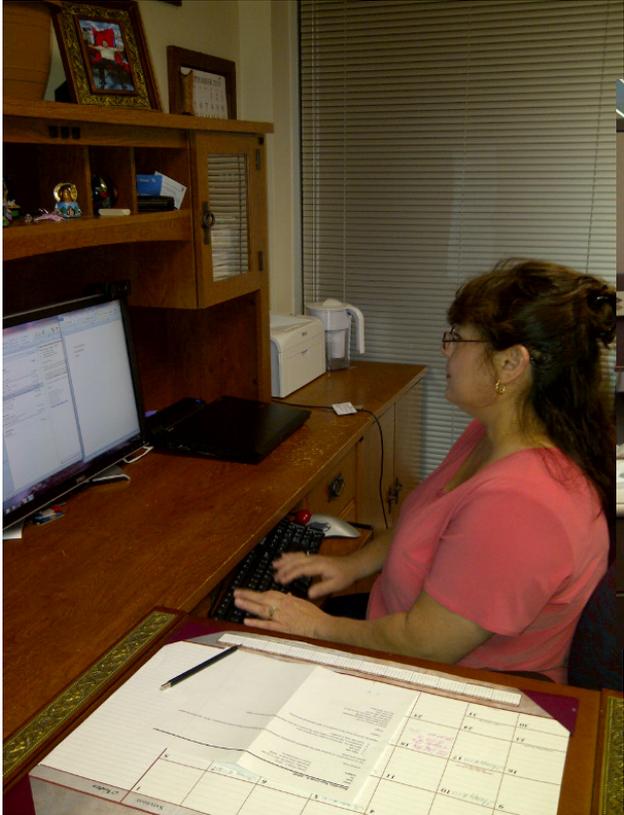
Mouse extension slides to either side.



Mouse can be used on either side.



# Monitors



# Monitors

- Position the computer monitor so the top of the screen is at or just below eye level.
- Make sure the surface of the viewing screen is clean.
- Adjust brightness and contrast to optimum comfort.
- Position the monitor directly in front of you to avoid excessive twisting of the neck.

# Monitor Height

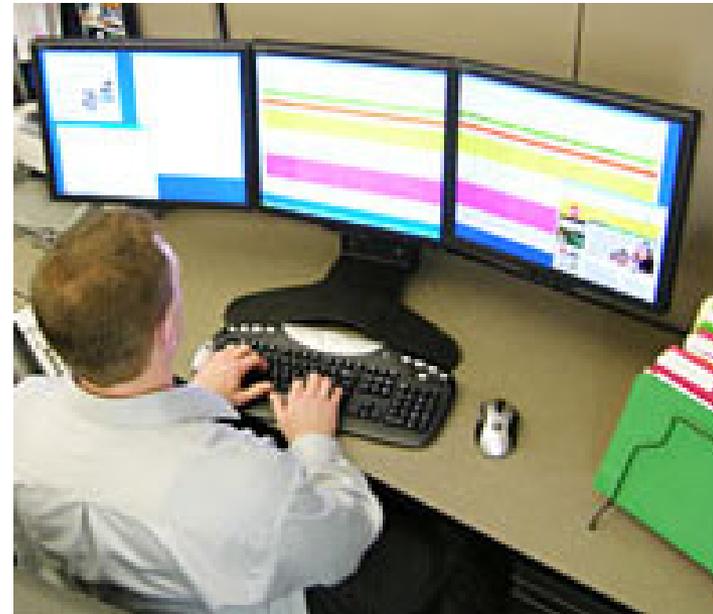
Monitor too high



Monitor too low



# Monitor Height – Multi-Monitors



# Monitors

- Slightly tilt the top of the monitor away from you at a 10 to 20 degree angle or at a right angle to the floor.
- The monitor should be approximately an arm's length away from you to avoid eye strain.
- Position monitors at right angles from windows to reduce glare.

# Laptop Computer Use

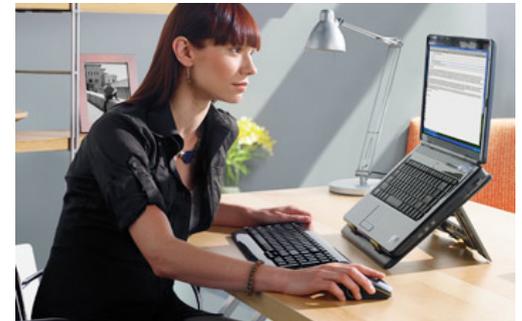
- Do you use a laptop as your primary computer?
  
- Where do you use it at home:
  - Office?
  - Kitchen table?
  - Couch/Recliner?
  - Bed?

# Is this You?



# Laptop Computers

- ❑ Experiment with table height, chair height, & keyboard angle to maintain neutral wrist postures.
- ❑ Attach an external keyboard.
- ❑ Attach an external mouse instead of using the small constricted touchpad or trackball.
- ❑ Use a laptop riser.



# Laptop Risers

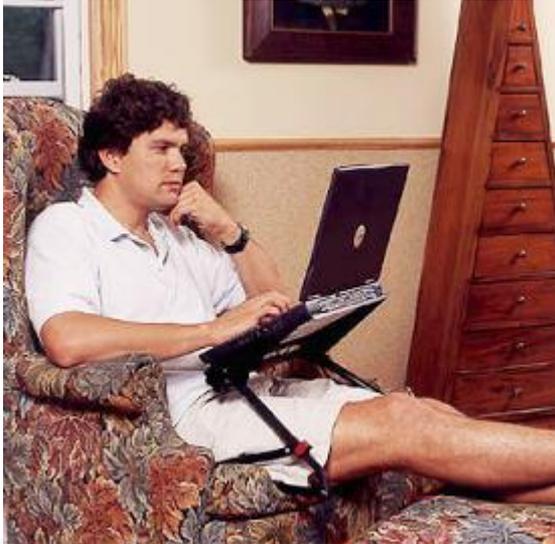


# Laptop Computers

- If you are seated in a side chair or couch, use a pillow to support your arms while keying.
- Incorporate mini-breaks every 20 to 30 minutes to break up repetition and static postures.



# Additional Laptop Solutions



Lap Desk – [www.lapdawg.com](http://www.lapdawg.com)

# Lighting/Glare



# Lighting

- Use the following recommendations to reduce eyestrain, eye fatigue, and headaches:
  - Close drapes/blinds.
  - Point desk lights away from the monitor.
  - Use indirect light or shielding.
  - Place monitor at 90 degree angle to windows.
  - Reduce overhead lighting.
  - Use an antiglare screen or monitor shield.

# Keyboard Trays, Keyboards, Input Devices, Lights, Footrests, Document Holders

- GSA Advantage: [www.gsaadvantage.com](http://www.gsaadvantage.com)
- Alimed: [www.alimed.com](http://www.alimed.com)
- The Human Solution: [www.thehumansolution.com](http://www.thehumansolution.com)
- APHIS Ergonomics Program Website – Recommended Equipment:  
[http://www.aphis.usda.gov/mrpbs/emssd/recommended\\_equipment.shtml](http://www.aphis.usda.gov/mrpbs/emssd/recommended_equipment.shtml)

# Work Habits

- Take frequent (1 every 1/2 hr) mini-breaks to get up and stretch or walk around.
- It is also important to change positions periodically.

# Review

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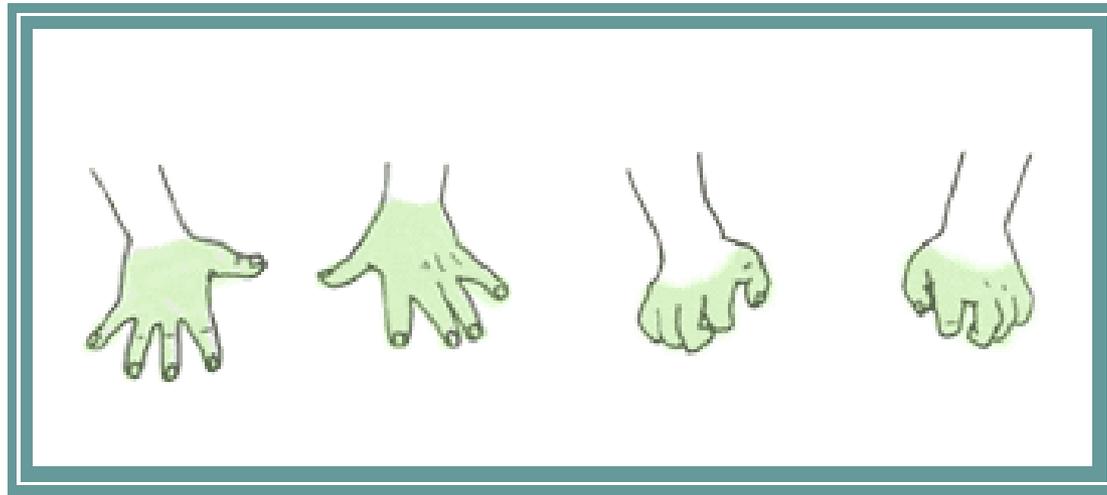
What factors/items would you include in your ideal home workstation?



# Exercises

You can perform the following exercises at work throughout your day. These exercises can help energize your body and relieve muscle tension.

# Hand Stretches



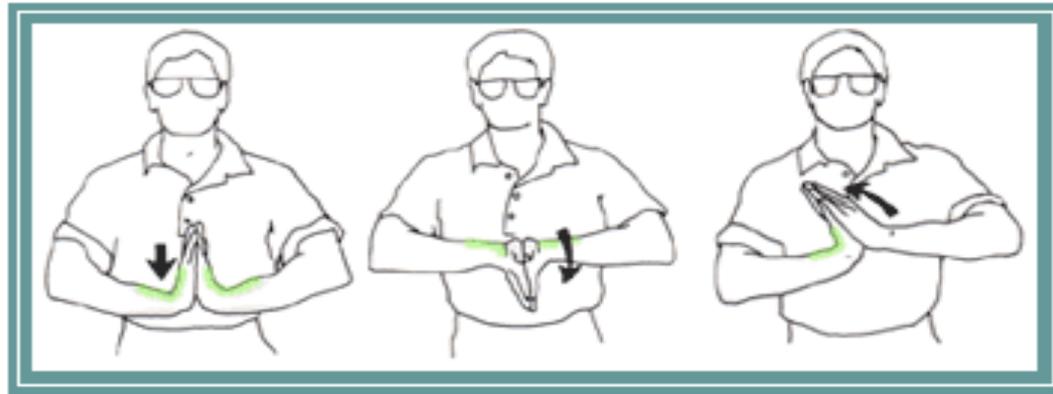
Separate and straighten your fingers until the tension of a stretch is felt.

Hold 10 seconds.

Relax, then bend fingers at the knuckles and hold 10 seconds.

Repeat the first stretch once more.

# Wrist Stretches



Place your hands palm-to-palm in front of you.

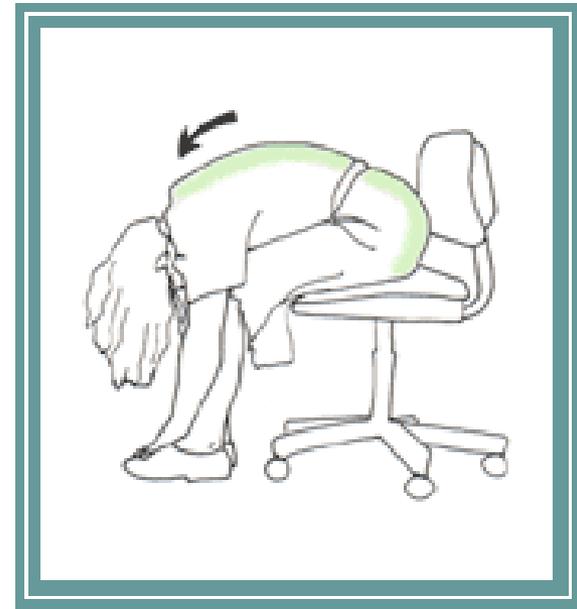
Move hands downward, keeping your palms together, until you feel a mild stretch.

Keep elbows up and even.

Hold 5-8 seconds.

# Back Stretches

- Lean forward to stretch.
- Keep your head down and your neck relaxed.
- Hold 10 - 20 seconds.
- Use your hands to push yourself upright.



# Back Stretches



- Stand with hands on your hips.
- Gently turn your torso at the waist and look over your shoulder until you feel the stretch.
- Hold 8 - 10 seconds.
- Repeat other side.
- Keep your knees slightly flexed.
- Do not hold your breath.

# Eye Stretches



## Palming

Cover your closed eyes with your hands, so that the palms are over (but not touching) your eyelids. Your fingers should overlap above your nose on your forehead.

Take several deep breaths and take in the complete darkness (or visualize a relaxing setting).

After 20 seconds or so, uncover your eyes and allow them to refocus.

# Eye Stretches

## Refocus Routine

If you regularly work with your computer, you should periodically look away to allow your eyes to change focus. This exercise should be repeated regularly throughout the day. Here's how to do it:

Identify two objects that are roughly 20 feet away and relax.

Comfortably focus on one object for approximately 10-15 seconds, then focus on the other object for 10-15 seconds.

Return your focus to your monitor and continue working.

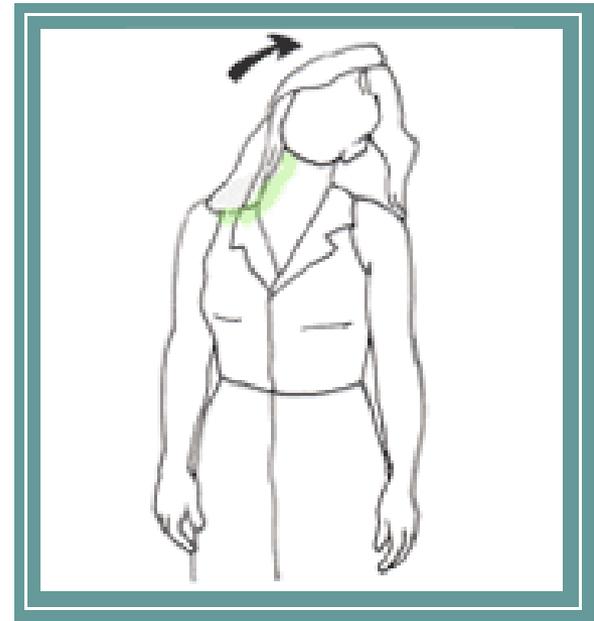
# Shoulder & Arm Stretches



- Interlace your fingers behind your back, palms facing your back.
- Slowly turn your elbows inward while straightening your arms until a stretch is felt.
- Lift your breast bone slightly upward as you stretch.
- Hold 10 seconds.

# Neck Stretches

- Slowly lower your neck to one shoulder, keeping that shoulder down.
- Hold 5-10 seconds.
- Do both sides.



# Available Services

- Equipment Loans – USDA Target Center
  - Keyboards, mice, footrests, etc.
  - 1-2 week loan period
  - Ordering information provided as requested
  
- Ergonomics Video-Lending Library (APHIS only)
  - “Back Protection – Defending Your Safety Zone”
  - “Office Ergonomics – It’s Your Move”
  
- Individual Ergonomic Evaluations
  
- Phone & Email Consultations

\*Contact your agency Safety and Health Program for more information.

# USDA Target Center

## □ Background:

- Target = Technology Accessible Resources Give Employment Today
- Est. in 1992 to support USDA with assistive technology (AT) & ergonomic solutions.
- Ensure all employees have safe and equal access to electronic and information technology.
- Collaborate with the DoD Computer/Electronic Accommodations Program (CAP) to provide services for employees with disabilities.

# Target Center

- Provides:
  - Worksite assessments/consultations.
  - Presentations on AT, ergonomics, disability awareness.
  - Group & individual demonstrations.
  - Equipment loans.
  - Alternative Formats.

# Contact the Target Center

[target-center@usda.gov](mailto:target-center@usda.gov)

Phone

202-720-2600 (v/tty)

TTY

202-690-0942

Address

Room 1006-South Building  
1400 Independence Avenue, SW  
Washington, DC 20250

# Successful Ergonomics

- **Understand:** causes of WMSDs & ways you can prevent them.
- **Respect:** potential hazards caused by poor posture & an unhealthy home office environment.
- **Communicate:** ways to eliminate stress factors & report symptoms early.
- **Commitment:** eliminate WMSDs in your home working environment.

# Questions



# ***APHIS Ergonomics Program***

USDA APHIS

4700 River Road, Unit 124

Riverdale, MD 20737

301.436.3175

Email:

[aphis.ergonomics.program@aphis.usda.gov](mailto:aphis.ergonomics.program@aphis.usda.gov)

Website:

<http://www.aphis.usda.gov/mrpbs/emssd/ergonomics.shtml>