

TO SIT OR STAND? THAT IS THE QUESTION.

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APHIS ERGONOMICS

Work Healthy



2012

Ergonomics

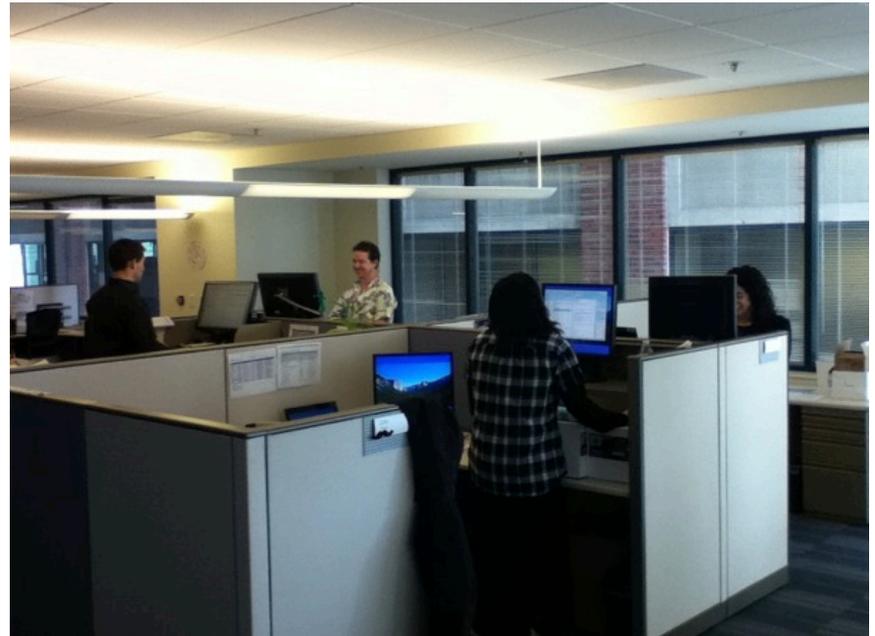
- Defined as: Fitting the job to the worker.
- Goals:
 - Minimize your risk for discomfort, aches, and pains associated with work.
 - Seeks to improve the interaction between humans and the machines & tools they use to perform their work.
 - Enhance worker productivity.
 - Improve quality of work life.

Today's Objectives

- Review environments where sitting or standing is possible.
- Determine which job tasks are best for sitting or standing.
- Provide tips on how to achieve optimum postures.
- Review available sit to stand options.

Reasons to Stand

- Individual
- Organizational
- Medical



Individual Reasons

- From an individual view:
 - Reduces health issues attributed to too much sitting.
 - Sedentary lifestyles.
 - Decreases rates of obesity.
 - Standing burns more calories than sitting.
 - Increases movement and improves balance within an already aging workforce.

Individual Reasons Cont.

- From an individual view:
 - Enables postural changes.
 - Recommend 2-3 min breaks every 20-30 mins.
 - Minimizes musculoskeletal disorders that result from long-term static postures:
 - Seated postures.
 - Standing postures.

Organizational Reasons

- From an organizational view:
 - Provides for flexibility in workstation designs.
 - Employees can share workstations.
 - Increases productivity (slightly).
 - Greater energy.
 - Improved mental capacity.

Medical Reasons

- Existing problems:
 - Back injury.
 - Sciatica.
 - Nerve conditions.
 - Physical conditions.
 - Other issues that make sitting difficult.



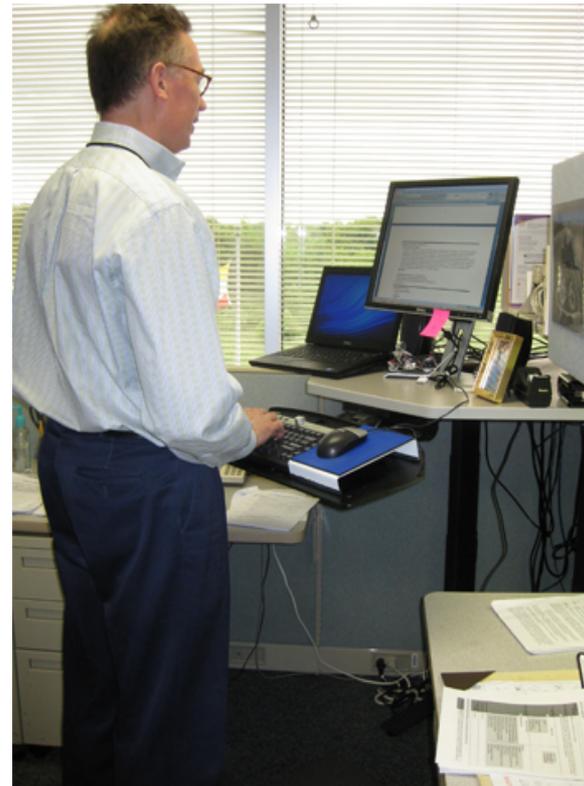
Standing to Work

- Decide work tasks appropriate for standing.
- Determine feasibility.
 - Can existing work surface be used?
 - Is there enough overhead clearance?



Standing to Work

- Determine correct height for worker such that:
 - Forearms are approximately parallel to the floor.
 - Shoulders are relaxed.
 - An upright posture is maintained.
 - Head and neck are in neutral posture (i.e., not bent).



Work Environments

- Office
- Laboratory
- Industrial
- Vehicles



Office Environments

- Seated work is dominant.
- Several opportunities to change postures:
 - Completing paperwork (e.g., sorting and filing).
 - Reading tasks.
 - Computing tasks.
- Review required work tasks:
 - How much time is spent performing a given task?
 - Which task(s) can be done in a standing position?
 - Which task(s) must be done in a seated position?

Office Environments: Standing to Work

- Install a height adjustable keyboard tray with a mouse extension.
- Install a monitor arm.
- Use a footrest.
 - Alternate resting one foot on a footrest (< 3 in. high).
 - Less pressure on spine.



Laboratory Environments

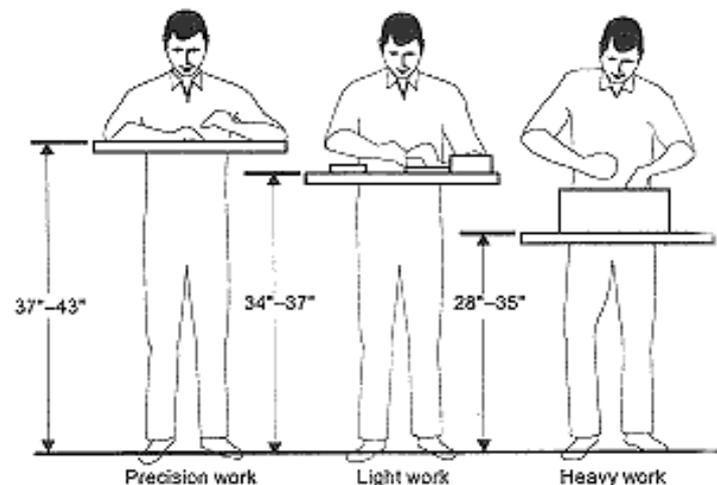
- Stand when:
 - Knee clearance is absent.
 - Seated space is limited.

- Sit or stand for the following tasks:
 - Pipetting.
 - Microscope use.
 - Work at a biological safety cabinet.
 - Tasks where awkward postures are sustained.



Standing Laboratory Work

- **Precision Work** - Workbench height should be above elbow height.
- **Light Work** - Workbench height should be just below elbow height.
- **Heavy Work** - Workbench should be 4-6 inches below elbow height.



Industrial Environments

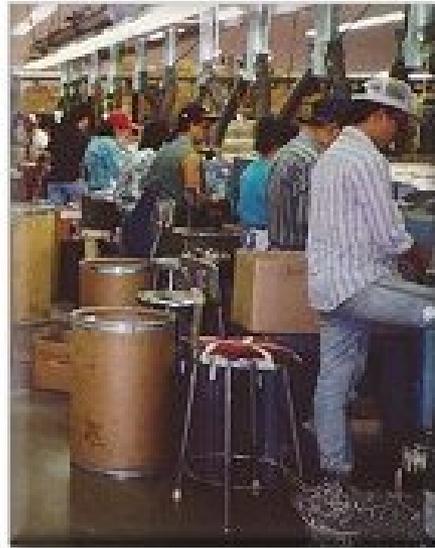
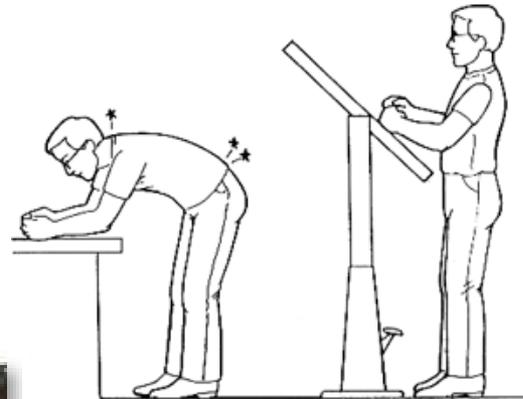
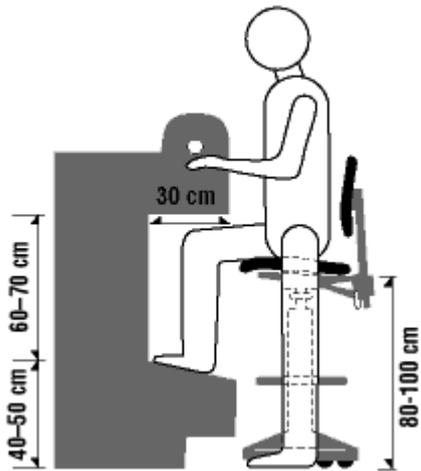
- Create work surfaces that are at the proper height and angle of the worker's size, tools, and equipment used.

- Work surfaces should permit neutral postures and be adjustable:
 - Accommodate various tasks.
 - Shared workstations.
 - For example, where workers inspect or assemble small parts, or perform other visually intensive tasks, work surfaces could be tilted to reduce neck, shoulder and arm strain.

Industrial Environments Cont.

- Add in footrests (~ 16 to 20 in. high).
- Use anti-fatigue mats.
- Use a sit-stand stool or adjustable swivel chair with locking mechanisms.
 - Ensure wheels are made of the right material for the floor where the chair will be used:
 - Plastic casters on carpets.
 - Rubber casters on hard surfaces (concrete, laminate, wood, etc.).

Standing Industrial Work



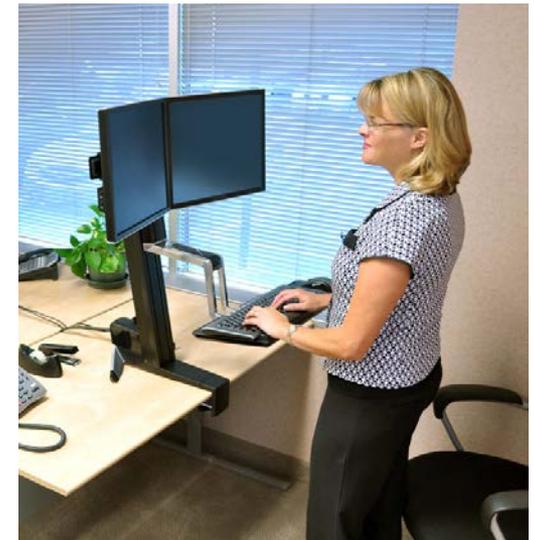
Vehicles

- When working from the vehicle:
 - Use the passenger seat.
 - Use the back seat.
 - Work from the back of the vehicle.
 - Create a standing work surface:
 - Use a wooden podium, box, breakfast tray table, or similar object.
 - Breaks up seated postures associated distance driving.



Standing Methods

- Height adjustable tables.
- Attaching external devices:
 - Extended keyboard tray track arm.
 - Monitor arm.
- Raising existing work surfaces:
 - Attach a motor.
 - Raise to a permanent standing height.
- Using existing work surface.
- Creating your own solution.



Height Adjustable Tables

- Can accommodate various heights and sizes:
 - Individual worker (22" – 48").
 - Job task.
- Effective method to change postures.
- Reduces costs associated with providing ergonomic changes required by employees in fixed height workstations:
 - Consultations.
 - Accessory equipment.
 - Equipment installation.

Types of Height Adjustable Tables

- Pin
- Crank
- Pneumatic
- Electric



Pin Mode

- Manual adjustment.
- Best for 1 time adjustments.



Crank Mode

- Manually turn a handle.
- Several rotations may be required.
- Time consuming.
- Best for infrequent posture changes.



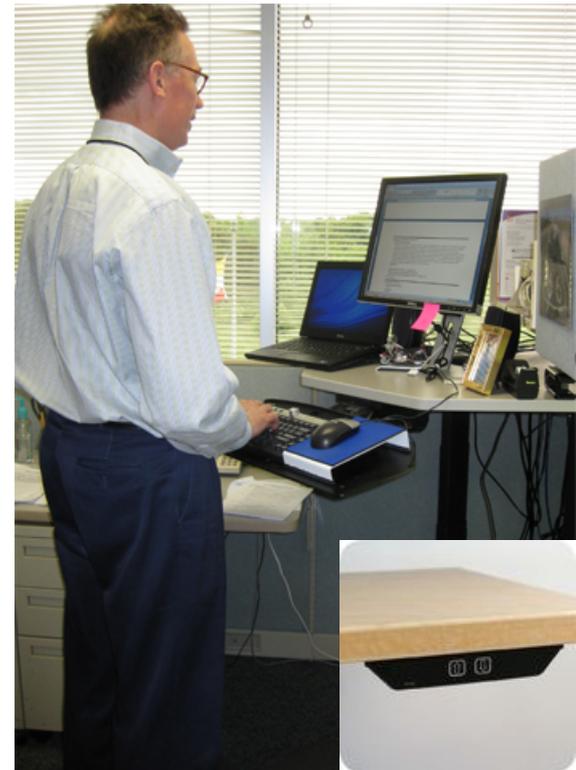
Pneumatic Mode

- Requires a light touch with a slight lifting motion.
- Requires no power.
- Easily transportable.
- Great for shared workspaces.



Electric Mode

- Easiest to operate.
 - ▣ Programmable.
- Best for frequent posture changes.
- Great for shared workspaces.
- Ideal when 80% or more of work is performed in one area.
- Most expensive solution (~\$800).



Attach External Devices

- Attach a keyboard tray with an extended track arm and a monitor arm:
 - ▣ Requires manual adjustments.
 - ▣ Requires more adjustments.
 - ▣ Need to remember the right height for standing/sitting work.
 - ▣ Lower cost solution (~\$600 total).



Raise Existing Work Surface

- Raise the height of an existing work surface:
 - Best for permanent fixes.
 - Ideal when work tasks are evenly mixed (e.g., computer work = 60%; desk work = 40%).
 - Can dedicate a work surface for specific tasks.
 - Less expensive solution (\$0 - \$200+).



Use Existing Work Surface

- Use a dedicated device:
 - Quick solution.
 - Fits on existing work surface.
 - Start at \$439.



TaskMate



Ergotron

Creative Solutions



Contacts for Work Completion

- Supervisor – obtain approval.
- Facility Management.
- Furniture manufacturer:
 - Cubicles.
 - Existing furniture.
- Safety and Health representative.
- USDA Target Center.
- Coworkers.
 - May have a handy person on staff.

Sit-Stand Seating

- For use in areas where:
 - Continuous standing in one position is required.
 - Knee clearance is absent.
 - Space is limited.

- Designed to enable alternating between perched and standing positions.



Types of Sit-Stand Seating

- ❑ Saddle stool
- ❑ Bicycle seat
- ❑ Perch
- ❑ Tractor
- ❑ Waterfall seat



As a Sit Stand
with a Backrest

Saddle Stools

- ❑ Ideal for 2-handed forward reach tasks.
- ❑ Provide long-term comfort.
- ❑ Hard to get used to seating style:
 - ❑ Wide stance.
 - ❑ Saddle pressures.



Bicycle Seats

- Smaller seats.
- Not comfortable for long periods of time.
- Lower cost version of saddle stools.



Perch Stools

- Lower cost.
- Rugged.
- Uncomfortable when used for prolonged periods.
- Cannot perch as high as possible on a saddle or bicycle seat.
 - Tendency to slip forward off the flat seat pan.



Tractor and Waterfall Seats

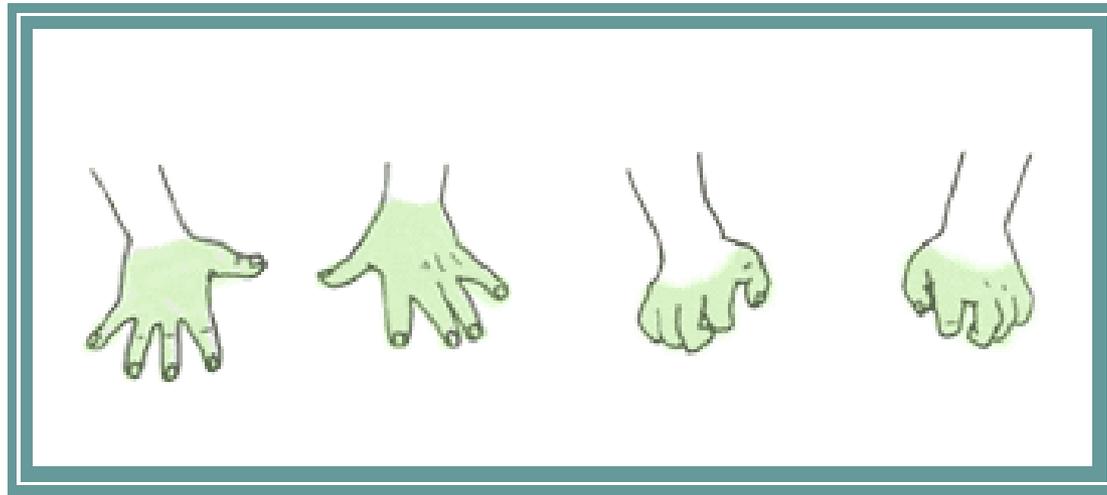
- Comfortable.
- Forward reach range not as great as with the other sit-stand seat types:
 - Greater seatpan depth.
 - User's feet cannot be ideally positioned under the body's center-of-mass during the reaching activity.



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



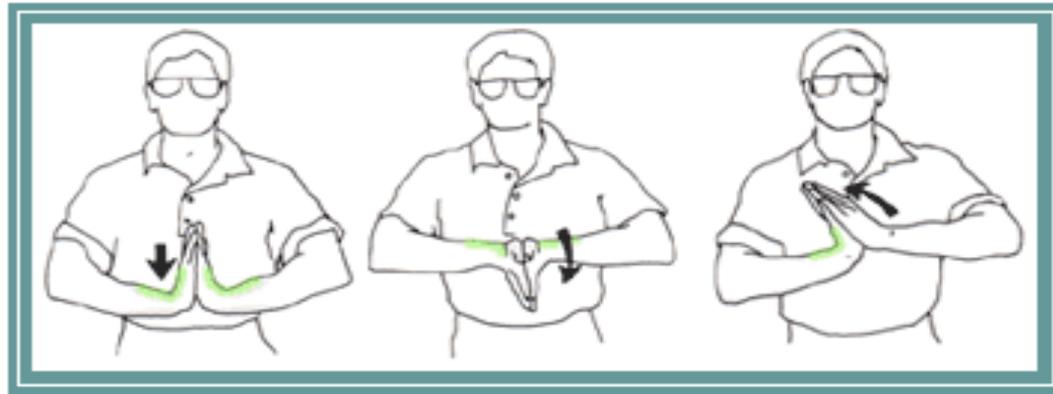
Separate and straighten your fingers until the tension of a stretch is felt.

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.

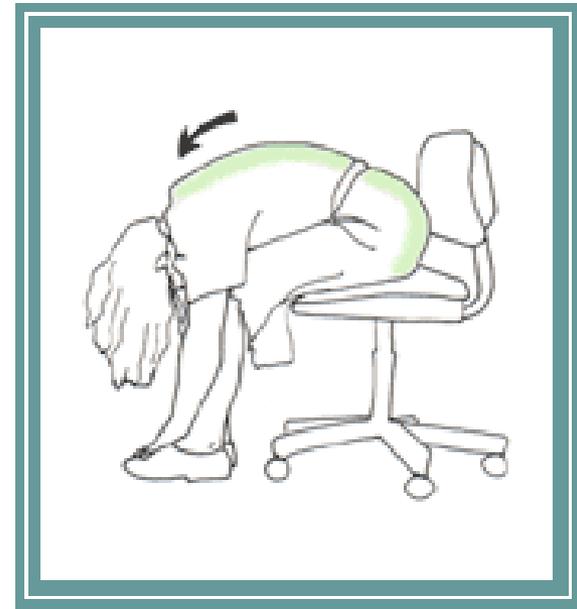
Move hands downward, keeping your palms together, until you feel a mild stretch.

Keep elbows up and even.

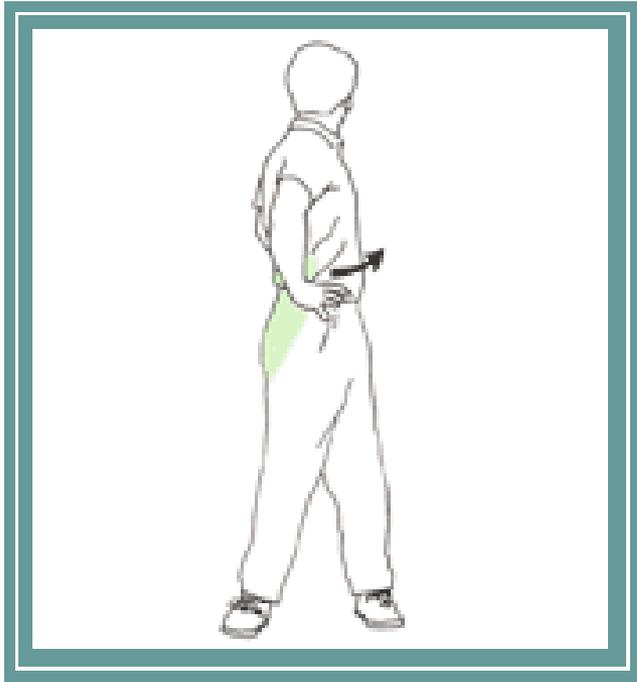
Hold 5-8 seconds.

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.

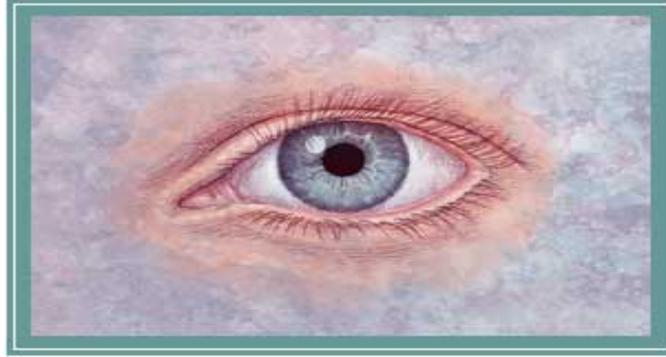


Back Stretches



- 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

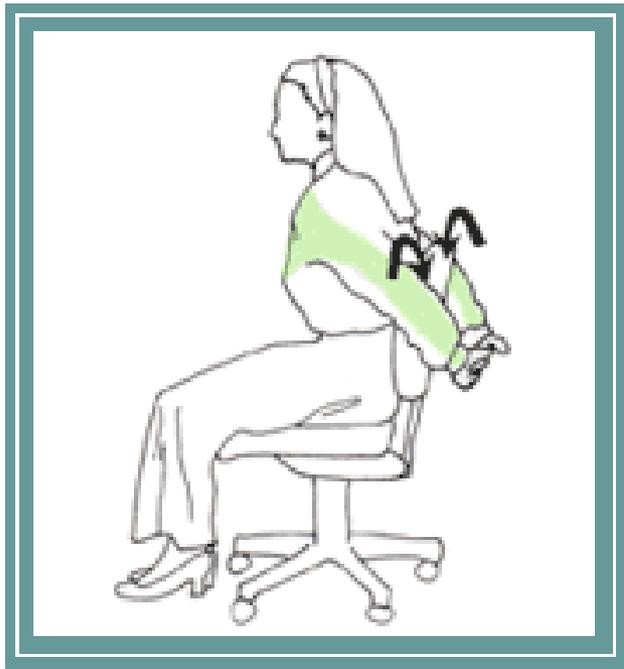
If you regularly work with your computer, you should periodically look away to allow your eyes to change focus. This exercise should be repeated regularly throughout the day. Here's how to do it:

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.

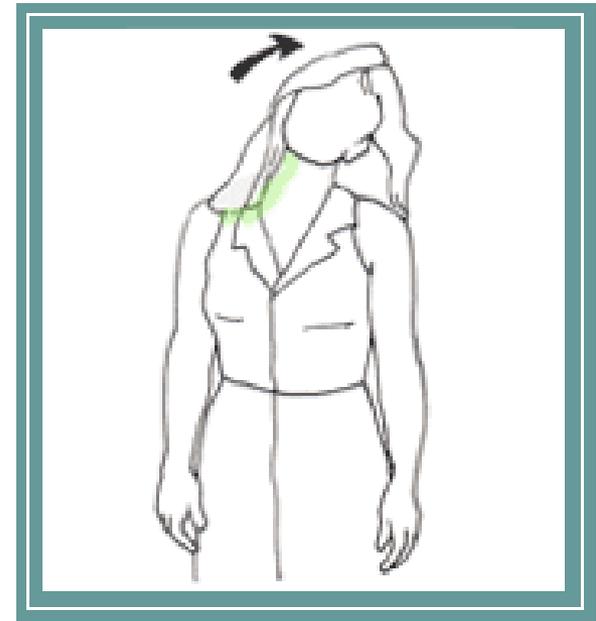
Shoulder & Arm Stretches



- 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

Phone

202-720-2600 (v/tty)

TTY

202-690-0942

Address

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

Summary

- Important to determine which job tasks readily allow for postural changes.
- Standing too long is just as bad as sitting too long.
- Alternating between seated and standing positions is best.

Successful Ergonomics

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

Questions



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