Computer Workstation Ergonomics Handbook

County of Fresno
Department of Human Resources
Risk Management Division
Revised- April 2017

Purpose

It is the County of Fresno's policy to provide its employees with a safe and healthy workplace. This handbook reflects General Industry Safety guidelines for safe workstation arrangements for employees who work at computer workstations. The purpose of this guide is:

- **To educate employees that they share in the responsibility for their comfort and prevention of injury.**
- To increase awareness of how poor work habits and improper posture contribute to muscular discomfort and potential injury.
- To provide employees with guides and checklist to enable them to arrange and adjust their workstation equipment safely, comfortably and according to established guidelines.
- To provide employees with exercises that addresses common computer workstation complaints and should help to reduce workstation related injuries.

Authority

The legal/regulatory authority for these guidelines is based on:

- Labor Codes 142.3, 6357, 6400, 6401,6401.7
- Management Directive 1610- Department Safety Programs
- Management Directive 1660- Ergonomics
- Title 8, California Code of Regulations,
  Section 3203, Injury and Illness Prevention Program
  Section 5110, Repetitive Motion Injuries
- American National Standards for Human Factors Engineering of Visual Display Work Terminal Workstations (ANSI/HFES 100-2007)

Introduction

With the increase in the number of injuries that have resulted from work at computer workstations, the County of Fresno has developed this handbook to help enable employees to work more comfortably and to reduce the potential for injury.

Ergonomics considers the physical capacities and limits of the employee as he or she interacts with tools, equipment, work methods, job functions and the physical-working environment. By applying ergonomic principles, we can arrive at the best possible fit between our employees, the equipment they use and the work they are required to perform.

Proper workstation use, including proper posture and reasonable equipment adjustments, with attention to muscle and eye fatigue, will help prevent musculoskeletal and visual problems.

It is every supervisor's responsibility to ensure all employees understand and follow these guidelines. Employees are responsible for adjusting their workstations and their work habits to prevent injury by using this handbook. If employees feel that their workstations are still not set up appropriately, they should contact their immediate supervisor to express their concerns.

Contacts

Department Safety Coordinator: _____

Human Resources - Risk Management Division
600-1850
Stop 188

Chair & Workstation Guidelines

STEP 1- Lumbar Support

____ Sit firmly back in the chair.
____ Adjust the lumbar (lower back) support by moving the backrest up or down to match the inward curve of your spine.
____ Adjust the height of the chair so the thighs are parallel to the floor and the feet are flat on the floor

TOO LOW

BETTER

STEP 2- Back Tilt

____ Adjust the tilt of the backrest and/or seat to keep your body supported in an upright position.

If this position is not comfortable…

Caution: Do NOT recline too far back as this will cause lower back discomfort.

Adjust the backrest back slightly

STEP 3- Arm Adjustment

____ Adjust armrests so that they are slightly below your elbows when your shoulders are relaxed.

Too High

Shoulder Relaxed

STEP 4- Seat Adjustment

____ Try to maintain 2 to 4 inches of clearance between the front edge of your seat pan and the back of your knees.

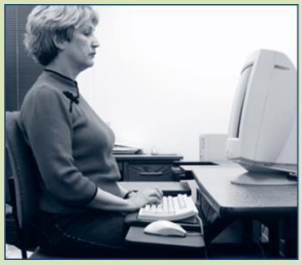
Pull out to make seat pan deeper

Push back to make seat pan shallower

STEP 5- Keyboard Adjustment and Use

____ The keyboard should be positioned at elbow level and your arms should be at a 90 degree angle.

Keyboard too high



Keyboard too low

Good

____ The keyboard tray (if used) should be either in a negative tilt, flat or neutral. **NEVER** in a positive tilt position. Use a light touch on the keys with fingers straight.

Negative Tilt

Flat or Neutral

Positive Tilt

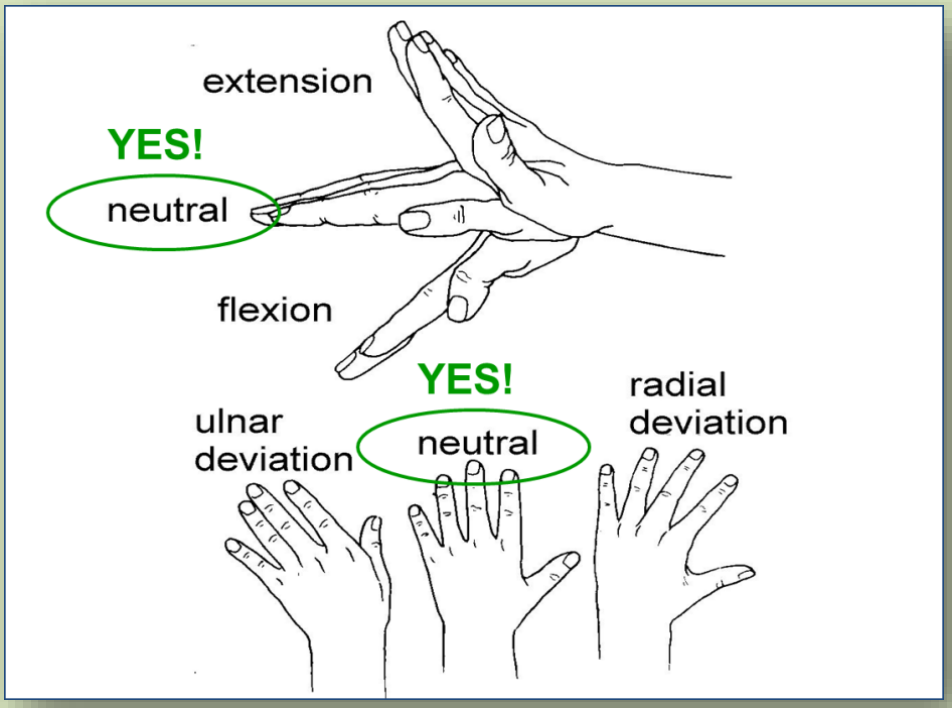
____ Avoid using the wrist rest on the keyboard or mouse while typing and do not compress the wrists or arms on the edge of the desk or mouse platform on the keyboard tray. Pull the wrist rest and keyboard to the edge of the desk. Wrists should be free floating while typing or mousing.

YES!

STEP 6- Use of Pointing Devices

____ Pointing devices should be used as close as possible to the keyboard and at the same level.
____ Avoid gripping the device with your thumb and pinky fingers.
____ Use small circular motions with the mouse by making arm movements from the shoulder.
____ Use the mid-section of the finger to click versus the fingertip.

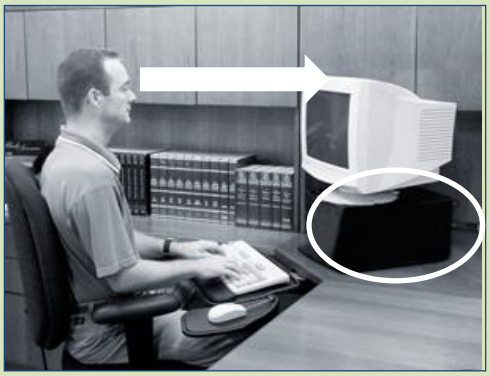
Wrist position is CRUCIAL! Periodically check your posture.



STEP 7- Monitor Placement and Adjustment

____ Adjust the monitor so the top of the screen is at or just below eye level with a viewing distance generally between 18-30 inches. Comfort level may also dictate the distance.

____ Adjust the monitor lower if wearing bifocals, trifocals or progressive lenses. The height of the monitor will be determined once the head and neck are straight.

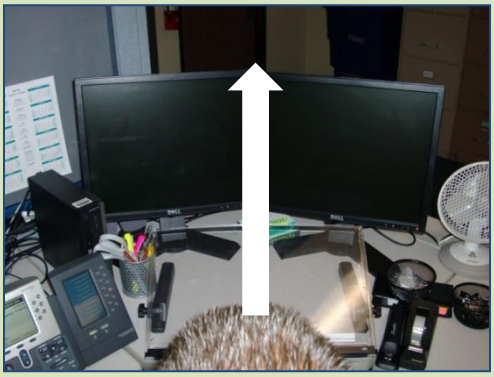


Good position for non bi/tri focal and progressive glasses use

Good position for bi/tri focal and progressive glasses use

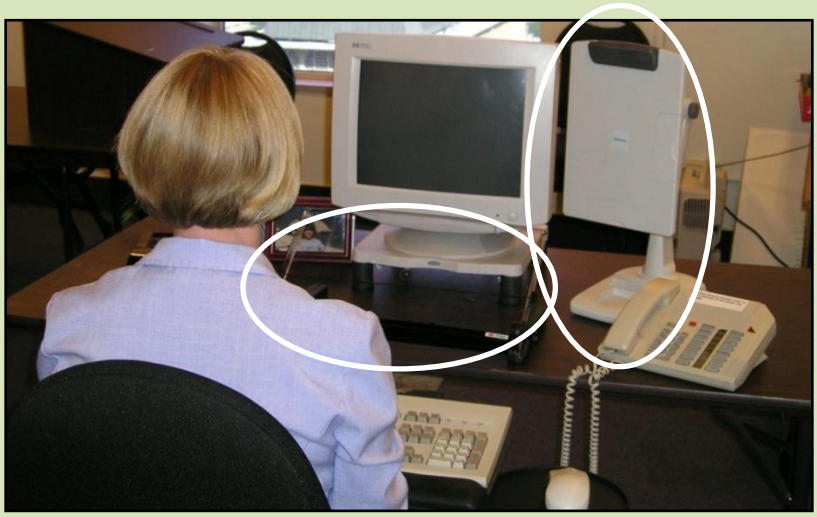
____ When using dual monitors and the use of the monitors is equal, the split between the two screens should be centered in front of you.

____ If one monitor is used significantly more than the other, you may position the one that is used more frequently in front of you.



STEP 8- Document Holder Placement

____ If frequent data entry is performed, use a document holder that places documents at the same height and distance as the monitor or just below in front of the screen to avoid repeated head turning and frequent refocusing.



Proper Body Posture Checklist

____ Keep your head in line with your shoulders and hips.

____ Keep your elbows close to your body.

____ Keep your wrists in a neutral position, bent no more than 10 degrees up or down.

____ Keep your knees at the same level as your hips or slightly higher.

____ Keep your feet flat on the floor or supported by a footrest if necessary.

____ Keep fingers in a relaxed position when working.

____ Avoid extreme finger extensions.

____ Proper work surface height for reading/writing may be one to two inches higher than that for keyboard typing.

____ **DO NOT** reach for and remove large binders or files from shelving while seated.

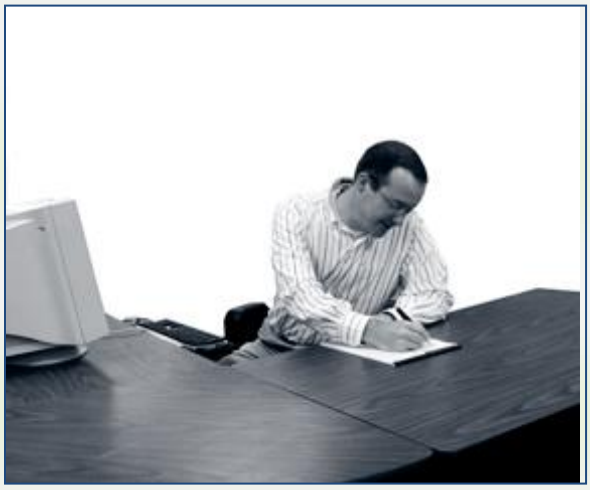
____ Turn to face work materials. **DO NOT TWIST YOUR TORSO OR TRUNK** while reaching for items.

Workstation Handedness

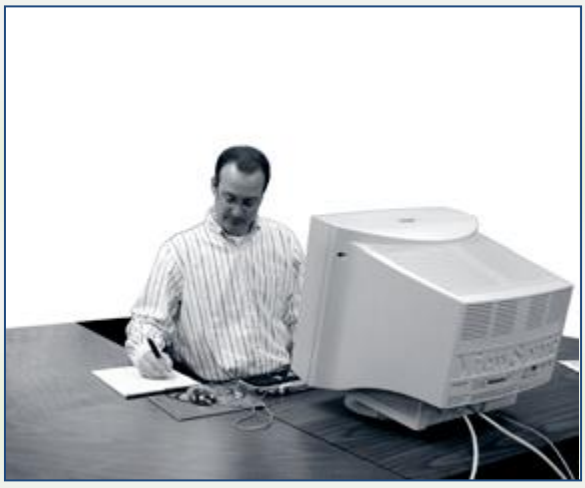
- Employees are generally most comfortable when they work toward their dominant side.
- For example, if you are right handed, the right side of your body is going to be the dominant side.

Left- Handed Workstation

Right- Handed Workstation



NO!



YES!

Work Materials Checklist

A well-organized and properly arranged workstation can help prevent muscle strain while improving efficiency.

____ Place the telephone on the desktop closest to where you work the most frequently. If it is necessary to write or type while talking, place the phone on your non- dominant side.

____ If you frequently use a telephone while at your computer, consider using a headset or telephone's intercom feature if appropriate. Cradling a receiver on your shoulder contributes to muscle strain and nerve damage.

____ Keep frequently used materials within easy reach. No more than 12 inches for items used several times throughout the day. Occasionally used items should be no more than 20 inches away.

____ Clear the floor under your workstation so you can move your feet and avoid trip hazards.

Lighting Checklist

Simple lighting adjustments can help minimize glare and reduce or eliminate eye strain and headaches.

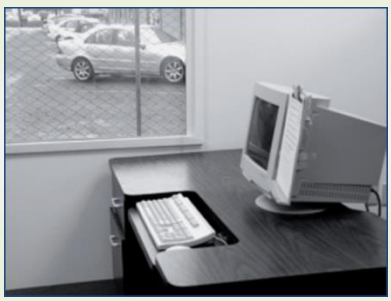
____ Position the screen so it is at a right angle to the window producing the glare.

____ Close shades, curtains, or blinds if necessary, as light changes during the day.

____ If you use a task lamp, position it to aim the light at your document instead of your screen.

____ To improve your viewing comfort, you may also need to adjust your display's contrast and brightness controls.

____ Periodically clean your screen to maximize clarity. Characters on the screen should be clear, stable, and free from perceptible flicker.



Vision Care

Viewing a computer monitor for long periods can cause visual fatigue and eye strain. Symptoms of visual fatigue are eye irritation, burning or pain, blurring of vision, and double images. Preventive measures should be taken to ensure correct vision for this type of work.

- The National Institute for Occupational Safety and Health (NIOSH) recommends employees have periodic eye examinations. Eye exams are covered under the County of Fresno health plans.
- Contact lens wearers should blink often to prevent their eyes from becoming dry.
- Frequent eye breaks are necessary during the workday.
- Periodically focusing on an object at least twenty feet away will give your eyes a rest.

Repetitive Motion Injuries (RMI's)

Repetitive Motion Injuries (RMIs) are caused by repeated motions and exertions. The arms and hands are especially vulnerable. The disorders can involve nerves, blood vessels or tendons, which connect muscles to bones.

RMI SYMPTOMS

- Swollen feeling of the fingers, yet no physical evidence of swelling
- Numbness in the thumb or hand
- Tingling in the thumb or hand
- Pain in the fingers or hand
- Weakness in hand or arm
- Burning sensation in the hand or arm
- Weakening of the muscle at the base of the thumb
- Dry, shiny palms and clumsiness of the affected hand
- Changes in sensation and power to squeeze things

Your workstation should be re-evaluated by you and your supervisor for proper work habits, workstation adjustments, and body posture if you are experiencing any of these symptoms. Your Department Safety Coordinator or Risk Management is also available to provide assistance if the problems persist.

Reporting Injuries/ Illnesses

If you suffer from any of the symptoms of an RMI that you think may be work related, report it to your supervisor.

Work Habits

Even the best posture and the most ergonomically correct workstation won't prevent muscular stress and fatigue if you sit for several hours in one position. Breaks from computer work can help keep your eyes, mind, and body refreshed and energized.

- NIOSH recommends taking a short break every couple of hours of uninterrupted computer work. Check with your supervisor for your break schedule.
- Experts also suggest brief, frequent "micro-breaks." These breaks are defined as time spent doing something other than work on a computer. They don't involve leaving your workstation. Suggestions include moving around, stretching, doing non-computer tasks, refocusing your eyes, etc.

Note: The timing of such micro-breaks is more important than the duration. To be most effective, a break should be taken prior to the onset of fatigue, rather than a means of recuperating from it.

- Minimizing the use of the mouse whenever possible should be considered. For example, while working with software requiring data to be entered into different fields, can the Tab key be used? Or could the function keys be used to eliminate the extra clicks of the mouse?

- Having to grasp tightly filed documents frequently can also lead to injury. You may need to consider thinning out files. While grasping thicker files, consider grasping and lifting with both hands.

General Benefits of Exercise

- Increased circulation
- Increased alertness and concentration
- Improved posture by increasing body awareness
- Improved potential to prevent and/or eliminate muscle and joint pain
- Improved potential to prevent RMIs

Eye Exercises

Cup Them

- Lean your elbows on your desk.
- Cup your hands and place them lightly over your closed eyes.
- Hold for a minute, while simultaneously breathing deeply in and out.
- Slowly uncover your eyes.

Roll Them

- Close your eyes and slowly roll your eyeballs clockwise all the way around. Repeat this three times.
- Slowly roll them all the way around counter-clockwise. Repeat this step three times.
- Slowly open your eyes away from a direct source of light.

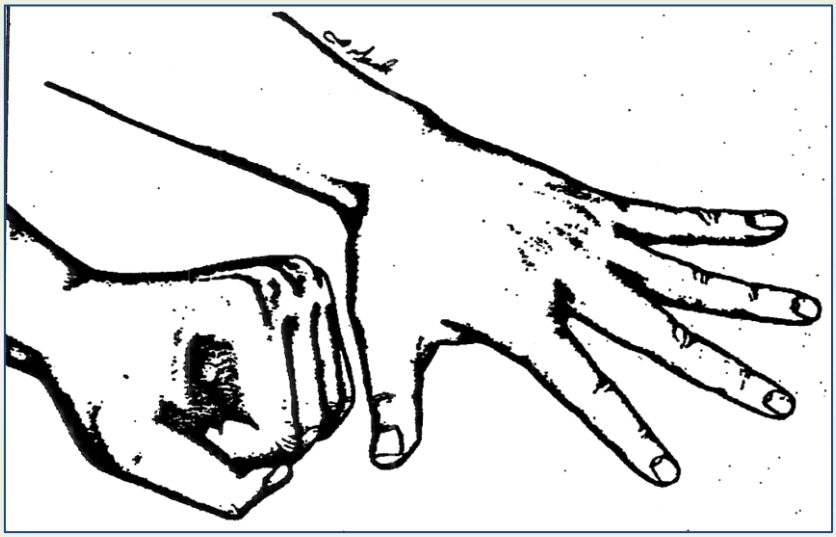
Look Away

- Every 1/2-hour, look away from the computer screen.
- Focus on an object at least twenty feet away.
- Look back at the screen, then look away and focus again. Repeat this three times.

Hand Stretching Exercises

HAND STRETCH

- Make a fist then extend your fingers as far apart as possible. Hold for about 10 seconds. Relax. Repeat the entire sequence 5-10 times until the hands and fingers feel relaxed.

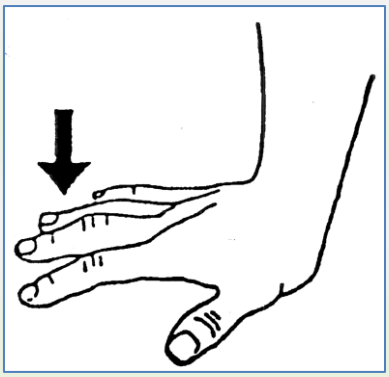


WRIST ROTATION

- Make a fist and rotate your entire hand (from the wrist) in one direction. Repeat 15 times. Switch directions and repeat 15 times. Then release your hands and with fingers extended, do the same rotations.

Hand Stretching Exercises

Gently press against table stretching fingers and wrist for five seconds.

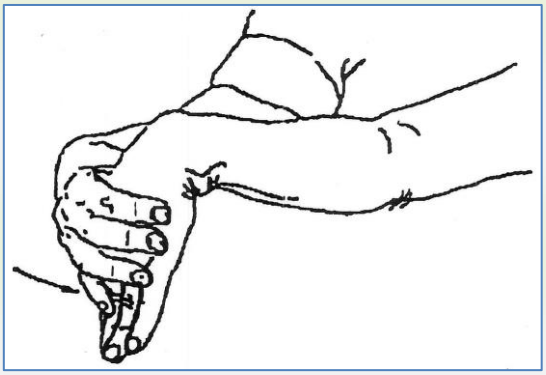


A. PRONE FLEXOR STRETCH

With elbow straight, grasp the middle of the hand and pull back as far as possible. Hold for a 10 count. Release and proceed to B and then back to A, etc.

B. PRONE EXTENSOR STRETCH

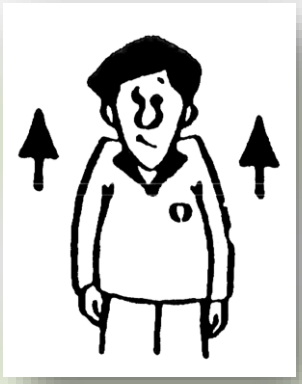
With elbow straight, grasp the back of the hand and pull down as far as possible. Hold for a 10 count.



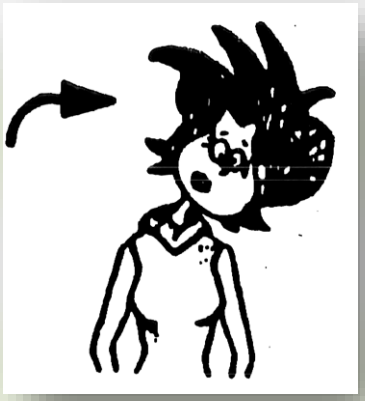
Desk Stretches

Allowing yourself time to do regular stretches can help relieve stiffness and discomfort from desk and computer work and make you feel better in general. Keep in mind key points for the greatest benefit.

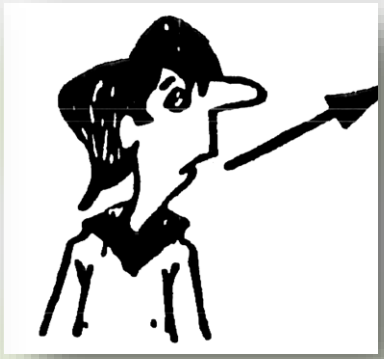
STOP the specific stretch **IMMEDIATELY IF YOU FEEL PAIN**; continue stretches that don't cause pain- always stretch only within your comfort zone/limits. **IT'S BEST TO HAVE YOUR DOCTOR OKAY ANY EXERCISE PROGRAM BEFORE YOU START.**



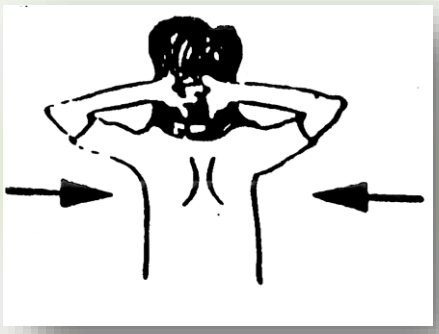
Lift the shoulders towards the ears. Hold for 10 seconds then rotate them back and down. Repeat several times.



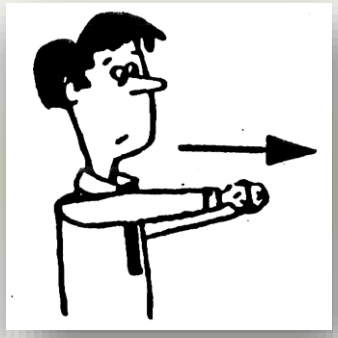
Starting with the head upright, lean it toward a shoulder, hold for 10-20 seconds. Repeat on the other side. Keep the opposite shoulder down.



Rotate the head to one side, then the other. Keep the head upright.



Clasp the hands behind the head and push the shoulder blades together. Hold for 20 seconds.



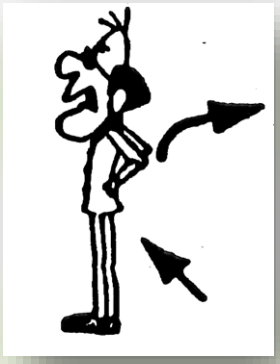
Interweave the fingers and push forward. Hold 20 seconds.

Lace the fingers and push the palms up. Hold for 20 seconds then slowly release and lower the arms.

Desk Stretches

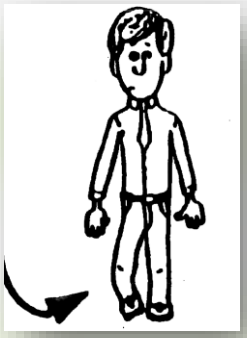
Raise one arm in the air and place the head behind the head. With the other hand, lift elbow slightly and pull the arm back. Keep the head upright.

Lace your fingers together behind you. Lift your hands while keeping the upper body upright. Hold for 20-45 seconds. You can also rotate the hands to the right and left.

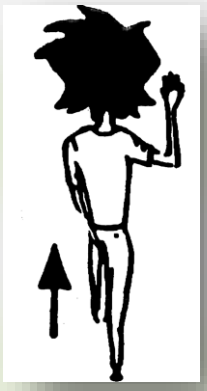


With your feet about shoulder width apart and your knees bent, place your hands on your lower back. Push to lift your back up and extended it creating length in the entire back. Hold 20 seconds.

With a wide stance, face forward with the body upright and the hips squared. Pull toward the front foot. Hold 30 to 45 seconds.



Slowly rotate the foot, using support if necessary.



Grasp a foot with a hand on the same side. Pull back while keeping upper body erect. Use support if needed. Hold 20 seconds.

Frequently Asked Questions

Q: What other activities, in addition to computer work, can cause RMIs?

A: Any activity that requires the body to remain in the same position and repeat the same mechanical motion many times. For example: work, such as removing large numbers of staples, chopping, and mechanical work; hobbies, such as gardening, needle work, and making jewelry; and sports, such as tennis, racquetball, golf, baseball.

Q: How can I prevent RMIs?

A: RMIs can be prevented and/or minimized by taking rest breaks and using proper stretching exercises. Good workspace design can also minimize RMI's. By using this handbook, you should set up your work area and develop habits that create the least amount of resistance to your muscles, nerves and tendons. Report any workstation issues that you cannot correct on your own to your supervisor ASAP!

Q: What ergonomic equipment can an employer provide?

A: Within financial constraints, an employer can provide:

- Adjustable workstations or modular furniture with separate components, such as: keyboard trays, and document holders
- Ergonomically designed chairs

Q: Who can perform workstation evaluations?

A: Your Department Safety Coordinator and/or your functional area/immediate supervisor using these guidelines and the checklists in this handbook.

Q: What should I do if I have tried everything in these guidelines and I still have RMI symptoms?

A: Discuss the specific problems with your supervisor and your Department Safety Coordinator. If the problems persist, contact the Risk Management Division at 600-1850 for assistance.

Q: What non-occupational factors contribute to RMIs?

A: The following non-occupational factors contribute to RMIs:
- Systemic diseases
- Congenital defects
- Acute trauma
- Pregnancy, oral contraceptives, menopause, and gynecological surgery

- Vitamin B-6 deficiency
- Wrist size, shape, and strength

Q: Can carpal tunnel syndrome recur?

A: Yes, if you return to unsafe workstations, unsafe work practices, and/or Engage in activities outside of work that may increase your exposure such as various sport activities or hobbies such as needle work or making jewelry.