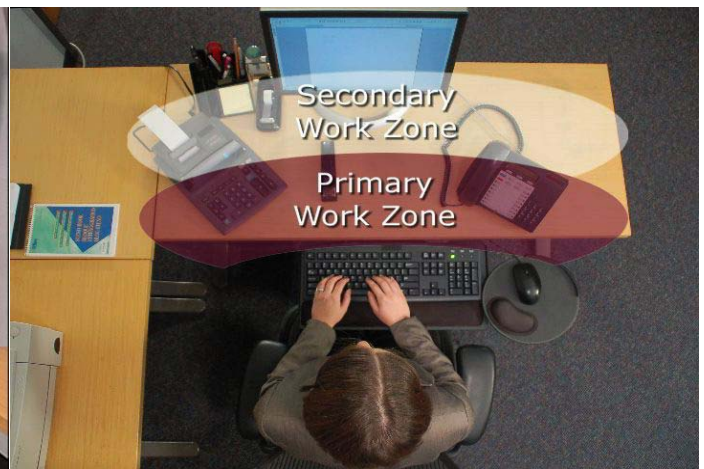


# Creating Computer Comfort

How to arrange your workstation to fit you!



Presented by

**Preferred Employers**  
INSURANCE COMPANY



## Creating Computer Comfort



This booklet provides information presented by the video *Creating Computer Comfort*. The video encourages the viewer to stop at specific spots in the to evaluate the workstation and make adjustments using computer workstation ergonomic principles.

If you are reading this booklet without aid of the video, the information provided will help you assess various elements of your computer workstation using step-by-step illustrations of proper workstation ergonomics and tips for maintaining a safe and comfortable workstation.

### What is Ergonomics?

It is the study of adapting jobs or tools to fit the individual worker. By arranging the job around the individual, comfort can be enhanced and discomfort minimized to muscles, joints and tendons.

Workstation ergonomics can also reduce fatigue and stress caused by awkward positions and repetitive tasks. The *Creating Computer Comfort* video and this booklet focuses on the arrangement of computing equipment: the chair, keyboard, computer monitor, pointer/mouse and other desktop tools and equipment.

### Why the Emphasis on Computer Workstations?

As computer usage spread in the workplace, doctors and safety professionals realized that when users failed to follow simple ergonomic principles muscle, joint and tendon discomfort increased.

Because each person has different physical qualities, arranging and setting up the computer workstation to your specific needs and requirements can prevent discomfort. Applying ergonomics to computer usage places the worker physically at ease in a **neutral posture**.

We want you to have the knowledge to take responsibility of your computing environment so you can stay healthy and enjoy day to day activities with your family and friends.

## Three Neutral Seating Postures

When sitting in a neutral posture your head, shoulders, arms and legs are naturally aligned. Working with the body in a neutral position enhances comfort, reducing physical stress and strain.

There are three ergonomic neutral sitting postures that many people use when sitting at the computer: **Upright, Declined or Reclined.**



### UPRIGHT

- ◆ Torso and neck are in near vertical alignment.
- ◆ Thighs are approximately horizontal.
- ◆ Lower legs are vertical.



### DECLINED

- ◆ Torso is vertical or slightly reclined.
- ◆ Thighs are inclined with the buttocks higher than the knee and legs are vertical.
- ◆ Angle between torso and thighs is greater than 90 degrees.



### RECLINED

- ◆ Torso and neck are straight and reclined.
- ◆ Angle between torso and thighs is 105 and 120 degrees from thighs.
- ◆ Lower legs are vertical or slightly extended.

**These three sitting postures show that there isn't one "correct" posture that fits everyone.**

# Workstation Evaluation

## Chair and Keyboard Alignment

A good starting point when evaluating any workstation is to evaluate the keyboard height relative to the users sitting position. A height adjustable chair and keyboard tray that moves in and out, up and down provides the greatest flexibility.



- ◆ Place the keyboard directly in front of you.
- ◆ Adjust height and position of chair, feet should rest flat on floor. Use foot rest for a stable, flat surface if feet are not on the floor.
- ◆ Place fingers on keyboard with hands, wrists, and forearms straight and almost parallel to the floor.
- ◆ Raise or lower keyboard for correct alignment.



**Ergo Tip:** If the keyboard is not on an adjustable tray or is on the desktop, raise or your lower height chair to achieve the proper alignment. Remember, if your feet are not resting flat on the floor, then use a foot rest for support.

## Position of Shoulders, Arms and Head



- ◆ With your fingers on the keyboard, shoulders should be relaxed and upper arms hanging close at the side of your body.
- ◆ The angle between upper arm and forearm bent between 90 and 120 degrees.



- ◆ Head is level, or bent slightly forward and in-line with torso.

## Pointer/Mouse Alignment

In conjunction with proper positioning of the keyboard, look at where your pointer/mouse is located. Keep the pointer/mouse close to the keyboard to avoid overextending.



- ◆ Avoid reaching for the mouse or resting your forearm on the edge of your desk. Reaching and holding your arm away from your body may cause stress to your neck, shoulder and arm.
- ◆ Place the pointer/mouse adjacent to the keyboard tray.
- ◆ Use keyboard short cuts to reduce extended pointer/mouse usage.
- ◆ Use wrists and palm rest with the keyboard and pointer/mouse to eliminate contact stress when positioning the equipment alone will not work.



**Ergo Tip:** Alternate between your left and right hand when using the pointing device. Move your forearm when moving the pointer/mouse and not just your wrist.

## Change Posture Frequently and Stretch

Something as equally important as sitting in a neutral posture is frequently changing your posture or sitting position. Staying in one position for an extended period of time can cause discomfort in localized areas of the body.



- ◆ Avoid staying in one posture for an extended time.
- ◆ Change postures to upright, decline or reclined positions.
- ◆ Take one to two minute mini-pauses every 30 minutes.
- ◆ Standing up and stretching is another option.

## Monitor Placement and Height



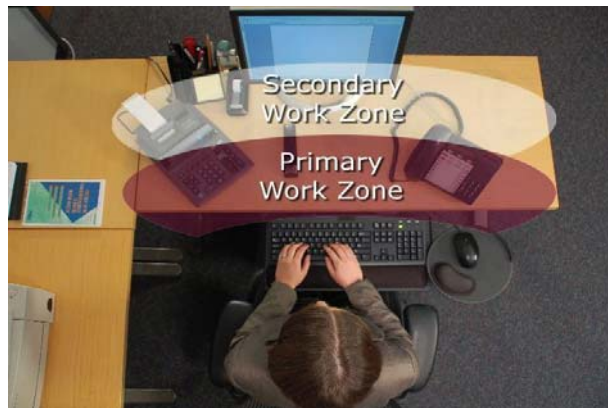
- ◆ Position monitor directly in front of you at a distance that allows for you to clearly see the screen.
- ◆ Adjust monitor height so the top of the screen is at or slightly below eye level.
- ◆ Do not place the screen so far away that you must lean forward to see data, or so close that you must lean backward.
- ◆ If bi-focal glasses are worn, place monitor lower so the screen can be viewed through the bottom portion of the lens.



**Ergo Tip:** Reduce glare on the monitor by placing it perpendicular to window.

## Organizing Your Desktop

Make the most of a neutral posture by organizing your desktop tools and equipment.



- ◆ The desk top can be divided into two work zones – primary and secondary.
- ◆ The primary zone is 14 to 18 inches from your body. Place frequently used items such as the telephone, 10-key, pencils and staplers here.
- ◆ The secondary zone is over 18 inches from your body. Place less frequently used items in the secondary zone.
- ◆ The secondary zone requires reaching motion – do not place items like large binders here that require a pinch grip to retrieve.
- ◆ Stand up to reach overhead bins rather than reaching up from a sitting position.

## TELEPHONE AND HANDS FREE HEADSET

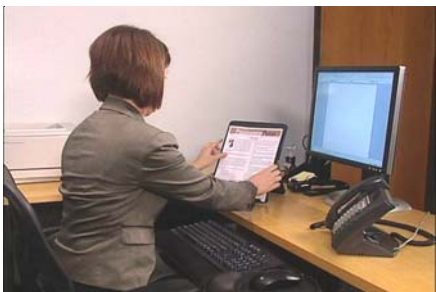


- ◆ If you have prolonged conversations on the phone, get a handsfree headset.
- ◆ Avoid holding the receiver between head and shoulder.
- ◆ Place the telephone in the primary work zone to avoid overextending your reach.
- ◆ Keep the telephone cord out of working areas so it does not create a tripping hazard.



**Ergo Tip:** Place the telephone on your non-dominant hand side. This will allow for your dominant hand to be free for writing and prevent you from cradling the telephone between your ear and shoulder.

## Placement of Document Holder



- ◆ Position the document holder the same height as the monitor, or on the desk in front of the monitor.
- ◆ Document holders need to be stable when loaded with heavier documents such as textbooks.
- ◆ Task lighting on documents should not cause glare on the monitor.

## SUMMARY

Whether you use a computer for work or at home, take a few minutes to adjust your chair, keyboard, mouse, monitor and desktop tools to get comfortable.

1. Change sitting positions frequently during the day.
2. Use one or all of the sitting postures that are right for you.
3. Take one to two minute micro pauses every 30 minutes.
4. Do finger, hand, shoulder and eye exercises to give muscles time to recover from prolonged periods of repetitive activity.
5. Organize your desk top work area so frequently used equipment and tools are within easy reach.



**Work Smart and Stay Healthy!**



# DISCOMFORT REFERENCE CHART

## IF YOU ARE EXPERIENCING DISCOMFORT HERE:

## IT COULD BE RELATED TO:

## REFER TO THESE SECTIONS:

Lower Back	Chair adjustment Workstation organization	Three Neutral Seating Postures Position of Shoulders, Arms & Head Monitor Placement and Height Organizing Your Desktop
Upper Back	Chair adjustment Keyboard height Workstation organization Monitor height and distance Placement of the document	Three Neutral Seating Postures Chair and Keyboard Alignment Position of Shoulders, Arms and Head Monitor Height and Position Organizing Your Desktop
Neck	Workstation organization Monitor height and distance Placement of document	Three Neutral Seating Postures Chair and Keyboard Alignment Position of Shoulders, Arms and Head
Arms/Shoulders	Chair adjustment Keyboard height Location of pointing device Workstation organization	Position of Shoulders, Arms and Head Monitor Height and Position
Forearms	Keyboard height Location of pointing device Chair adjustment	Chair and Keyboard alignment Position of Shoulders, Arms and Head Pointer/Mouse Alignment
Wrists/hands	Keyboard height Location of pointing device Workstation organization Pressure points	Chair and Keyboard Alignment Pointer/mouse Alignment Organizing Your Desktop
Vision	Monitor height and distance Monitor glare Placement of document	"Stop & Stretch"

*In many situations, the main source of discomfort comes from staying in one posture or sitting position. Take one or two minute mini-pauses every 30 minutes and avoid staying in one posture for an extended period of time.*

## Top Five Chair Features



**Ergo Tip:** Before purchasing new chairs, have the vendor bring several chairs to your business for employees to tryout. Since workers spend the majority of their day sitting in a chair, it's important to have one that provides the greatest comfort and versatility.

A chair for use at a computer workstation should have these 5 features at a minimum.

### No. 1

#### Seat Height

The seat height should be pneumatically adjustable while seated. The seat pan height should range from 16 - 20.5 inches off the floor.

### No. 2

#### Seat Width and Depth (Seat Pan)

A seat pan width of 17-20 inches is sufficient for most people. Some people may require a large seat pan for comfort. The seat pan depth from front to back should be deep enough to permit the person to sit back in the seat and rest against the lumbar backrest without pressing into the back of the knees. The seat's front edge should be rounded and padded. The seat slant should be adjustable (0 to 10 degrees). The seat should swivel easily. Avoid bucket-type seats.

### No. 3

#### Backrest

The backrest should offer firm support, especially in the lumbar (lower back) region. The chair back should be 12-19 inches wide. The backrest angle and height should be adjustable while sitting. Seat pan angle and backrest height and angle should be coordinated to allow for the most comfortable weight load on the spinal column.

### No. 4

#### Armrests

Armrests are optional depending on individual user preference and tasks being performed. Armrests should not impede the user's shoulders and arms from hanging naturally at the side of the body. Armrest also should not restrict movement or the worker's ability to get close enough to the workstation surface.

### No. 5

#### Chair Base

Chairs should have a strong, five-legged base. Ensure that chairs have casters that are appropriate for the type of flooring at the workstation.

## Ergonomic Tools and Equipment

### ADJUSTABLE KEYBOARD TRAYS

**Kinesis Corporation**  
[/www.kinesis-ergo.com](http://www.kinesis-ergo.com)

**Humanscale**  
[www.humanscale.com](http://www.humanscale.com)

**3M**  
[www.3M.com](http://www.3M.com)

### FOOT RESTS, TOOLS & ACCESSORIES

**Ergosource**  
[www.ergosource.com](http://www.ergosource.com)

**Office Depot**  
[www.officedepot.com](http://www.officedepot.com)

**Staples**  
[www.staples.com](http://www.staples.com)

**Arc Ergonomics**  
[www.arcergo.com](http://www.arcergo.com)

**Ergo Works**  
[www.askergoworks.com](http://www.askergoworks.com)

### ADJUSTABLE CHAIRS

**Herman Miller**  
[www.hermanmiller.com](http://www.hermanmiller.com)

**Ergogenesis**  
[www.ergostoreonline.com](http://www.ergostoreonline.com)

**The Human Solution**  
[www.thehumansolution.com](http://www.thehumansolution.com)

### HEADSETS

**Plantronics**  
[www.plantronics.com](http://www.plantronics.com)

HB Distributors  
[www.hbdistributors.com](http://www.hbdistributors.com)

**Headsets.com**  
[www.headsets.com](http://www.headsets.com)

## Ergonomic Information & Resources

**Healthy Computing**  
[www.healthycomputing.com](http://www.healthycomputing.com)

**Canadian OSHA**  
[www.ccohs.ca/oshanswers/ergonomics](http://www.ccohs.ca/oshanswers/ergonomics)

**UC Berkeley**  
[www.me.berkeley.edu/ergo](http://www.me.berkeley.edu/ergo)

**Department of Industrial Relations  
State of California - Division of Occupational Safety and Health (Cal/OSHA)**  
Cal/OSHA Consultation Program  
Toll free number: 1.800.963.9424  
Internet: [www.dir.ca.gov](http://www.dir.ca.gov)  
Publication: *Easy Ergonomics – For Desktop Computer Users*

**US Department of Labor / Occupation Safety and Health Administration (OSHA)**  
Internet: [www.osh.gov](http://www.osh.gov)  
E-Tools: Computer Workstations  
[www.osha.gov/SLTC/etools/computerworkstations/index.html](http://www.osha.gov/SLTC/etools/computerworkstations/index.html)

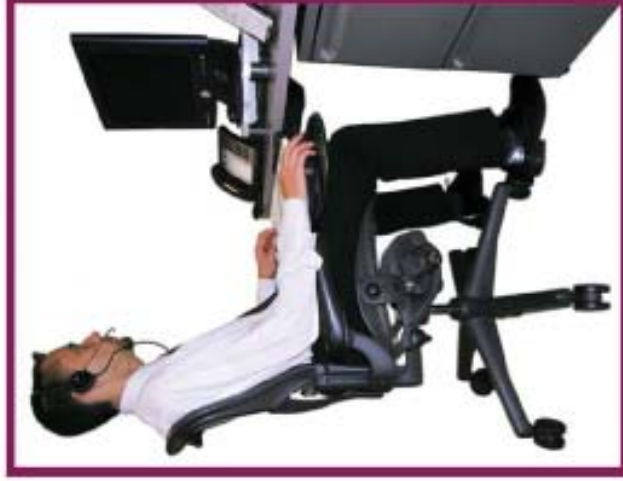
**UCLA Ergonomics**  
[www.ergonomics.ucla.edu](http://www.ergonomics.ucla.edu)

**Cornell University**  
[ergo.human.cornell.edu](http://ergo.human.cornell.edu)

# Stop & Stretch



- Gently bend wrist
- Hold for 3 to 5 seconds



## Workstation Checklist

- Press hands together at chest height
- Lower hands until a mild stretch is felt in wrists
- Hold for 3 to 5 seconds



- Spread fingers apart
- Hold for 3 to 5 seconds



- Gently pull back thumb until stretch is felt
- Hold for 3 to 5 seconds



- Curl fingers into a fist
- Then, curl wrist
- Hold for 3 to 5 seconds



- Massage hand with thumb and fingers
- Shake out

- Center screen & keyboard in front of you.
- Place pointer/mouse devices adjacent to keyboard.
- Place frequently used objects within easy reach.
- Use wrist rest to keep wrists straight & avoid pressure.
- Keep arms & elbows relaxed & close to the body.
- Adjust chair so forearms & thighs are parallel to floor.
- Keep feet flat on the floor or on a sturdy foot rest.
- Adjust the top of the screen at or just below eye level.

### Every 30 Minutes, Take 1-2 Minute Rest Pauses to:

- Stand to stretch legs and back, hands, and wrists.
- Close eyes, blink, and look at distant objects.
- Alternate work tasks.

Stop at any time you feel discomfort when performing a stretching exercise.

Consult your physician before beginning any exercise program.

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P.O. Box 85478 San Diego, California 92186 888-472-9224