

Target Posture

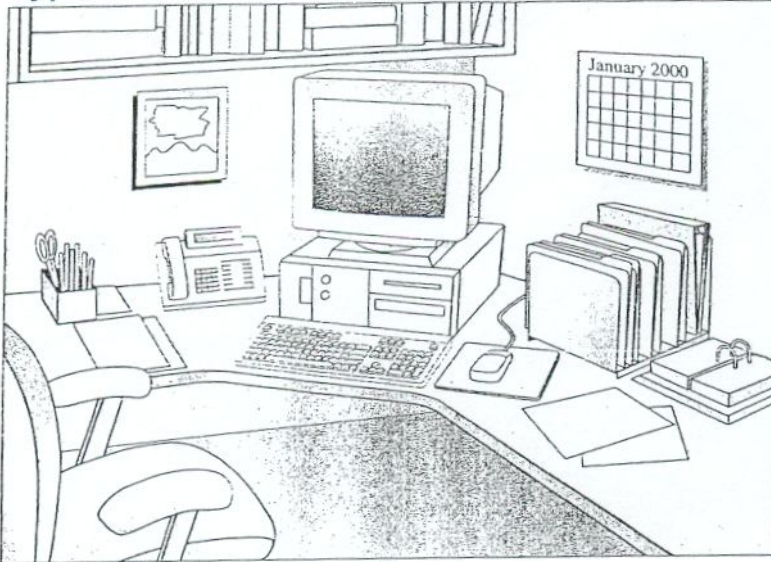
The figure above demonstrates the characteristics of a good seated posture that minimizes the stresses on your body. The accessories in this catalog can help you to achieve this ideal posture and to maintain it. Accessories alone do not constitute good ergonomics, but knowing what is right for you and what is comfortable is the key.

Helpful Hints

- Whenever you sit for long periods, you should try to change your posture from time-to-time. The above posture is the "ideal" that you should find yourself in more times than not. This does not mean you will sit like this all the time.
- You should not have to hold your arms or hands up for long periods. Adjust the height of the work surface or provide some type of support.
- Use a telephone headset if you use the telephone a lot in your job in order to avoid having to cradle the receiver between your head and shoulder.
- Know all of the features on your chair and how to adjust the chair in order to achieve a good sitting posture. Ensure that the chair is in good working order and is properly maintained.
- Stand, stretch and move about during your tasks in order to avoid static postures. Take a series of "micro-breaks" periodically in order to break up the task.

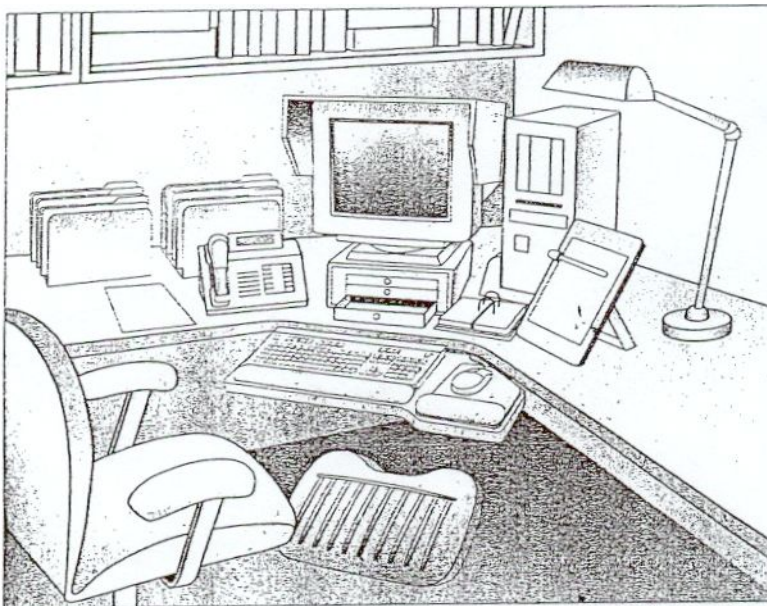
WORKSTATION SET UP STRATEGIES: What accessories can do

Typical Workstation Set-Up without Ergonomic Accessories



- No adjustability of keyboard and mouse heights
- Phone is far away, requiring an "extended" reach
- Monitor height is "fixed" at one height
- Monitor can pick up reflected light from windows and overhead lighting
- Documents are flat on the surface, requiring head movement to see
- No task lighting for detailed work
- No footrest
- Items "compete" for the same space

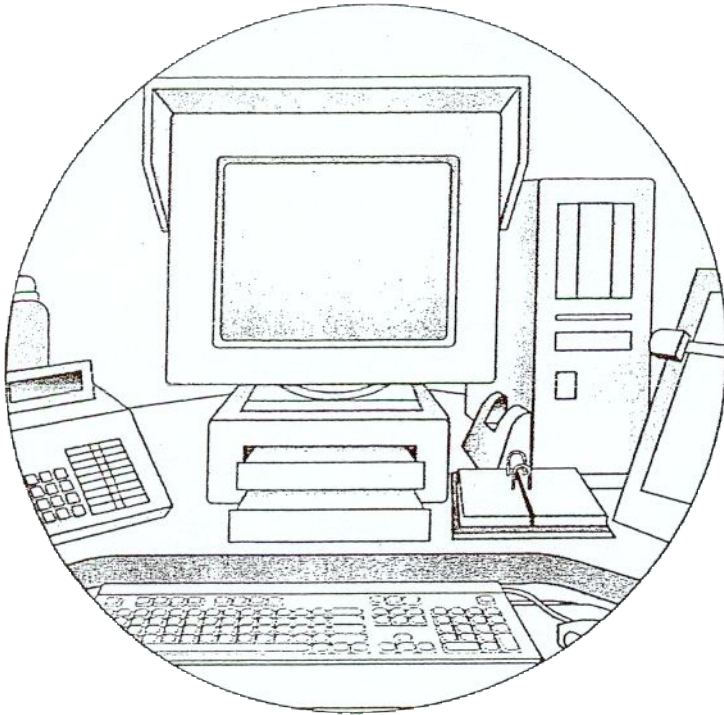
Workstation Set-Up with Ergonomic Accessories



- Keyboard and mouse heights are adjustable for the individual
- Phone is closer and "propped up," making it easier to see and reach
- Monitor height is adjusted to the individual's needs and has storage space underneath for office items
- Monitor is protected from reflected light and glare
- Documents in use are easier to see with document holder and task light
- Footrest is provided for comfort

ORGANIZING YOUR WORK: Making the best use of your workspace

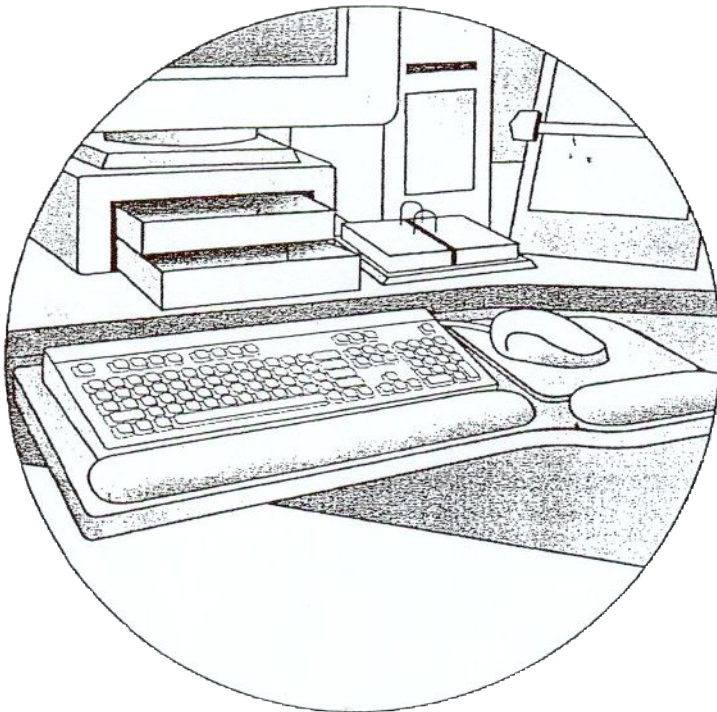
One of the keys to good office ergonomics is to organize your workspace in order to gain the maximum advantage, minimize unnecessary reaches and achieve comfort. Your intention should be to work smarter, not harder than is necessary to perform your tasks. Thought should be given to the following questions: "What tasks do I perform? How frequently do I perform the? What workstation layout and ergonomic accessories help me to perform these tasks easily and comfortably?" Good task organization and workstation layout not only makes you efficient, but usually are the most comfortable ways to perform your job.



The Monitor and CPU

(see pages 15,16, 20, 21, 26, 28, 67 and 68)

- The monitor is adjusted to the ideal height (eye-level at 3" to 4" below the top) for the user
- The CPU is placed upright at the side of the monitor with a CPU stand and isn't used to elevate the monitor
- The monitor riser has drawer units that allow for close-reach storage of pens, pencils, paper clips, etc.
- Overhead and outside light is kept off of the monitor screen with a monitor hood
- The level of glare is reduced on the monitor by using a glare screen
- A privacy or magnifying screen can be placed on the monitor as necessary
- Small remaining space is occupied by a desk calendar

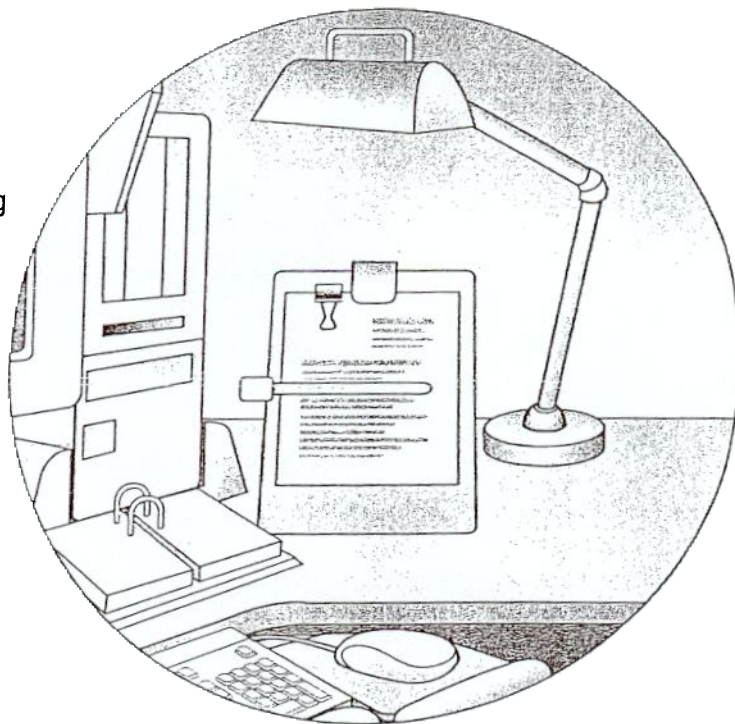


The Keyboard, Mouse and Tray

(see pages 22, 23, 24, 26, 27, 33-43, 60-67 and 69)

- The keyboard is placed directly in front of the user
- The mouse or other input device is to the immediate right or left of the keyboard and at the same height as the keyboard
- Adequate space to "manipulate" the mouse is provided
- Wrist rests are provided for comfort
- The standard keyboard is provided because it meets the vast majority of needs for most people
- The mouse or other input device is appropriate for the task performed or the special needs of the employee
- The keyboard/input device surface is stable, can tilt forward, rear and level, can be slid in and out and can be raised and lowered to the height that is needed by the user

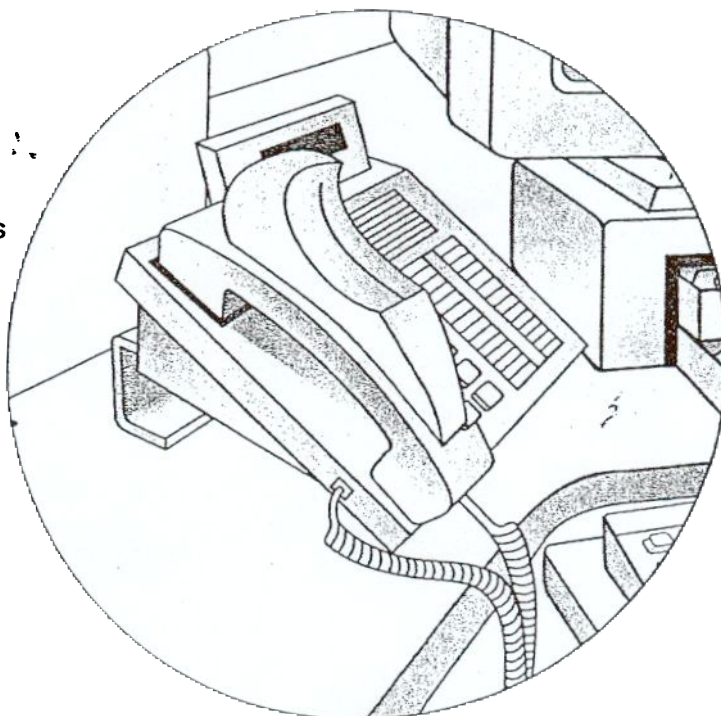
- A document holder is provided in order to get the document up off of the work surface and close to the computer monitor so as to minimize head movement and vision refocusing while reading the document and keyboarding
- The document holder “props up” the document eliminating the need to “crane” the neck in order to read the document
- Task lighting is provided that is adjustable, has a stable base and provides adequate light levels in order to read small print, see in order to perform fine motor tasks and does not provide a source of harsh light or shadows
- Task lighting should not provide a light source that can reflect off of the computer monitor, nor should it shine directly into the user’s eyes



Documents and Task Lighting

(see pages 16, 17, 18, and 24)

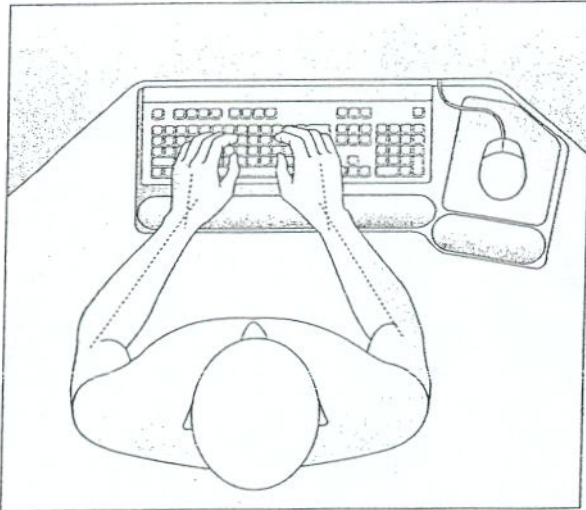
- If the telephone is used frequently, it should be positioned within a “near” reach envelop that allows the user to dial without their arm fully extended or without having to reposition themselves to see the number pad
- A telephone stand can be used to “prop” the telephone up so it occupies less space, is easily viewed without “craning” your neck and is more easily dialed
- You can apply a telephone receiver shoulder rest to reduce the angle when cradling the receiver between your head and shoulder
- When you use a telephone frequently, consider using a telephone headset in order to avoid cradling the receiver between your head and shoulder or holding the receiver to your head



Telephones

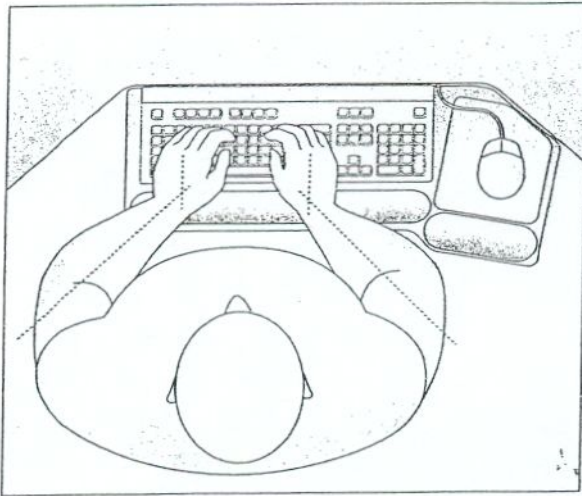
(see pages 21, 22 and 28)

KEYBOARD STYLES: What works best for the individual



Standard Keyboard: Average Size Person

- The standard keyboard is the best solution to most people
- Notice how the wrists are in an ideal angle to the forearms when the fingers are at the home keys
- If you use the numeric pad on the right, you may want to shift your seat slightly to the right in order to center-up on the keyboard, thereby reducing the reach to the mouse
- The keyboard should be distanced so that the user can key with their elbows towards the front of the body



Standard Keyboard: Broad-Shoulders, Large Frame

- The standard keyboard may not be the ideal solution for users who have extremely broad shoulders, who have a larger body frame or who have shorter-than-normal forearms
- Notice how the wrists have to be bent outward in order to achieve placement of the typing fingers on the home keys
- Because of the distance between the center of the shoulder joints, the employee must bring their hands in closer together and maintain them in this position in order to key
- The shoulders tend to be brought together in this position

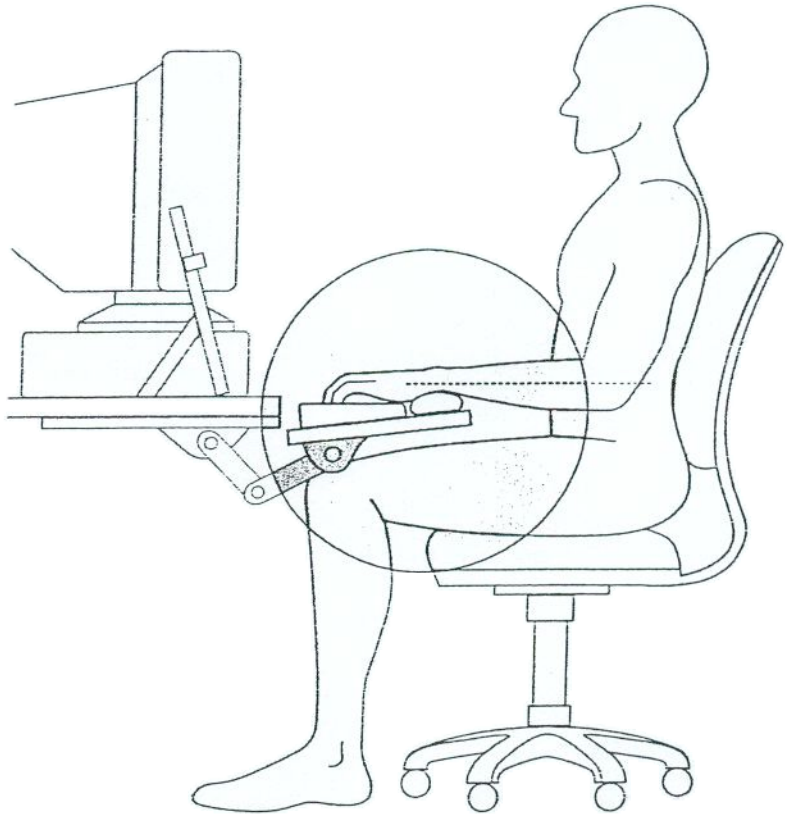


Alternative Keyboard: Appropriate Users

- Alternative keyboards may provide the solution for users who have special needs or who have body types that do not suit the use of a standard keyboard
- Notice how the wrists are returned to a neutral position, similar to the top illustration
- There are a number of different types of alternative keyboards, most of which rotate the alignment of the keypads in such a manner that the user does not have to deviate their wrists or bring their shoulders in to use them, avoiding awkward postures
- Users of alternative keyboards must be extremely proficient "touch-typists" in order to avoid head movement due to key orientation and alignment

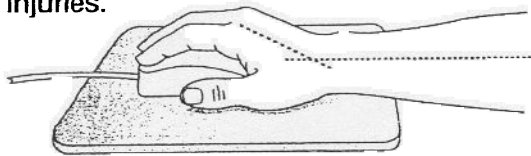
Positioning the keyboard and input devices

- The forearms should be level and parallel to the floor when using the keyboard and input device
- The wrist should be flat or slightly declined when keyboarding
- The keyboard tray should allow sufficient clearance for the knees
- The size and shape of the keyboard tray depends on the needs of the individual, hand dominance (left- or right-handed), the user's ability to reach and see things at their workstation and what size and shape tray will fit into the existing workstation
- The keyboard and input devices should not prohibit the user from doing writing tasks if that is a part of their job
- The position of the keyboard and input device should allow the user to assume a comfortable seated (or standing) posture while performing tasks



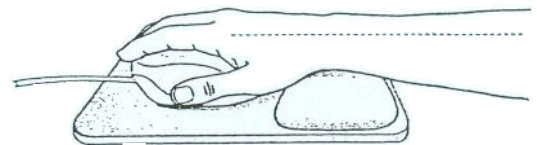
INPUT DEVICE SELECTION: Mice, trackballs and touchpads

A variety of input devices exist for performing computer tasks not easily accomplished with a keyboard. Wireless technology now allows the user freedom from cumbersome wires. Mice, trackballs and touchpads are designed to allow users to manipulate data on their computer monitor screen. Most computers come equipped with a low-profile ambidextrous mouse, which is the best solution for the majority of users. Alternative devices are available for users with special needs or injuries.



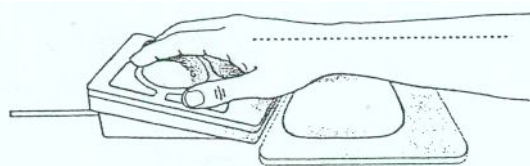
Standard Ambidextrous Mouse

Notice how wrist is slightly bent, which is acceptable for the majority of users, and may or may not be used with a wrist rest



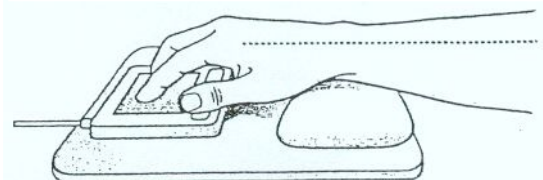
Sculpted Mouse (Right or Left Hand)

This type of mouse is "fitted" to the user and, when used with a low-profile wrist rest, allows the wrist to assume a neutral posture



Trackball

Available with different size balls and different positions of the ball, they are useful in reducing whole-arm movement



Touchpads

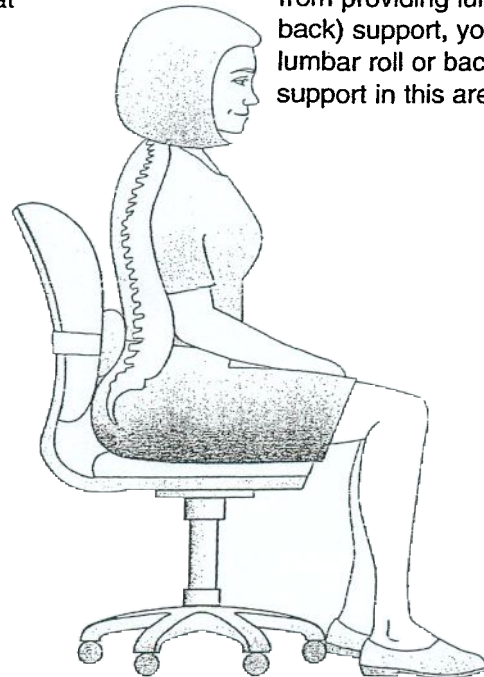
Previously available only with laptop computers, touchpads can be operated with the user's finger

OFFICE ERGONOMICS: How to get into a good sitting posture

You can use a footrest if your chair does lower enough to allow you to place both feet flat on the floor and maintain a good sitting posture



If your buttocks contact the back of the chair, preventing the chair from providing lumbar (lower back) support, you can use a lumbar roll or backrest to get support in this area



How does your chair and workstation adjust? Look at your chair. What do the various controls on your chair do? Look at your workstation. Can you adjust the work surface heights? Is there a keyboard tray, and if so, how does it work? Can the work surfaces be adjusted without help? If you are not sure about the answers to these questions, contact your supervisor.

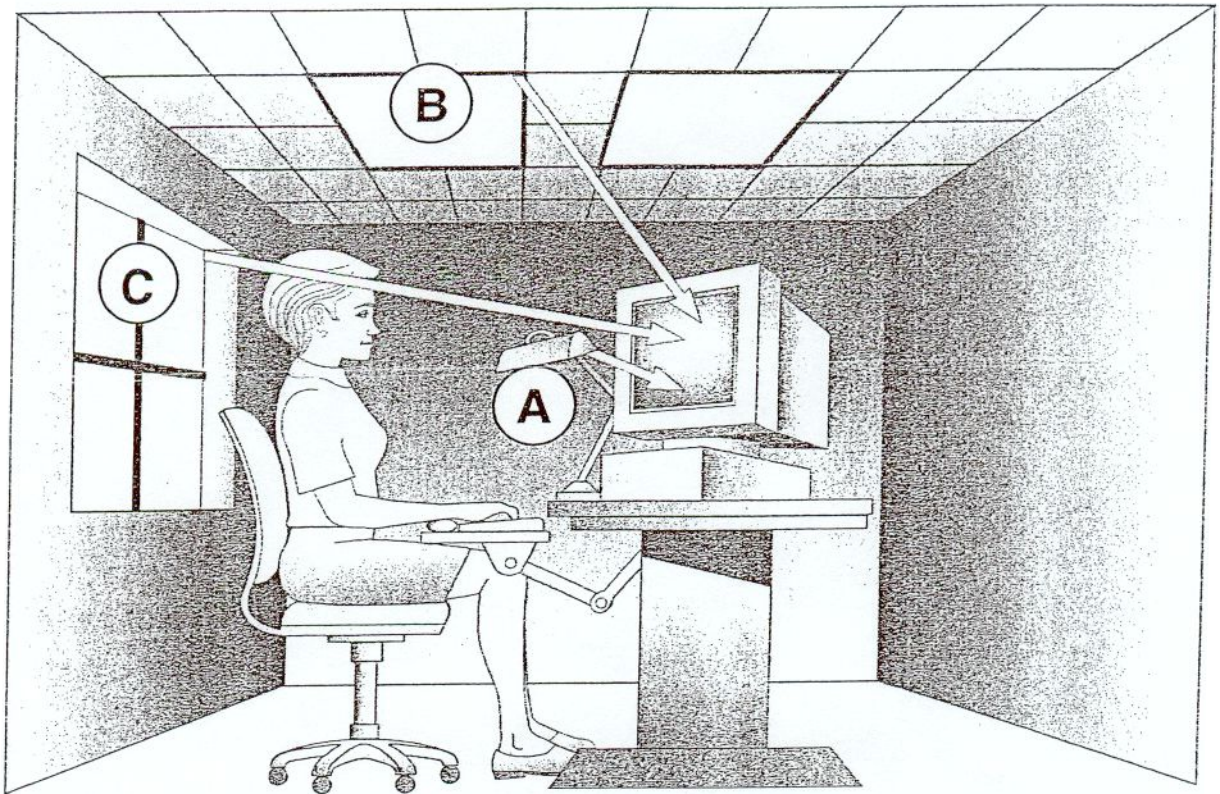
Adjust your chair. Adjust your chair so that: a) your feet are flat on the ground; b) your knees and hips are at about 90 degrees; c) the curve of your lower back is supported and; d) the arms of the chair (if adjustable) support your elbows comfortably. Note the height of the top of the seat pan. Tension the seat back to allow slight "give," but enough to prevent leaning back excessively.

Determine the keyboard height and work surface height. With your shoulders relaxed, place your hands in your lap. Keeping your shoulders relaxed, raise your hands so that your elbows are slightly bent with your forearms parallel to the floor and your wrists are straight. Measure the height from the floor to the bottoms of your hands. Subtract 1 inch from this height (to account for the height of the keyboard) in order to determine the ideal keyboard work surface height.

Adjust either the work surface height or the chair height. If the work surface height can be adjusted, adjust to the height you determined in the previous step. If it cannot be adjusted, adjust the chair height to make up the difference, and use a foot rest so that your knees and hips can remain at 90 degrees until the work surface can be adjusted.

Determine and adjust the monitor height and placement. Sit at your workstation so that you can comfortably reach the keyboard. The monitor should be 16-28 inches away. The area of the monitor that you look at most often should be about 3 to 4 inches below your eye level. The size of the characters and objects you look at will also determine where the monitor can be placed, but it should be no closer than 12 inches away.

Look at the rest of your workstation layout. Where are other things placed that you use frequently? The mouse should be next to the keyboard at the same height. Telephones, writing surfaces, source documents and other frequently used objects should be placed within easy reach. Those items less frequently used should be placed further away and off to the side.



Nuisance light sources:

- A) Task lighting that is positioned in such a way that it shines on or reflects off of the monitor screen or is close enough to “compete” with the monitor as a light source
- B) Overhead light sources, especially visible fluorescent tube lighting, that reflects off of a monitor screen that is “tipped back” enough to pick up that light source
- C) Outside light sources that enter the work environment and are able to reflect off of the monitor screen that faces the window

Eye irritation and eyestrain are among the most frequently reported complaints that computer operators make. Some of the causes are improper area lighting (both too much or too little), outside sunlight from a nearby window, reflections of light from overhead or windows on the computer monitor screen and glare from the screen itself. Most users refer to annoying light on their monitor screen as “glare.” Users will then buy a glare screen, only to find that the “glare” is still present; this time on the glare screen itself.

Most reflective light problems can be fixed by repositioning the monitor so it doesn't face a window or other light source and tilting the monitor slightly down so it doesn't pick up reflections of overhead lighting. Use of a computer glare hood to shield the screen from overhead light, use of shades on windows, reducing overhead light sources and using task lighting can also help eliminate lighting problems.

Eye exercises such as palming, focusing, frequent blinking and closing your eyes during “micro” breaks can also be helpful. Computer users who wear prescription glasses should consult their eye doctor for guidance on proper eye wear.



Telephone Receiver - Poor Strategy

- Standard design that is normally found with all sorts of telephones
- Designed for the user to hold the receiver to the ear and mouth for use
- Requires a whole-hand grip and raised arm, held in a static posture of the hand, arm and shoulder
- Takes one whole arm out of use for other tasks such as two-handed keyboarding
- Requires excessive head tilt in order to cradle the receiver between the head and shoulder
- Requires excessive force in an already awkward head/shoulder posture in order to hold the receiver in place with no hands



Telephone Receiver with Shoulder Rest - Better

- Attaches to the standard design of telephone receiver by way of a semi-permanent adhesive
- Soft, padded construction allows for comfort and non-porous materials allows for easy cleaning
- Reduces the angle between the head and shoulder that is normally required to hold a standard telephone receiver in place
- Reduces the amount of force required in a less awkward head/shoulder angle because of softness and non-slip consistency of materials
- Is better than nothing for occasional use of the receiver when both hands are needed



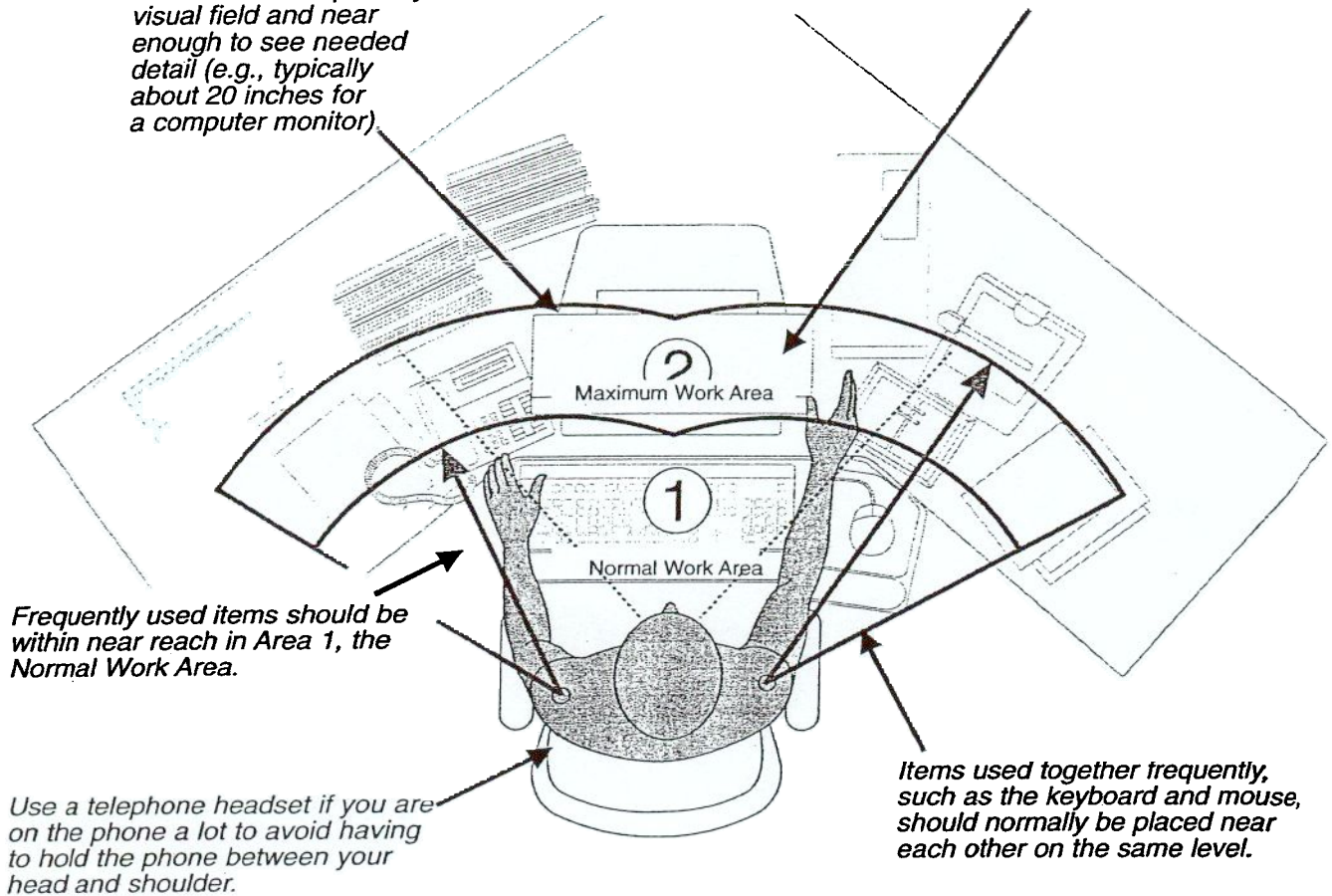
Telephone Headset - Best Strategy

- Attaches with ease to all telephones, regardless of make or model
- Ideal for use by persons constantly on the phone because it eliminates the reaches for standard telephone receivers
- Extremely lightweight
- Available in single and dual ear piece models
- Most models have built-in volume control
- Allows user to maintain head, neck and shoulders in ideal postures
- Adjustable and positionable mouthpiece
- Comfortable to wear

OFFICE ERGONOMICS: Arranging items to minimize reaching

Frequently viewed items should be in the primary visual field and near enough to see needed detail (e.g., typically about 20 inches for a computer monitor)

You should not have to hold up your hands and arms for long periods - adjust the work height or provide supports and place less frequently used items in Area 2, the Maximum Work Area.



Frequently used items should be within near reach in Area 1, the Normal Work Area.

Use a telephone headset if you are on the phone a lot to avoid having to hold the phone between your head and shoulder.

Items used together frequently, such as the keyboard and mouse, should normally be placed near each other on the same level.

Making things easier to reach and see

The diagram above and the "helpful hints" below can help you to layout your work area and determine what accessories will best meet your needs. The key to good workstation layout is to position those "things" that you use most frequently or close to you and as close to the center of your position as possible.

Helpful Hints

- Work surfaces should provide enough space for the items that you need to do your job and should be able to support the weight placed on them.
- Set up "mini" work areas that you can move between when doing different tasks (such as areas for computer work, writing tasks, reference books, etc.).
- When selecting document holders, ensure that they are of sufficient size and shape to accommodate the documents that you use.
- If you need to write on documents that you work with, ensure the document holder or work surface is stable, sturdy and easy to write on.
- Try to locate your mouse (or other input device) next to and at the same level as the keyboard to avoid "extended" reaches.
- Keep those items you use most frequently as close to you as possible to avoid frequent "extended" reaching.

EXERCISES AND STRETCHES YOU CAN DO AT THE WORKSTATION



BREATH AND POSTURE CHECK

Sit up straight in chair. Breathe deeply, raising your shoulders with each breath. Let shoulders relax.



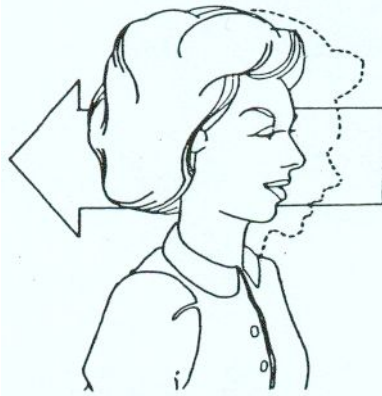
CHAIR ROCK

Shift your weight from side to side slowly in your chair.



SHOULDER SHRUGS & ROLLS

Raise your shoulders, up then relax. Slowly circle your shoulders, first in one direction, then the other.



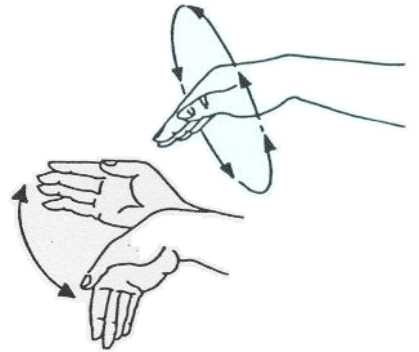
NECK RETRACTION

Glide head back, keeping chin level.



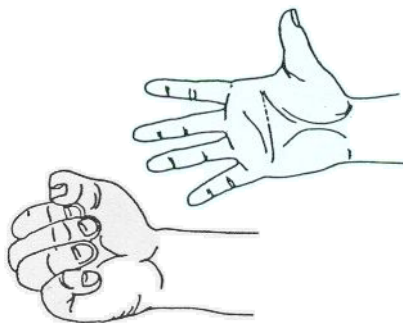
MID-BACK SQUEEZE & HUG

Pull elbows back; squeeze shoulder blades together. Pause, then reach arms around your body and hug.



WRIST CIRCLES & STRETCH

Slowly circle your hands, first in one direction, then the other. Then bring your palms down and up.



FINGERS CLENCH & SPREAD

Make a fist, hold several seconds, then spread your fingers. Gently shake your hands and fingers.



LOW BACK STRETCH

Stand with palms on lower back. Gently arch back to stretch, then return to standing upright.



Slowly circle your foot, first in one direction, then the other. Point and flex the foot. Repeat with other leg.