

## Ergonomics

**Ergonomics:** Ergon (Greek for Work) and Nomics (Study of, or Laws)

“Study of Work”

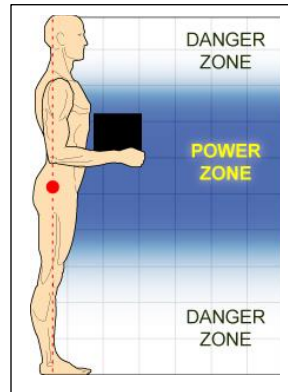
Designing the Workplace to Fit the Worker, versus having the Worker contort themselves to “Fit” the Work.

### Ergonomic Forces

1. Excessive force
2. Excessive repetition
3. Awkward posture
4. Static posture
5. Excessive vibration
6. Extreme temperatures

### Ergonomic Principles

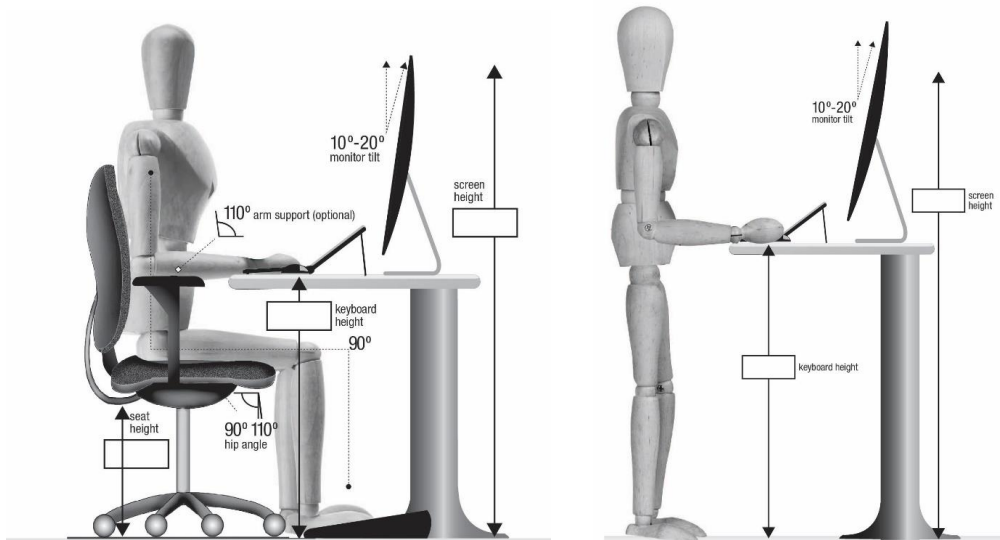
1. Maintain Neutral Posture
2. Work in the Power Zone
3. Allow for Movement and Stretching
4. Reduce Excessive Force
5. Reduce Excessive Motions
6. Minimize Contact Stress
7. Reduce Excessive Vibration
8. Provide Adequate Lighting



Enough about Forces and Principles! Let's talk about Computer Workstations and how to adjust the equipment to “Fit” us.

Let's face it, we are all shaped different. Some taller, some shorter, some thinner, and some wider than others. A “One Size Fits All” approach works for Drinking Glasses, but not for Computer Workstation Equipment. Fortunately, for each of us, Ergonomic Adjustable Equipment has come a long way from the days when a chair could only be adjusted up and down.

### Computer Workstation Ergonomic Adjustments



## Chair

1. **Backrest:** Adjust the Backrest up/down until the Lumbar Support lines up With the lower back – just about at the belt line or slightly above.
2. **Seat Pan:** If your chair is equipped with an adjustable seat pan, adjust it forward/back until, when your lower back is against the lumbar support, you have approximately two-inches between the back of your calf to the front edge of the front seat edge. Avoid having the back edge of the raised seat padding pressing up against your tailbone.
3. **Armrest:** Adjust the Armrest inward to position below the elbow. Raise the armrest up/down until it touches the elbow (Bent at a 90 Degrees), then raise it up one “Click” to transfer the weight of the upper arm onto the armrest.
4. **Chair Height:** Raise the chair until the top of the armrest lines up with the top/front edge of the keyboard. This promotes a straight forearm, wrist, and hand. (Neutral Position). This also places the elbows and knee in the preferred 90 – 110 Degree angle.
5. Sit back against the backrest to transfer your upper body weight onto the chair. Sitting upright or slightly reclined (two or three-degrees) is a good position. Avoid leaning forward.
6. Become familiar with the levers and dials on the chair and adjust as needed.

## Footrest

With the chair raised to align the armrests with the keyboard, your feet should still be able to rest firmly on the floor. If they do not rest on the floor, install a footrest. A footrest will provide a firm resting platform for your feet and relieve the pressure from the back of the leg.

## Keyboard Wrist Rest

A Keyboard Wrist Rest is placed along the front edge of the desk directly in front of the Keyboard. Proper placement of the hands on the wrist rest would have the highpoints of the heel of the hands resting on the wrist rest leaving very little pressure on the Carpal Tunnel area.

**DO NOT** allow the wrists and arms to contact the hard desk surface – Always use a Wrist Rest!

## Keyboard

The Keyboard is positioned directly in front of the Primary Monitor close to the edge of the desk or keyboard tray and up against the Keyboard Wrist Rest. Retract the Keyboard Feet to reduce the stress on the wrists.

## Keyboard Tray

If a Keyboard Tray is in use, adjust it to a flat or negative angle to promote a neutral wrist position and adjust the Monitors to be an arm-length away for your sitting position.

## Mouse and Mouse Wrist Rest/Pad

The Mouse must be placed on the same level as the Keyboard and directly to the right side of the Keyboard. The Mouse must properly “Fit” your hand. (Goldie Locks and the Three Bears – Too big, too small, just right.) Ergonomic Mice place the wrist/hand into a Neutral Position. The Mouse Pad must include a Wrist Rest to help keep the forearm, wrist, and hand in a straight position.

## Monitors

1. Adjust the Monitor(s) up/down until the top edge of the monitor aligns with the bridge of your nose. This promotes keeping your head upright and in-line with your spine.
2. Adjust the Monitor(s) forward/back until, when sitting upright, you can reach an arm out (Without twisting your shoulders) and touch the top edge of the monitor(s). This promotes a good “Focal” distance and helps prevent leaning forward to read the text.
3. Your Single, or Primary Monitor should be located directly in front of you and the keyboard. Dual monitors, depending on how you use them, can be placed with the Primary Monitor directly in front of you and the Secondary Monitor off to the right or left side, edge to edge with the Primary Monitor, and slightly turned toward you. Dual Monitors can also be placed directly

in front of you with the edges lined up with the center of the keyboard. Triple Monitors are typically set up with one Monitor positioned directly in front of you and one Monitor set along the right and left sides of the Primary Monitor with their edges touching and the outside Monitors slightly turned toward you.

4. If Glare is an issue, install a glare guard or window blinds to reduce the sunlight on the screen.

### **Document Holder**

If your job has you looking down at a stack of papers all day long and typing the information into the computer you should install a Document Holder that raises and angles the paperwork up. This will place your head into a more neutral and proper position. Did you know that the average weight of a human head is between ten and eleven-pounds?

### **Telephone**

If you are on the phone for much of your workday it would be good to install a headset to keep the head upright and not bent to the side cradling the receiver between your ear and shoulder.

The phone should be placed to the left or right side of the Monitor(s) and within an easy arms reach.

### **Work Area**

1. Thighs should have sufficient clearance below the desk and not strike the desk supports.
2. Legs and Feet should also have sufficient clearance to move below the desk without getting tangled up in wires, cables, boxes, bags, and bangles. Keep this area clear.
3. Select, install, and use Ergonomic Equipment that has sufficient adjustability to keep you in a safe working posture and can make occasional changes in posture while performing computer tasks.
4. Maintain the Computer Workstation, components, and accessories in a serviceable/functional condition.
5. Build in Micro-Breaks or Recovery Pauses when working at a Computer Workstation. Micro-Breaks include looking at a distant object to allow the eyes to refocus after staring at the Monitors for a great length of time. Getting out of your chair and walking around for a minute or two is also a micro-break.

### **Sit/Stand Workstations**

1. Raise the Sit/Stand Station until you have a 90 – 110 Degree Elbow Bend.
2. Adjust the Monitor(s) to have the top edge of the Monitor(s) in-line with the bridge of your nose and an arms-length away from you.
3. Install a Footrest.
4. Install an Anti-Fatigue Mat.
5. Install a Document Holder if necessary.
6. Remember to use the Keyboard Wrist Rest and Mouse Wrist Rest.

### **Stretching**

Remember that every keystroke is a micro push/pull of muscles and tendons from the tips of your fingers to your elbows. Take a minute or two every two or three hours to stretch the forearms, wrists, and hands to relieve the stress.