

The Ergonomic Equation for Comfortable Computing

The Human/Computer interface

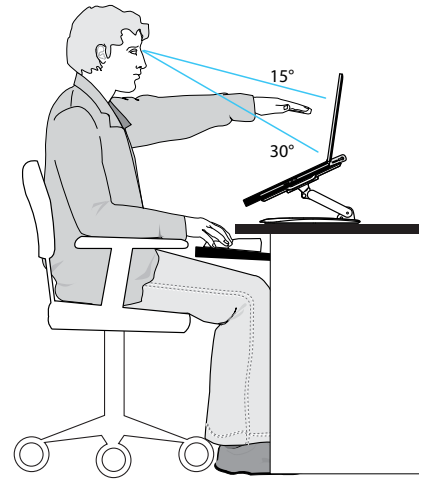
For nearly 30 years, Ergotron has been a global leader in the design and manufacture of digital display mounting and mobility products that create a positive interface between people and their computers. Ergotron's commitment to healthy, productive computing is reflected in its name. ERGONOMIC combined with ELECTRONIC forms ERGOTRON.

The Ergonomic Equation

Physicians and ergonomists have long known that forcing the body to conform to the computer can result in discomfort, fatigue, pain and may lead to clinical disorders such as carpal tunnel syndrome. Ergotron formulated the Ergonomic Equation to help people avoid these hazards by explaining, in simple terms, the core principles of ergonomic computer use.

Neutral Posture + Voluntary Motion + Restorative Time

These principles correlate to steps people can use to tailor their computer workspace to provide physical comfort and foster productivity.



STEP 1: Neutral Posture

By arranging the computer to support the body's optimal neutral posture, energy expenditure is minimized and with it, structural stress and related fatigue are reduced. Attaining the neutral posture DOES NOT mean constantly holding one position. Static loading (staying still) can cause a build-up of toxic waste in the muscles that contributes to fatigue and discomfort. For this reason, computer equipment should be arranged to allow your body to move within an acceptable range.

STEP 2: Voluntary Motion

Movements of the body that occur unintentionally during the course of work have an important purpose: to prevent the strain and fatigue associated with static loading. Working in front of a computer screen creates muscle tension. Jaws clench, elbows lock, crossed knees inhibit circulation and eyes tend to blink. Asymmetrical compression on spinal discs and excessive mechanical-loading stress on the supportive ligaments and joint capsules can be relieved with voluntary movements, assisted by a mounted or mobile computer display and keyboard with the proper lift, pan and tilt capacity.

STEP 3: Restorative Time

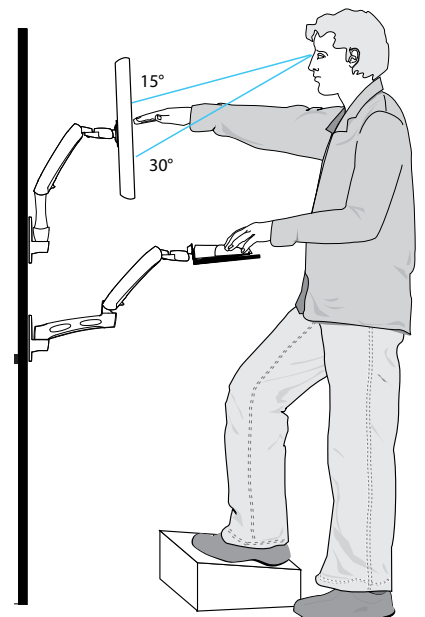
Timely rest breaks are prescribed to compensate for periods of static posture and repetitive action. Our bodies require:

- A mini-break of 2 to 3 minutes for each half hour of work at the computer
- A break of 15 minutes for every two hours of work at the computer

Establishing a routine that includes deep breathing, eye rest, simple stretches and plenty of water help rid the body of the toxic by-products of muscle metabolism.

Wellness.
Productivity.
Efficiency.

Feel the difference.



STEP 1: Neutral Posture

HEAD Directly over shoulders; don't thrust chin forward or tip head back.

EYES About an arm's length from screen. Gaze should fall about 1" below top of screen. Farther away is better than closer, especially with very wide screens or dual screens.

SHOULDERS Kept back and down with chest wide.

BACK Straight, with pelvis slightly forward; if sitting, maintain the slight natural curve of the lower back with a cushion.

ELBOWS Relaxed, close to body; forearm at 90–120° in relation to upper arm.

ARMS Close to body; forearm should be supported by chair arms or work surface.

HANDS Wrists relaxed and in a natural position, without flexing up or down; Fingers gently curved and supported.

KNEES Slightly lower than hips with 2 to 3 fingers' width space between the back of the leg and the chair.

FEET When sitting, feet firmly planted on the floor (legs uncrossed).

+ STEP 2: Voluntary Motion

LIGHTING Minimize screen glare by tilting screen. Prevent eye strain with well-lit keyboard.

STAND, ARM or CART Choose a computer mounting solution with screen height, tilt and pan adjustment.

KEYBOARD & MOUSE Position at elbow height with rear of the keyboard sloping downward at a slight 5° angle.

CHAIR Should provide adequate lumbar (back) and arm support; seat should meet minimum width and depth guidelines, and slope slightly forward to facilitate proper knee position.

FOOT REST When sitting, use a foot rest if the feet do not touch the floor. If standing, a rail or foot rest encourages good balance and voluntary motion.

+ STEP 3: Restorative Time

MINI-BREAKS Every half-hour, take 2 to 3 minutes for deep breathing and simple stretching.

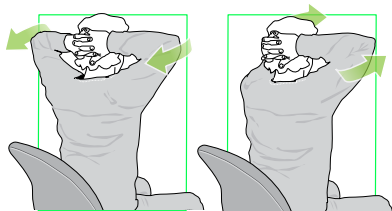
BREAKS After two hours at the computer, take a 15 minute break. Have a snack, drink some water, breathe and stretch. NOTE: Always check with doctor before beginning any new exercise program.

BREATHE DEEPLY Don't hold your breath! Always breathe through the nose, and use your diaphragm to empty and fill your lungs.

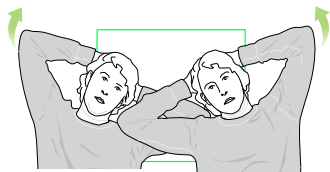
REST EYES Turn eyes away from screen and focus on a distant wall for about 30 seconds; or, lightly close lids and take 15 deep breaths.

STAY HYDRATED Drink lots of water but avoid carbonated or caffeinated drinks. Healthy snacks like fresh fruit, vegetables, nuts and seeds fuel the body and fight brain fog.

WALK or STRETCH Achieve stretch slowly, do not bounce in or out of position; hold position for a few counts, return to starting position, then stretch opposite side of body. Repeat each sequence two more times.



Elbow Stretch, back, front, repeat 3x



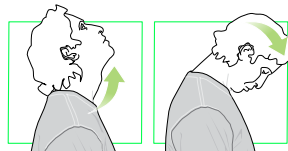
Lift Elbow, left, center right, repeat 3x



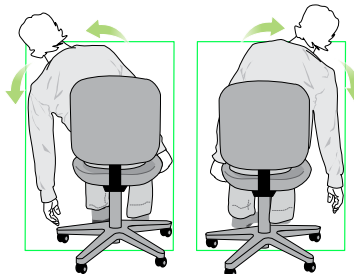
Turn Head: left, center, right, repeat 3x



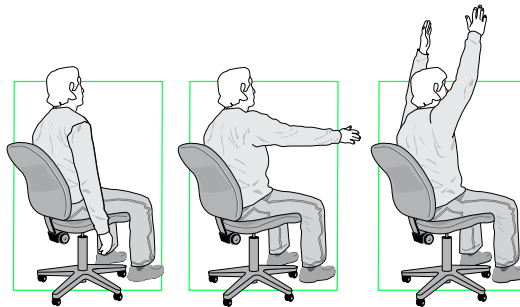
Bend over slowly, hold, count to 15, straighten up, repeat 3x



Tilt Chin, up, center, down, repeat 3x



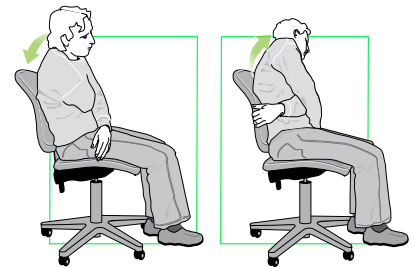
Bend Waist, left, straighten, right, repeat 3x



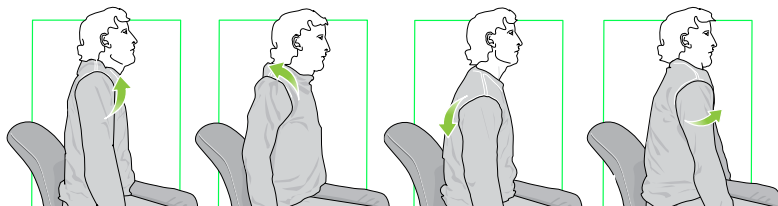
Reach Arms: down, forward, up, repeat 3x



Tilt Head: left, center, right, repeat 3x



Lean Down: right, center, left, repeat 3x



Roll Shoulders: up, back, down, front, reverse; repeat 3x