WHAT IS ERGONOMICS?

According to Merriam-Webster

- an applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely -- called also *biotechnology, human engineering, human factor*

Incorrect Posture

Correct Posture

TAKE GOOD CARE OF YOURSELF

The very best approach to self-care is prevention. This article gives recommendations that are great for everyone, whether or not you are experiencing discomfort.

Trends determine the most common workstation flaws and the most common symptoms. Seventy-five percent of ergonomic evaluations note that PERSONAL HABITS were a problem. Habits are those things no one else except you can change.

It is important to take some time to learn about Cumulative Trauma Disorder (CTD), also known as Repetitive Strain Injury, and take the initiative to change personal habits that are causing you discomfort. Since there is no cure for CTD, if you want to stop hurting, you must do things differently or you will never recover. Many CTD sufferers lose the ability to work and to do many of the things in their daily lives.

THE 12 TIPS OF SELF-CARE

1. ***LEARN MORE*** **- By educating yourself about the prevention and treatment of CTD, you can avoid this painful illness or begin your path to recovery.**

2. ***TAKE BREAKS*** **- Two different types of breaks are extremely important in the prevention and recovery from CTD. Microbreaks are 20 second to 1-minute breaks taken every 10 to 15 minutes to counteract the strain associated with repetitive or forceful desk, computer and lab work.**

   Effective microbreaks include: Dropping your hands by your side to stretch your arms, hands, shoulders, upper/mid back and neck; looking away from the monitor or reading material and focusing on something distant and blinking your eyes to rest them and keep them from getting dry; and taking a few deep breaths while standing up and moving around.

   A full break from repetitive motion activities every 45 minutes for approximately 5 minutes is necessary to increase circulation and decrease muscle tension, the cause of CTD.

3. ***BE CONDITONED*** **- Exercise is critical for the prevention and recovery from CTD. Even short aerobic exercise sessions every other day are enough to affect blood flow and help the body cope with stress. Strengthening your large muscle group also prepares your body for wear and tear of daily activities.**

4. ***STRETCH*** **- Stretching increase circulation and lengthens muscles, reducing the risk of injury. The only way to fight CTD is to keep your muscles long and healthy. During microbreaks, do upper body stretches and during your longer breaks include some lower body stretches to get the circulation moving to eliminate the harmful consequences of sitting.**

5. ***MASSAGE*** **- Massage your hands, forearms, neck and upper back several times a day. Massage improves circulation, eases muscle tension, reduces stress and breaks up adhesions that cause CTD.**

6. ***REDUCE STRESS*** **- Periodically evaluate your environment for ways to reduce stress. Stress inhibits correct breathing and restricts circulation. In addition, stress triggers a chain of unhealthy hormonal imbalances. Try to keep your desk uncluttered so you can find things. Make sure computer programs are set up correctly and your computer files are organized in an efficient and logical manner. When you cannot avoid stress, step back and evaluate your reactions. You cannot always eliminate stress in life, but you can modify your reaction so stress does not harm you.**

7. ***PRACTICE PAIN-FREE POSTURE*** **- Headaches, neck and lower back pain, as well as knee and feet problems, may resolve by simple improvements in posture. Doctors around the country say they are seeing an increasing number of posture-related health problems. Poor posture triggers a cascade of tiny structural changes and shifts throughout the body that can have painful consequences. Pressure is added to muscles and joints when the head and shoulders are held forward and the spine and pelvis are shifted out of alignment. Although no body is perfectly straight or symmetrical, when the body is held in its neutral position, pain can be avoided. Exercises can strengthen your body so your posture is improved.**

   Check your posture throughout the day. Your feet should sit flat on the floor and your knees should never be higher that your hips. Your knees should naturally rest even with your hips or slightly lower. Align your ears with your hips, keeping your shoulders back and relaxed. Do not crane your neck and shoulders forward to look at the computer screen. Your upper and lower arms should be at right angles. Keep your wrist straight with your fingers relaxed in the natural fall of the hand. If you use a wrist rest, your wrist should not bend or touch the pad while you type. Rest your wrist only when you are not typing or using the mouse.

   If you cannot work in a neutral posture while in the lab environment, it is extremely important you counteract the forceful positions with stretches.

8. ***HYDRATE*** **- Drink plenty of water throughout the day. Keeping your body fluid level high is important for proper muscle and nerve functioning. Keep a water bottle with you all day and take a few sips during your microbreaks.**

9. ***USE SHORTCUTS*** **- Overuse of the mouse or trackball will cause pain from your hands to neck. Learn a couple of keyboard commands (i.e., shortcuts) every week to minimize the strain associated with the overuse of the computer mouse.**

10. ***BE AWARE*** **- Everything you do outside of work can be a source of problems.**

11. ***EAT WELL*** **- You are what you eat. If you have a poor diet, you are not going to feel your best. Your muscles suffer from lack of proper nutrition and are more prone to injury. In addition, a daily multivitamin and mineral supplement improves the functioning and facilities healing of soft tissue.**

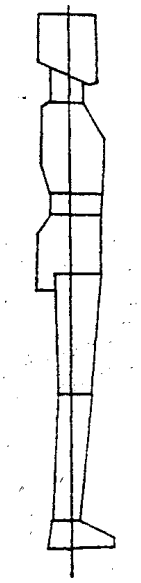
12. ***BE HEALTHY*** **- Your health condition affects your risk for CTD. Unfortunately, certain unavoidable conditions, such as growing older, increase the odds of injury.**

RULES TO LIVE BY

1. **Avoid bending from the waist only; bend the hips and knees.**
2. **Avoid lifting heavy objects higher than your waist.**
3. **Always turn and face the object you wish to lift.**
4. **Avoid carrying unbalanced loads.**
5. **Hold heavy objects close to your body.**
6. **Never carry or move anything that cannot handled with ease.**
7. **Avoid sudden movements. Learn to move more deliberately.**
8. **Change positions frequently.**
9. **Don't bend from the waist while trying to balance on one foot.**
10. **Avoid exercise and activities that arch or strain the low back.**

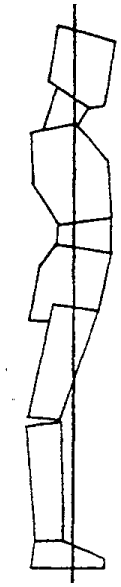
DO

Stand tall with chin in.
Back flat, pelvis tucked



DON'T

Don't stand with stiff knees
swayback or chin forward



RULES TO LIVE BY (continued)

	DO	DON'T
■ Bend at the hips and knees and not at the waist		
■ Keep back rounded as you return to standing from squat		
■ Hold and carry objects close to you		
■ Never bend over without bending knees and tucking buttock under		
■ Always face your work and turn by pivoting your feet first		
■ Keep buttock tucked under as you reach Use a stool and avoid unnecessary reaching		

BACK CARE

No matter what causes back pain, an important part of its treatment is improvement of posture and learning to use the body correctly. Good posture allows the use of the body without strain on muscles, joints, ligaments and internal organs. Good posture must be considered in all activities: sitting, standing, resting, working, playing and exercising. It is not simply a matter of "standing tall".

This guide is designed to help you begin to correct the positions and movements that may aggravate your back problem. Particular emphasis is placed on rest positions, because even in these positions it is possible to strain the neck and back. By learning to live with good posture in all your activities, your back will gradually return to a comfortable and functional part of you.

SITTING

DO

Good body mechanics When sitting down in a chair

DON'T

If a chair is too high, swayback is increased

DO

Knees higher than hips flattens the low back, legs straight on ottoman strains low back

CAR

DO

Car seat closer to the steering wheel flattens the low back

DON'T

STANDING

DO

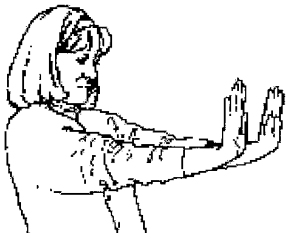
A footrest will relieve the sway back and help to flatten the back

DON'T

HAND EXERCISES

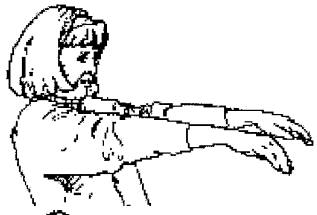
These exercises were developed and tested by Dr. Housang Seradge at the University of Oklahoma Orthopedic & Reconstructive Research Foundation and are intended to help prevent carpal tunnel syndrome. Remember doing a quick 5 minute exercise warm-up before starting work, just as runners stretch before a run, can help prevent work related injuries.

A.



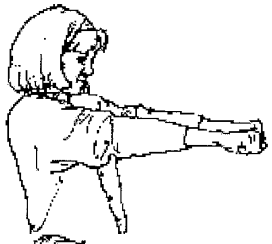
Extend and stretch both wrists and fingers acutely as if they are in a hand-stand position. Hold for a count of 5.

B.



Straighten both wrists and relax fingers.

C.

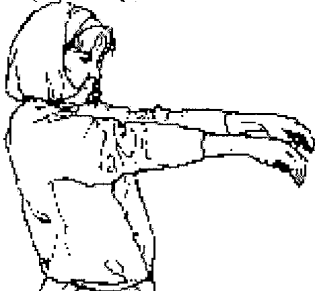


Make a tight fist with both hands

D.

Then bend both wrists down while keeping the fist. Hold for a count of 5.

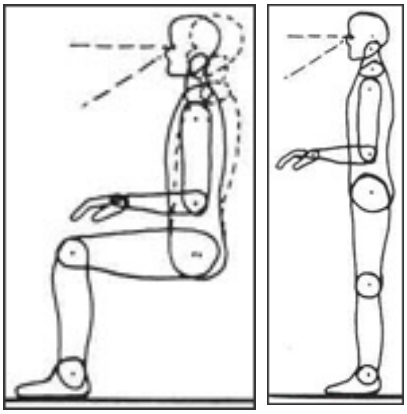
E.



Straighten both wrists and relax fingers, for a count of 5.

SUMMARY OF CORRECT BODY MECHANICS
(Computer Workstation)

To understand the best way to set up a workstation, it is helpful to understand the concept of neutral body positioning. This is a comfortable working posture in which your joints are naturally aligned. Working with the body in a neutral position reduces stress and strain on the muscles, tendons, skeletal system and reduces the risk of developing a musculoskeletal disorder (MSD). The following are important considerations when attempting to maintain neutral body postures while working at a computer workstation. Additionally, it is suggested that every 45 minutes a mini-stretch is taken. The employee should do some movements that will get the blood flowing and should refocus their eyes on an object far away.



DESK

The employee should be able to sit comfortably with elbows at their side and at a 90 – 100 degree angle to work on the keyboard or desktop. The feet should be flat on the floor or a footrest. There should be sufficient space for paperwork and other materials used during the course of the day. There needs to be enough room for the employee to stretch their legs under the desk.

COMPUTER (Monitor, Keyboard and Mouse)

The monitor, keyboard, document holder, and employee should be aligned. The mouse should be adjacent to and on the same level as the keyboard to avoid extended reaching. The first line of type on the monitor should be at eye level or slightly below. Source documents (holders) should be adjacent to the computer monitor or between the monitor and keyboard to limit repetitive turning of the head. The keyboard should be centered directly in front of the employee (the G & H keys should be at the employee midline.) If the there is a significant amount of mouse-intensive or numeric pad work, move the keyboard to the side so that the mouse or pad is placed directly in front of the shoulder.

CHAIR

Posture counts! The employee should have a hip-torso angle of an open 90-degrees, shoulders relaxed, lumbar support at the beltline, and elbows at a 90-110 degree angle, close to their sides, and wrist in a neutral position (not bent). Employee should sit back in the seat pan of the chair, letting the backrest support their back. Hips should not be forward in the chair's seat pan. Employee should swivel to retrieve items instead of twisting or bending.

SUMMARY OF CORRECT BODY MECHANICS (continued)

LIGHTING

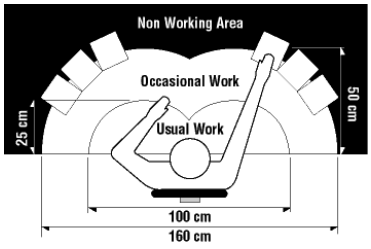
Place monitor away from direct light source. Monitor should be tilted down slightly to avoid glare from overhead lights. Lighting should be adequate for the task being performed.

TELEPHONE

The device that is held to ones ear is a handset. The handset should never be cradled between the neck and shoulder. The telephone should be placed on the non-dominant side of the work area, within easy reach.

FILES AND BOOKS

Items that are used frequently need to be close (within 18 inches.) Heavy items stored on overhead shelves should be picked up with two hands. A footstool should be used to avoid overhead reaching. Consideration should be given to breaking down large binders into several smaller ones to reduce the weight. Files should not be packed into drawers or on shelves, as it requires increased force to remove them. The work area should be organized so that it is neat and offers the maximum amount of space to work.



WORK FLOW

Employees should be encouraged to take mini-stretch breaks and alternate job tasks to prevent using the same muscle groups repetitively without a break. Printers should be located off the desk to require the worker to get out of their chair. Break up jobs so that the same movements are not done over and over again for long periods of time. Short durations of different tasks throughout the workday will accomplish the job with less wear and stress on muscle groups.