

Personal Ergonomics Guide

A woman with long brown hair and bangs is sitting at a desk in a call center or office. She is wearing a black headset with a microphone and is smiling while typing on a white keyboard. On the desk, there is a multi-line office phone, a calculator, and a small clear plastic stand with papers. The background shows a blue wall and a wooden desk.

Computer Workstations

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Published by

IMPACC USA
Seven Washington Street
Greenville, Maine USA 04441
207.695.3354 800.762.7720
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This Is My Body...

This Is My Job

You work hard and go home tired, often too tired to enjoy your family and your leisure time. You may see fellow workers with pain problems and lost time injuries.

We all would like to get through a day's work with more comfort and energy and be able to enjoy our leisure time. You don't want a work injury to get in the way of your life. There is more to life than work!

This Personal Ergonomics Guide shows you how to work smart, how to use your body properly and how to take proper care of your working body. You are a Professional WorkPlace Athlete, even if you work behind a desk all day. Computer and office work is very demanding on your body. Your body earns you and your family a living. You must take care of it!



WorkSmart!

It is your responsibility to your job,
your family, and yourself.

Today's Work Injury Problem



Work injuries to the neck, arms and lower back are very common in today's office workplace. They are called Cumulative Trauma Disorders or C.T.D.s and account for half of all worker compensation claims today. The suffering from C.T.D. can be enormous, with many workers suffering serious pain and disability which can create great stress within the family.

Epidemics of these problems have caused some companies to eliminate jobs in order to reduce costs.

C.T.D. problems include Tendinitis, Carpal Tunnel Syndrome, and various other neck and back problems. Tendinitis is a destructive inflammation of tendons in the wrist, elbow or shoulder. Carpal Tunnel Syndrome is a pinched nerve in the wrist that can produce pain, paralysis, numbness and other serious problems in the hand. Neck pain and low back problems include damage or inflammation of the muscles that move the spine, the joints between the vertebra bones, the ligaments that hold the spine together, or the discs that cushion between the vertebrae.

These problems are very real and can cause great suffering. They can be very difficult to diagnose and treat and sometimes end up as permanent, painful disabilities. The good news is that they are very preventable. It requires only a small investment on your part in education, attitude and commitment. Attention to correcting work habits, job design and self-care of your working body will result in reduced injury risks as well as increased levels of comfort and productivity.

What is Personal Ergonomics?

What Does It Mean To Me?

Ergonomics is the science of work design. Using ergonomics, engineers try to design jobs to have minimum physical demands on the working body. Personal ergonomics is the science of working smart: learning to move and position your working body to reduce stress on muscles, tendons, ligaments and joints. The objective is to avoid fatigue and damage to your body.

It is the responsibility of management to provide a safe work place. HOWEVER, it is your responsibility to properly use and care for your working body! In this new handbook we will show you what you can do to improve your work postures and learn efficient work methods and effective self-care techniques for your working body.



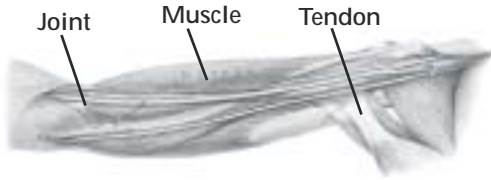
A professional workplace athlete is an expert on working smart to avoid pain problems: to minimize daily work fatigue and slow the aging process. Let us show you WorkSmart strategies to reduce your fatigue and boost your work comfort.

WorkSmart!

It is your responsibility to your job,
your family, and yourself.

How Does My Body Work?

Sitting in one position at a computer requires very stressful muscle work. Your muscles contract, pulling on tendons to move or hold joints. This is how your body works to produce movement and maintain upright posture. Your muscles, tendons and joints require



a good blood supply to deliver nutrients for work and repair, and to remove the acid waste products produced from using those nutrients. This is

very hard work, burning lots of fuel and producing lots of acid waste products. These acids can be very irritating to your working tissues, eventually leading to inflammation and pain.

Sitting at your work station in the same position requires your muscles and tendons to be contracted all day. Muscle contractions increase the pressure inside your working tissues, reducing the blood supply that would normally remove the acid waste products of that work. The acids build up, causing fatigue, discomfort and pain, and your tissues become stiff, weak and easily injured.

Constant shoulder, elbow, wrist and hand movements cause friction wear damage to moving parts and slow needed blood supply to the parts working the hardest. This is also a source of fatigue, pain and injury. Your working upper body must be kept flexible, strong and healthy.



Causes of Fatigue And Pain

Sustained Posture

Sitting all day at your work station reduces the blood supply to working structures in your neck and back, creating fatigue and tension that can cause neck, back and shoulder problems. Sustained sitting will fatigue and tighten the muscles that hold your head upright, leading to a more round-shoulders, forward head posture. This can cause muscle problems in your neck and upper back, such as neck joint irritation and chronic headache.



Forward Head Posture

Forward head posture also causes your neck muscles to tighten. The blood vessels that nourish your working arms pass through these muscles. As the muscles become tight, they compress your blood vessels and reduce circulation to your working arms. This reduced blood supply can lead to problems in the muscles, tendons and nerves of your arms and hands, possibly contributing to Tendinitis and Carpal Tunnel Syndrome.

Blood
Vessels



Prolonged Sitting

Prolonged sitting can also stress your lower back. Your lower back needs movement to keep blood flowing to weight-bearing parts. Sitting all day can damage parts of the lower back due to loss of blood supply and nutrition. This weakens back muscles, damages

spinal discs and wears on joints and ligaments. The result can be just gradual deterioration or a sudden back injury on or off the job.

Repetitive Motions

Repetitive motions are repeated muscle contractions that pull on your tendons and cause friction wear damage and a buildup of irritating waste products in your tissues. Repeated motions of the wrist can also irritate nerves passing through the wrist into the hand. Repeated use of the hand and wrist can lead to Tennis Elbow, a form of Tendinitis of the wrist muscles where they originate near the elbow. Shoulder work, particularly reaching away from your body, can stress shoulder tendons, leading to tendinitis problems in the shoulder.



Excessive Loads

Forceful efforts such as heavy lifting, pushing, or pulling can cause sprains and strains by placing too much force on your working tissues. Your back may be weak from sitting, creating a risk for back strain when you have to lift or move something. The injury may be due to too much effort (such as too heavy a load), too sudden an action, or body parts that are too weak or stiff to handle the load. An injury may also be caused by improperly designed jobs, or by a worker not working properly, or a body that has not been kept strong and flexible.

The leading risks for fatigue, pain and injury are poor physical fitness, lack of flexibility and the health of the worker. Your health habits, posture habits, and self-care of your working body usually decide if you will suffer a C.T.D. problem. It is the worker who works smart and takes care of the working body who will avoid these problems. Decide today to increase your fitness level, monitor your posture, and take care of the only body you have. It is your responsibility. It is worth it!!!

WorkSmart Techniques For Computer Workstations

Computer work is a fast-growing job category. It also has one of the highest risks of C.T.D. in today's workplace. Computer work can be described as a highly sustained posture stress of the low back, neck and shoulders with highly repetitive motions of the wrist and hand. This is a very stressful combination of posture and repetitive motion work that can lead to fatigue, pain and injury. These problems are easily prevented by improving the required posture of your job, improving your posture habits, providing frequent posture breaks and doing preventive stretching. These can greatly decrease fatigue and make you feel better, both on and off the job.



The Chair

Correct work chair design is important. The height of the chair must be adjustable to allow your feet to rest fully on the floor without reaching. If the chair cannot go that low, a footrest may be used. A footrest is important because it lifts the weight of your legs slightly off the front edge of the seat, restoring circulation and helping provide hip/back posture support.

The seat should tilt slightly forward. A forward tilt to the seat will allow you to maintain a more upright and less stressful posture. This tilt may be built into the chair, or may be provided by a wedge-shaped cushion on the seat. The chair back should fit the arched curve of your lower back and extend down to your buttocks. A perfect chair is not as important as your sitting posture habits. It is vital for you to properly fit your chair to your body, sit with good upright posture and frequently stretch to restore blood flow to your neck, arms and back.

The Work Station

Your computer table should be low enough to work with your elbows bent to approximately 90 degrees while sitting up straight. It should not be so low, however, that you tend to slouch into a round-shoulders posture. This is a problem with some keyboard trays.

The work table should be deep enough to fit your computer, monitor, keyboard and a wrist rest. Learn to type with your wrists resting on this pad. You will not have to hold your arms and shoulders up all day, significantly reducing your posture fatigue.



Use a document holder to hold your paperwork upright and as close to the center as possible. If your eyes are kept mostly on the screen, keep the screen directly in front of you. If you look mostly at your paperwork, place the documents upright and directly in front of you.

The top of your monitor should be at eye level so that looking at the screen brings your vision angled down approximately 10-15 degrees. Placing books or a small box under the monitor is commonly used to accomplish this.

Telephone Posture

Many people commonly hold a telephone handset braced between their head and shoulder to free the hands for typing or writing. Over a period of time, this can be very damaging to your neck and shoulders. Don't do it! Replace the handset with a headset. Many styles are available now to fit most phone systems.

Posture Relief



Even perfect posture is bad if you stay in this posture too long. You should get up from your work station to do some stretching every hour. Frequent breaks from sitting are vital to maintaining the blood flow to your working tissues.

Eye relief is also very important. Keeping your vision on your work is a sustained posture stress for your eyes. For eye muscle relief, your hourly posture break should include focusing your vision on an object at least 20 feet away to change the focusing distance for your eyes. Bifocal glasses can also cause you to hold your head tipped slightly back, leading to neck pain and headache. Consider single vision glasses just for computer work.

Reflection and glare on the video screen can cause you to squint your eyes and tense your shoulders and neck. Place your monitor to avoid reflection of window light and lamps. The office lighting should have grilles that block the light from shining across the room. To further minimize glare your monitor can be fitted with an anti-glare screen that reduces reflection.

Preventive Stretching

The muscles in your neck, back and arms work very hard at a computer. Circulation is reduced and irritating waste products build up from this tension and muscle pressure. Frequent stretching of a few hard-working muscles easily corrects these problems by restoring circulation and relaxation to working tissues. Try our one-minute stretching plan every hour. It will not reduce your productivity. It will, instead, greatly reduce fatigue, while improving your productivity and increasing your comfort level.

The following stretching plan is designed to reduce your stress, increase blood flow, avoid fatigue and prevent injury to your working body. These stretches should be performed at least every hour. Stretching should be kept very gentle, well within the limits of comfort. Discontinue any stretch that causes pain.

Chin Tuck Stretch



This is to correct the stiffness that holds you in forward head posture. The idea is to frequently over-correct your posture to stretch the tissues that became tight with bad posture. Simply tuck your chin into your neck as you bring your head upright into a position of military attention. Hold this stretch gently for ten seconds then relax to a comfortable but more upright head posture.

Neck Stretch

Tight neck muscles can squeeze nerves and blood vessels to your arms. These muscles respond well to gentle stretching. Sit upright. Place your right hand on top of your left shoulder. Hold that shoulder down as you tip your head slightly away to the right. Keep your face pointed forward, or even turned slightly to the left to stretch all the muscle fibers. Hold this stretch very gently for ten seconds. Repeat for the other side.



Shoulder Pendulum

If you do a lot of shoulder reaching or overhead work, then you should include this stretch. Lean over at your waist, hanging one arm down loosely at the shoulder. You may wish to lean on your other hand placed on a chair or table top. Swirl the relaxed arm around in a slow, lazy circle for ten seconds. Repeat for the other shoulder.



Elbow Stretch



Holding your hands over a keyboard can over-work your forearm muscles near the elbow. Stretching these muscles can reduce your risk of Tennis Elbow. Hold your arm with your elbow bent 90° and fingers closed, palm out. Tip your fist toward the palm. Then, hold this position as you completely straighten the elbow. You should feel a pulling stretch along the top of the forearm. Hold this stretch for ten seconds, then shake your hands loosely. Repeat with the other arm.

Wrist Stretch



Excessive hand use can tighten your forearm muscles, increasing pressures on their tendons and nerves as they pass through your wrist. Stretching these muscles can reduce the tension on those tendons. Hold your left arm in a palm-up position. Place your right

hand fingers atop your left palm. Gently push your left hand backward as you stretch your elbow out straight. Hold for ten seconds. Repeat this stretch with your other arm.

Standing Back Bend

Prolonged sitting can stress sensitive tissues in your lower back, leading to back problems. This risk is easily lowered by using back-bending stretches. Stand, feet apart. Place your hands on your low back. Gently lean backwards at the low back only as far as comfortable. Hold three seconds. Do these often when working bent over or sitting, at least every hour.



Relaxation Response



Constant work activity will tighten your working muscles. This tension is wasted muscle work that will tire you out. It is very easy to avoid this wasted work. Sit upright. Inhale deeply as you shrug your shoulders and clench your fists. (Do not clench your teeth!) Spend three seconds at



this tension. Then exhale and relax your upper body fully, spending five seconds in the exhale/relaxed phase. Do this twice. This will greatly relax muscles and reduce your fatigue.

Upper Body Recovery

A hard day's work with your hands, arms and neck requires rest to repair the wear and tear. Otherwise, damage will outrun repair over the months or years of your work, possibly resulting in chronic pain or even disability.

Upper body recovery from a hard day's work requires that you rest your neck, shoulders and arms. The best position of rest for the upper body is to sit in an easy chair with a towel roll or small pillow behind your lower back. Place two pillows on your lap to cradle your arms. Rest your head back against the chair using a small towel roll behind your neck. Just a few minutes will help. Another good position of rest would be lying on the floor with your legs bent resting on the seat of a chair or ottoman.

Treat any sore spots with ice massage by rubbing an ice cube over the painful area for two minutes. Follow this with trigger point massage. Press your thumb or fingertips firmly into the sore spot and rub hard for one minute. This is a very tender process, but may be effective at clearing out inflammation and scar tissue in tendons and muscles.

After this period of rest and relaxation, gently perform the upper body stretching exercises described earlier. This restores the flexibility you lost during your day's work and enables your body to heal itself properly during tonight's sleep. Applying moist heat before doing the exercises can also help.

Fit For Work

You owe it to the only body you have to keep it in shape . . . not only for the job . . . but also for a satisfying life. A personal fitness plan is vital to your successful career and life.

You would keep yourself fit for competition if you played on a professional sports team. There is little difference between professional sports and your job: You must keep fit for your job or you will suffer needlessly. You will not perform well. You will go home exhausted and sore from the day's work. You may eventually suffer an injury.

Fitness refers to your heart-lung endurance. This is your ability to sustain work output all day. It is how well your heart and circulation can deliver blood and oxygen to your working muscles. Your level of fitness determines how well you get through a day's work and how much energy you have left over after work.



There is more to life than work!



Fitness training is any physical activity that pushes your heart rate to a moderately high level and keeps it there a minimum of twenty minutes, done at least three times per week. The activity must be light-weight but sustained. Examples include fast walking, running, biking, swimming, rope skipping, rowing and cross-country skiing. The list goes on: karate, aerobics classes, dance. You will enjoy finding the activity that is right for you and it does not necessarily require outdoor exercise. A tread-

mill, stationary bike or cross country ski machine set up in front of the TV is a very efficient approach to excellent fitness training at home.

There are some precautions. You can safely start on this if you are young and otherwise healthy. But if you are overweight, a smoker, over age forty or have any history of possible heart or lung problems, then you need the approval of your doctor. A good way to start is to get a fitness assessment. They are available from sports physical therapists or other qualified fitness professionals.

You know it is worth the effort! Just ask anyone who is involved in such a program. You will have more energy, improved sleep, reduced stress, improved sex life, happier moods and many other benefits. Exercise also makes dieting and quitting smoking much easier. Your health is everything!!



You owe this to yourself!!!

Personal Ergonomics Guides

By Lauren Andrew Hebert, DPT, OCS

Personal Ergonomics is the science of working smart: learning to position and move the working body to avoid fatigue, damage and injury. The **Personal Ergonomics Guide Series** shows patients and workers, in easy to understand language, how to apply personal ergonomics on their jobs to work more comfortably and efficiently, be more productive and have more energy left over after work. Each guide discusses personal ergonomics information related to specific tasks: **Material Handling**, **Computer Workstations**, and **Repetitive Tasks in Manufacturing**.

Computer Workstations

Computer Workstations shows how to avoid fatigue, pain and injury on the job by using WorkSmart techniques for computer operators. Today's work injury problems, personal ergonomics, anatomy, and causes of fatigue and pain are all discussed. Proper workstation set-up shows how to position the body and equipment to minimize personal fatigue. Sections on stretching, exercise and fitness urge workers to become fit for the job. It is their responsibility to their employer, their family and, most importantly, themselves.



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