University Safety and Assurances

OCCUPATIONAL ERGONOMICS PLAN

Revised 3/1/2022

Occupational Ergonomics

Ergonomics can be defined as "the science of fitting the job to the worker". Faculty and staff at University of Wisconsin-Milwaukee spend many hours working at their computers and if the workstation does not fit the employee, injuries or illness may result. Repetitive motion and unhealthy work practices can also cause problems. Applying ergonomic principles to an employee's work environment can help prevent work-related musculoskeletal disorders. Here are some helpful hints for employees working in an office setting.

Post-Offer Pre-Employment Program

It is the policy of the University of Wisconsin-Milwaukee that certain prospective employees submit to post-offer, pre-employment testing to determine whether they possess the fitness to perform essential functions of the position. Only positions whose essential functions involve substantial physical requirements are included in this policy.

Post Offer Pre-Employment Test – A test is an evaluation to determine if a prospective employee is physically and/or mentally able to perform the essential functions of a position, with or without accommodation. POPE testing may include a medical questionnaire, musculoskeletal exam and functional testing that is directly tied to the essential functions of the position offered.

Prospective Employees – prospective employees include applicants for employment, active employees applying for a new position, rehired employees, students applying for a position, and employees of an UW Campus applying for transfer to University of Wisconsin-Milwaukee.

General Guidelines for workstation design

- Use proper body mechanics when lifting and carrying. There should be flexibility in seating so that feet can rest flat on the floor, knees can bend at a ninety-degree angle and thighs can rest parallel to the floor.
- Arrange the workstation so that alternate positions can be used to accomplish work. The body needs to move and changing position throughout the day is better for your health.
- Minimize reaching movements. For example, put the materials that you use most on a lower shelf and the less used items on the higher shelves. Reaching above shoulder height repeatedly can cause musculoskeletal disorders. The safety zone for reaching can be defined as – the area between the knuckles and the shoulders (with your arms hanging at your side).

- Design workstations so that the neutral position can be maintained (for example: keeping your wrists straight, keeping your back straight, elbows at a ninety-degree angle, etc.)

Healthy Work Habits and Practices

- Alternate tasks throughout the workday to cut down on repetitive motion.
- Automate highly repetitive operations whenever possible.
- Bend the tool – not the wrist!
- Make sure that work gloves fit well. Gloves decrease grasp strength by 20% and that strength is further decreased when poorly fitted gloves are used.
- When lifting always:
- Plan your lift. Think about where you are going and how you are going to get there. Make sure the path is clear.
- Bend your knees and use your leg muscles to do the lifting, while keeping your back straight. Keep your head up to maintain alignment.
- Have a good grip on the load.
- Avoid twisting and bending when lifting.
- Keep the load close to your body.
- Place feet at a minimum of a shoulder width apart.
- Use mechanical lifting aids whenever they are available.
- Get someone to help you if the load is too heavy.

Computer Workstations

A checklist is found at OSHA's website for choosing the correct workstation for your computer and the correct working positions. The following is the link to this website:

http://www.osha.gov/SLTC/etools/computerworkstations/checklist.html

Seating:

- Chair should be adjusted so that feet plant comfortably on the floor
- Knees should bend at a ninety-degree angle
- Thighs should rest parallel to the floor
- Adjust seatback position to allow for hips to bend at ninety degrees or slightly greater
- There should be adequate lower back support

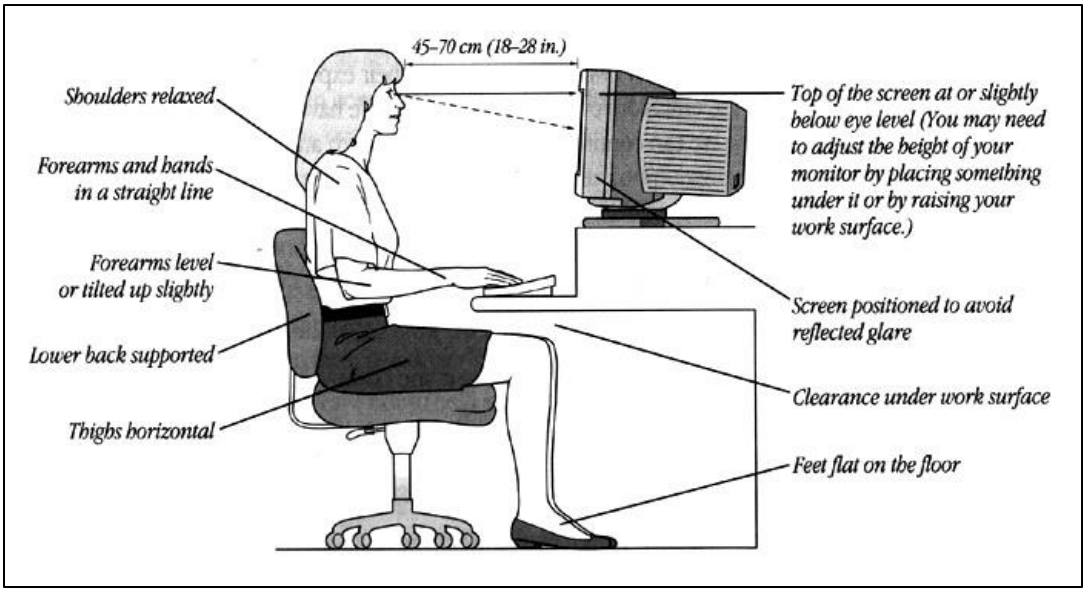
Monitor:

- Top of the screen should align at or slightly below eye level
- View of screen should be straight forward
- A comfortable distance away from the screen is 16"– 28"
- Upright posture with chin tucked in should be maintained

Mouse and Keyboard Height:

- Hands at elbow height or slightly lower, elbows at a ninety-degree angle
- Keep wrists straight maintaining a neutral position
- Forearms and hands should form straight lines
- Shoulders should be relaxed, with elbows hanging close to side

See picture below for an example.



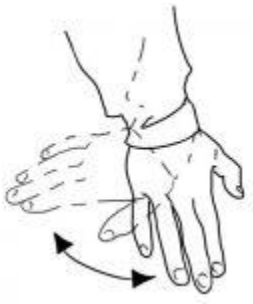
Healthy Work Habits and Practices:

Avoid extended periods of computer use by taking short breaks or rotating other tasks to be performed intermittently between periods of time spent at the computer. A maximum of 30 minutes of continuous computer work at one time should not be exceeded. Sitting at a desk or computer terminal can cause muscular tension and pain. Take a few minutes to do a series of stretches and your whole body will feel better. It is helpful to stretch spontaneously throughout the day, stretching any area of the body that feels tense. This will help greatly in reducing and controlling unwanted tension and pain. Most of these stretches may be done standing or sitting. When standing remember to keep your knees slightly bent to protect your back and give you better balance.

Wrist, hand, and Arm Ergonomic Exercises

Wrist Tilt Exercise

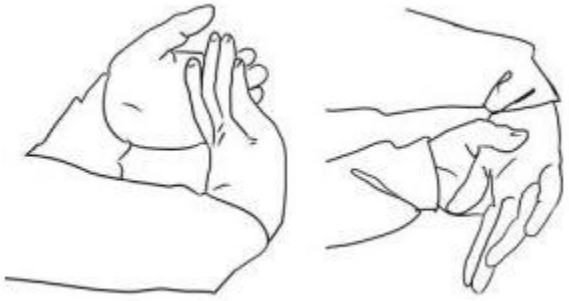
The wrist tilt is perfect to gain feeling and momentum back into the wrist joint, especially after long bouts of typing on the keyboard:



1. Begin with arm fully extended and palm facing downwards
2. Gently tilt wrist to the right
3. Hold for three to five seconds
4. Move wrist to the left and hold for another three to five seconds

Wrist Flexion Exercise

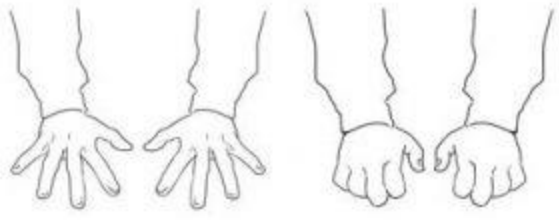
For people who have a shorter range of natural motion in their wrists, the wrist flexion exercise can help to increase flexibility and rejuvenate joints.



1. Hold arm outward with palm facing down
2. Catch the fingers of the extended hand with your opposite hand
3. Gently pull your fingers upwards until you feel a stretch on the underside of your wrist
4. Hold for 5 seconds, then release
5. Gently pull your fingers downwards until you feel a stretch on the front of your wrist
6. Hold for 5 seconds, then repeat on the other hand

Extended Finger Stretch

The extended finger stretch is a great method for stretching through the entire hand, which helps to alleviate stiff joints.



1. Begin with both hands extended and palms facing downward
2. Extend all fingers outward
3. Hold for 10 seconds, then slowly release
4. Bend all fingers at the knuckles
5. Hold for 10 seconds, then slowly release

Neck, Chest, and Shoulder Ergonomic Exercises

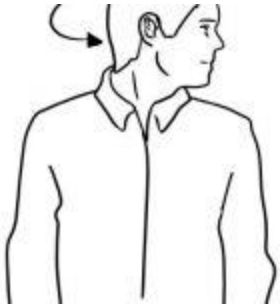
Neck Relaxer

Most of us spend hours staring in the same direction at the computer screen or in our cubicles, leading to neck pain. The neck relaxer is a great way to break that tension in the neck. It can also help to rejuvenate blood flow to the area and release tension in the shoulders.

1. Begin by sitting at the edge of your chair with your feet placed firmly on the ground
2. Extend your arms out to either side of your torso
3. Drop your head slowly to the right, trying to touch your right ear to your right shoulder
4. Hold the stretch for 5 seconds
5. Return to the starting position, then repeat on the other side
6. Drop your head down so that your chin touches your chest
7. Gently rock your head to the light and roll to the right; this should take about 5 seconds
8. Return to the starting position

Head Turns

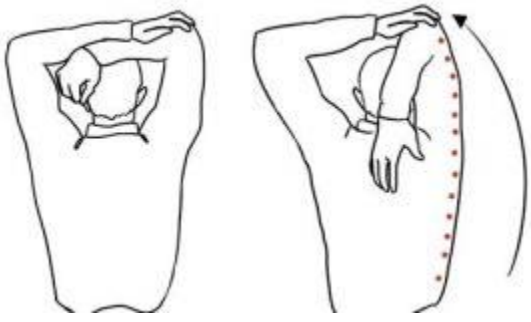
The head turn is another great way to alleviate tension and relax the muscles in the neck after starring forward all day inside the cubicle.



1. Begin with your head facing forward
2. Slowly turn your head to the right to look over the right shoulder
3. Hold for 10 seconds
4. Repeat on the opposite side

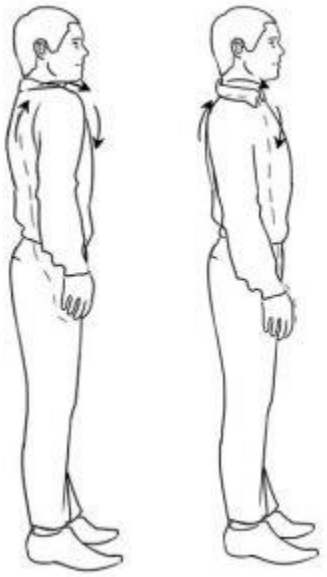
Overhead Shoulder Stretch

The overhead shoulder stretch is a good stretch to release the tension in your neck, shoulders, and upper back, all in one go. It's also great for repositioning the body back into proper postural alignment.



1. Begin with your body facing forward
2. Raise one arm directly overhead and bend it at the elbow
3. Catch the elbow with your opposite hand
4. Pull the upright arm towards the opposite side and hold for 10 seconds
5. Repeat on the other side

Shoulder Roll



This exercise is perfect for alleviating tension in the shoulders, especially after sitting at a desk, and can help to relax the muscles downward.

1. Begin by standing up from your cubicle and facing forward
2. Slowly roll your shoulders backwards in a circular motion five times
3. Slowly roll your shoulders forward in a circular motion five times
4. Return to the starting position and relax the shoulders back down

Chest Stretch

Many of us sit in a hunched posture at the cubicle desk, leading to sore shoulders and chest. The chest stretch is great for offsetting these issues, by relieving tension and letting blood flow back into these areas and for them to relax.

1. Begin by standing upright with your hands at your sides
2. Gently place your hands behind your head and interlock your fingers
3. Squeeze your shoulder blades together
4. Hold the stretch for 5-10 seconds, then relax and place your arms back down to your sides
5. Back Exercises and Stretches

Low Back Stretch

The low back stretch is a great way to release tension all along the spine from sitting all day. It helps blood to flow back into the spinal cord and allows the surrounding muscles to relax.

1. Begin by standing up and facing forward
2. Reach towards the ceiling until you feel a light stretch along your sides
3. Hold the stretch for 10 seconds
4. Reach higher until you feel an intense stretch along your sides
5. Hold the stretch for 10 seconds, then relax

Back and Side Stretch

The back and side stretch is a great addition to the low back stretch, and helps to release tension around the entire spinal cord and the obliques after sitting for hours on end at our cubicles. It is one of the best standing stretches for back pain:

1. Begin by standing tall and facing forward
2. Reach your hands toward the ceiling and interlace your fingers
3. Make sure to keep your elbows straight!
4. Reach back as far as possible and then slowly bend to one side
5. Hold the stretch for 10 seconds
6. Repeat on the other side
7. Relax your hands back to your sides

Seated Back Curl

A simple exercise to perform right in your chair, the seated back curl is a great office way to release stiffness and tension in both your legs and upper back.

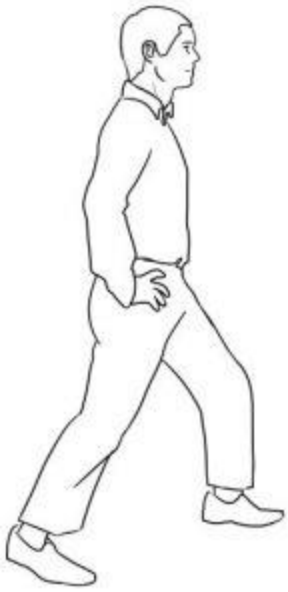
1. Begin seated at the front of your chair with your feet planted firmly on the ground
2. Slowly lift one leg up and grasp your shin with both hands
3. Bend forward and reach your nose to your knee
4. Make sure to bend through your upper back!
5. Relax back to the starting position
6. Repeat on the other side

Standing Stretch

Great for releasing tension in the low back and glutes, especially after sitting for long periods, do the standing stretch. It's a great alternative stretch for those who have a more limited range of motion.

1. Begin by standing upright with your hands by your side
2. Place both hands on your lower back, with your fingers pointed toward the floor
3. Gently lean back into your hands while keeping your feet in place on the ground
4. Hold the stretch for 5-10 seconds, then release
5. Leg Exercises and Stretches

Calf Stretch



When sitting, it's easy for our legs to become numb and stiff. The calf stretch is a great stretch to rejuvenate the muscles and increase blood flow to that area.

1. Begin by standing tall and facing forward
2. Place one foot a large step behind the other
3. Slowly push into the front foot while keeping the other planted firmly on the ground
4. Allow the front knee to bend
5. Hold the stretch in the back leg for 10 seconds, then relax
6. Bring both feet back to your midline, then switch feet
7. Repeat the stretch on the other side for another 10 seconds, then relax

Leg Lift

The leg lift is a great office stretch to regain some momentum and feeling in your quadriceps and hamstrings, especially after sitting at a desk all day. It also helps to increase blood flow to the area and release tension in the knees and ankles.

1. Begin by sitting at the edge of your chair, leaving a healthy gap between the chair and the cubicle desk.
2. Keep both feet planted firmly on the floor and your knees bent at a ninety-degree angle
3. Keep a straight leg and lift one leg off of the floor
4. Feel a stretch along the back of your leg and hold for 10 seconds, then lower back down
5. Repeat on the other side

Hip Stretch

More than any other joint, the hips become alarmingly tight when you're sitting all day at the cubicle. The hip stretch helps to break up built-up tension in the hips.

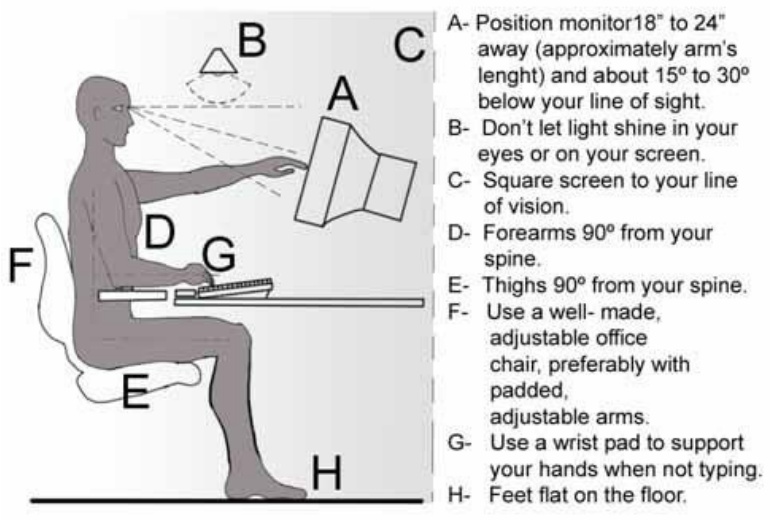
1. Begin by sitting on the edge of your chair with your feet firmly on the ground
2. Lift one leg and cross it over the other right above the knee
3. Grasp your bottom knee with your hand on the opposite side
4. Gently apply pressure to the bottom leg while looking over your shoulder
5. Feel the stretch along your lower back and hip and hold for 10 seconds
6. Lower your legs back to the starting position
7. Repeat on the other side

While performing daily tasks, do not exert more force than is really necessary, for example: avoid pounding on the keys while keyboarding.

Substitute keystrokes for mouse tasks, such as Ctrl+S to save, Ctrl+P to print, especially if your job is highly mouse intensive.

Lighting

Avoid direct or overly bright lighting but make sure you have enough light to comfortably and safely perform your job duties.



Specific Risk Factors

The more risk factors that are present in a job, the greater the danger of a musculoskeletal disorder (MSD) from the work. The following factors may play a role in MSD:

Awkward Postures: These place additional stress on the body and make it more susceptible to injury. Examples include prolonged work over shoulder height, repeated bending or twisting of the wrists, knees, or hips; performing jobs with the back bent or twisted rather than straight.

Forceful Exertions: Vigorous exertions place more stress on muscles, tendons, ligaments, and joints. Examples of factors that increase force requirements include using only the index finger and thumb for pinch grip and not the whole hand and also speedy movements.

Repetitive Motions: NIOSH regards a task cycle of less than 30 seconds as repetitive, depending on the task and body part involved.

Duration: The longer a person is exposed to repetitive stress or other risk factors the greater the increase for the risk of fatigue.

Contact Stresses: Constant body contact with hard or sharp objects may cause soft tissue damage, affect nerve function, and impede blood flow if objects are not padded nor rounded. Examples include stresses from using your hand as a hammer and resting an arm on the edge of a desk.

Vibration: This includes both local and whole-body vibration. An example would be stress from the vibration and torque of power tools.

Common MSDs according to Aspen Publishers:

- Carpal Tunnel syndrome (CTS) - compression of a nerve as it passes through the carpal tunnel in the wrist
- Chronic back pain
- Cubital tunnel syndrome – compression of a nerve as it passes through the notch of the elbow
- Epicondylitis – inflammation of the tendons at the elbow
- Raynaud's phenomenon or "white finger" – constriction of the vessels in the hands and fingers
- Rotator cuff tendonitis – inflammation of one or more tendons at the shoulder
- Thoracic outlet syndrome – compression of nerves and vessels between the neck and shoulder
- "Trigger finger" – tendon inflammation that causes locking of the finger

Early Symptoms of Ergonomic Injury

- Recurring or continuous pain/discomfort
- Stabbing or shooting pain in arms or legs
- Redness and swelling
- Limited range of motion
- Numbness or tingling sensation
- Decreasing hand grip strength

If you are experiencing any of these symptoms, report this to your supervisor. Early intervention and treatment can help prevent a more serious injury.