



# AVOID COMPUTER EYE FATIGUE

FOR EVERY

**20**

MINUTES  
ON THE COMPUTER

**STOP**

LOOK AT SOMETHING

**20**

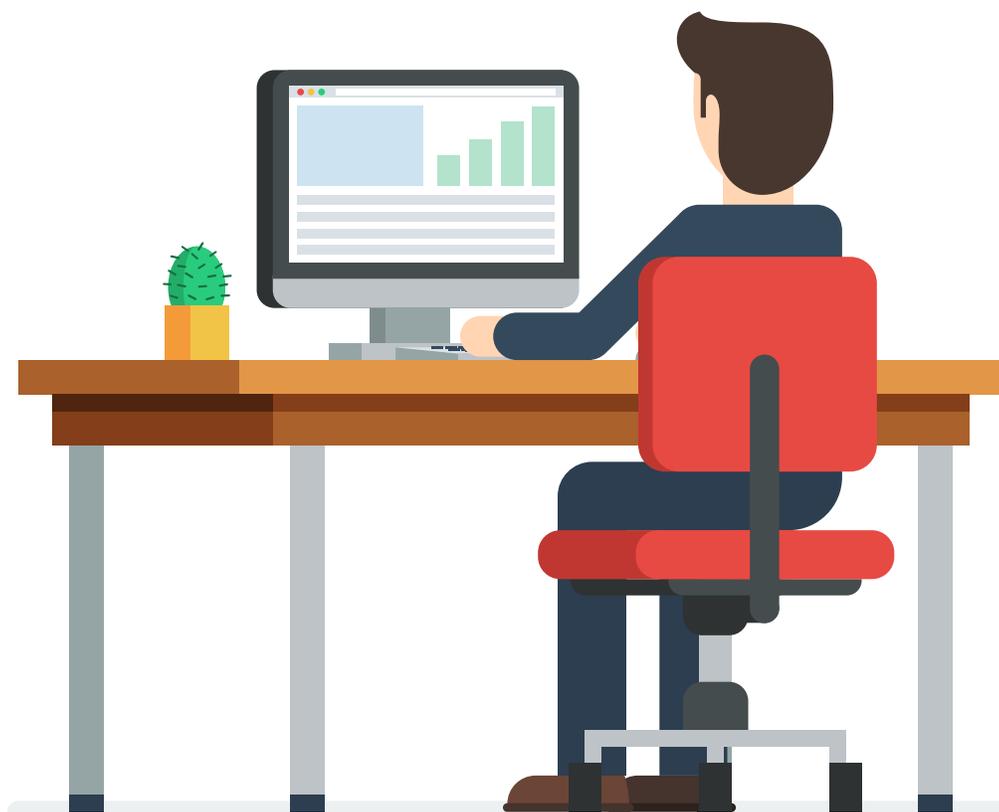
FEET  
AWAY FOR

**20**

SECONDS



# POMS



THIS GIVES YOUR EYES A BREAK, HELPS TO REDUCE EYE STRAIN,  
AND HELPS YOU STAY ALERT.

# Ergonomic Principles

Ergonomics isn't just about properly setting up your desk at work, it can have a meaningful impact on your everyday life and health. Check out these eight, practical ergonomic principles and consider all of the activities you perform every day that could be improved by following these tips.

## NEUTRAL POSTURES

- Neutral postures are where body is aligned and balanced while either sitting or standing, placing minimal stress on the body and keeping joints aligned.

## WORK IN THE POWER ZONE

- The power zone for lifting is close to the body between mid-thigh and mid-chest. This is where the arms and back can lift the most with the least amount of effort.

## ALLOW FOR MOVEMENT AND STRETCHING

- The musculoskeletal system is the "movement system" it is designed to move but working for long periods of time in a static position will cause your body to fatigue
- Examples: Standing in same position for 8 hours, keeping hands overhead 30 minutes, writing for 1 hour straight. The first few mins don't seem bad but over time the fatigue and discomfort will cause you to want to stretch.
- Stretching will reduce fatigue, improve posture and muscle coordination.
- Talk about warm up stretching program as a work athlete

## REDUCE EXCESSIVE FORCES

- If a job or task requires excessive force, then find ways to reduce it. Use mechanical assist or ways to reduce muscle effort.

## REDUCE EXCESSIVE MOTIONS

- Repetitive motion combined with high force or awkward posture can lead to a musculoskeletal disorder
- Think about job rotation, stretch breaks, or job sharing

## MINIMIZE CONTACT STRESS

- Areas such as soft tissue of fingers, palms, thighs , and feet that can inhibit blood, nerve function, or movement of muscles and tendons.
- Examples of this are resting wrists on edge of a desk or pressing tool handles into palms ex: hammering with palm of hand or sitting with legs up against an object.

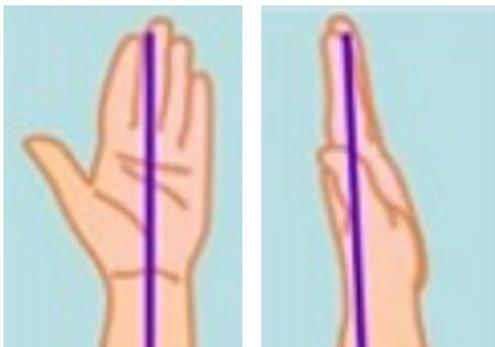
## REDUCE EXCESSIVE VIBRATION

- Hand arm vibration can cause adverse circulatory and neural effects in fingers. Signs and symptoms include numbness, pain, and blanching.

## ADEQUATE LIGHTING

- Poor lighting can impact comfort level and performance.
- Dimly lit work areas and glare can cause eye fatigue and headaches. Poor lighting can be a safety hazard

### Neutral Postures



Minimal radial / ulnar deviation

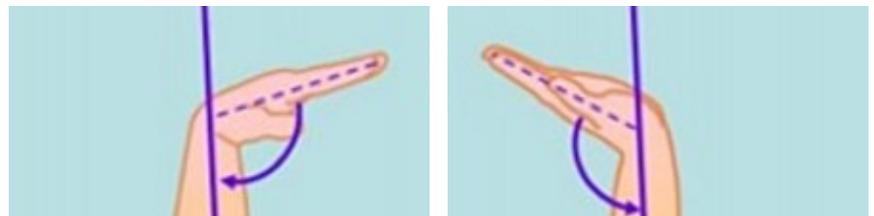
Minimal flexion / extension

### Awkward Postures



Radial Deviation

Ulnar Deviation



Flexion

Extension

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# Ergonomics for Custodians – Safe Work Practices

Custodial work is intense, fast-paced, and physically challenging. Some custodial tasks can put workers at risk of injury to muscles, ligaments, nerves, tendons, blood vessels, and joints of wrists, arms, shoulders, neck, back and legs. These injuries can be impacted by the constant, strenuous activities, using awkward posture and positions that are sustained for long periods.

Tips to reduce risk of ergonomic injuries include:

## MOVING BARRELS / CARTS

- Stock barrel/cart only with supplies need for that day
- Place items used most frequently closest to you
- Evenly distribute the weight on opposite sides, to reduce likely hood of tip over
- Slow down on rough, uneven surfaces, and crossing thresholds
- If the barrel starts to tip over, let go of it, don't try to stop it to avoid strain or injury

## TRASH REMOVAL

- Check the weight of the can by tilting or pushing it
- Ensure trash bags are not overfilled
  - » Place a false bottom in container
  - » Tie off bag when ½ full and start a new bag on top of the first
- When removing trash. Bend your knees and keep back in neutral position (s curves)
  - » If possible, use golfer's lift if receptacle can be lifted with one hand
- Try to keep trash container between shoulder and knee height and not in "danger zone"
- When possible, alternate hands to pick up and lower trash cans
- Drill holes in sides (about 8" to 10" from the bottom) of barrels / cans to reduce suction effect when removing bag
- Tilt the container on side and pulling can also reduce suction, however, avoid awkward posture while removing bag by bending knees and maintaining s curve in back.
- Do not stoop over to reline cans. Bend at the knees maintaining neutral posture or move can to higher surface, i.e. chair seat, desk top
- Use carts/dollies to transport heavy trash. Face dumpster, lift and put trash in, not tossed or thrown

## SWEEPING / MOPPING

- Maintain neutral spine, do not overextend your reach to sides and twisting torso
  - » Stand upright and keep elbows close to body and a relaxed grip
  - » Practice looking up – as opposed to looking down. It will help to stretch the neck
  - » Use neutral shoulder position
- Avoid extreme wrist motions, keep wrists in-line with forearms
- Avoid fatigue of dominant arm by alternating right and left hands at top of the handle
- Pad the handle to improve grip, or use ergonomically designed handle
- When wringing mop, face wringer lever with straight elbow and use body weight

## VACUUMING

- Avoid fatigue of dominant arm by alternating right and left hands
- Move with the vacuum, do not reach excessively or twist torso
- Avoid bending forward, stand upright, move legs not the back
- Keep elbows close to sides, in front of body, to minimize shoulder movement
- Grip vacuum wand so your hands are level with your forearm to maintain neutral shoulder position and avoid extreme ranges in wrists
- Move furniture out of the way before vacuuming, don't try to do both at the same time

## CLEANING RESTROOMS

- Use smaller buckets to lessen weight being carried
- Use long handled tools to reduce bending and reaching
- Bend at the knee instead of the waist as much as possible
- If kneeling is necessary, use knee pads
- Give each hand time to rest and lower probability of muscle fatigue by alternating tasks between right and left hands

Making a few simple adjustments in work practices can make a remarkable difference. Ensure you are doing what you can to alleviate the stress and maximize the benefits of practicing good ergonomics.

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## MONITOR HEIGHT

Position the top of the monitor screen at or below eye level and about an arm's length away.

## HEAD/NECK POSITION

Sit with head and neck in a neutral position, with chin parallel to the floor. Avoid tilting the neck to either side. Telephone usage over 2 hours a day should use a headset.

## BACK SUPPORT

Use the backrest of the chair to provide full support to the back. Adjust lumbar so that it supports the curvature of the lower back.

## LOWER BODY

Maintain a proper posture of 90 degrees or greater angle at the hips, elbows and knees, while feet are supported by the floor or footrest if necessary.



## MONITOR PLACEMENT

Place the monitor directly in front of the keyboard and position yourself so your shoulders are square with your monitor.

## DOCUMENT HOLDER

Use the adjustable height document holder to place source documents at the same height and as close to the computer screen as possible.

## ARMS AND HANDS

Adjust the chair height to keep the forearms, wrists and hands in a straight line while using the keyboard and mouse. Keyboard and mouse should be placed adjacent to each other and at the same height.

## DESK HEIGHT

Allow ample clearance to move legs under the desk.

To understand the best way to set up a computer 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, and skeletal system and reduces your risk of developing a musculoskeletal disorder (MSD). The following are important considerations when attempting to maintain neutral body postures while working at the computer workstation:

- Hands, wrists, and forearms are straight, in-line and roughly parallel to the floor.
- Head is level, or bent slightly forward, forward facing, and balanced. Generally, it is in-line with the torso.
- Shoulders are relaxed and upper arms hang normally at the side of the body.
- Elbows stay in close to the body and are bent between 90 and 120 degrees.

- Feet are fully supported by the floor or a footrest may be used if the desk height is not adjustable.
- Back is fully supported with appropriate lumbar support when sitting vertical or leaning back slightly.
- Thighs and hips are supported by a well-padded seat and generally parallel to the floor.
- Knees are about the same height as the hips with the feet slightly forward

Regardless of how good your working posture is, working in the same posture or sitting still for prolonged periods is not healthy. You should change your working position frequently throughout the day:

- Make small adjustments to your chair or back rest.
- Stretch your fingers, hands, arms, and torso.
- Stand up and walk around for a few minutes periodically, several times a day.

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## Everyday Ergo

The workplace isn't the only place to think about when considering ergonomics. Many hobbies and other everyday activities performed outside of the workplace can be sources of ergonomic stressors. Use the information below to learn more about how to incorporate Ergonomics in your everyday life.

### HOME COMPUTING/GAMING

Many people these days use their computer or gaming console at home to unwind. But these pursuits at home can provide just as much opportunity for static and awkward postures as work-time computing. If you are a console gamer, remember to take breaks and shift position regularly. Sit directly in front of the screen, preferably at a distance where you can view the entire screen at one time with your neck in a neutral position (i.e., head not tilted back or forward or twisting to the side). Hold your controller with your arms relaxed and by your sides and your wrists straight. Use the lightest touch possible when activating your controller. Ensure there is adequate lighting with no glare on the screen. Turn off or limit the time using the vibration feedback of the controller.

### HANDHELD DEVICES

Many people are spending more and more time with their tablets and smart phones, but these are not free of ergonomic stressors. Here are some things to remember when computing on the go.

- Texting and some other small-screen features can be hard on the thumbs. Limit typing time to less than 15-minute sessions.
- Stretch often when spending extended concentrated time on your device.
- If you use a stylus, try to find one with a larger grip handle.
- Think about maintaining a neutral posture while on your device. You may elect to use something to support the arms so that you are not holding them aloft for long periods and/or maintaining a prolonged bent-neck posture.

### GARDENING

Gardening can be hard on the body due to the propensity for prolonged awkward postures. In general, good ergonomic basics should be remembered while gardening: keep work close to you, take frequent rest breaks, use the proper tools, and maintain neutral postures whenever possible.

### SEWING, QUILTING, AND NEEDLEWORK

Some things to remember while doing your sewing, quilting, or needlework:

- Keep the area well-lit to avoid eyestrain. Since these are often up-close tasks, remember to take breaks every 20 minutes or so and focus your eyes on something in the distance for at least 20 seconds.
- Avoid hunching over your work. Adjust your chair to your body dimensions and sit with back straight, arms by the sides, and head up while you work.
- Face your work straight on; do not twist at the hips, back, or neck. Some sewing tables can be tilted toward you slightly to reduce hunching. Remember to take breaks frequently to avoid static working postures.
- If you are standing at your work, an anti-fatigue mat and comfortable shoes will help.
- If you sew, quilt, or do needlework frequently, consider investing in ergonomic tools designed to promote neutral joint postures. Some tools may have a bent handle, allowing the user to work with a straight wrist. Some tools can be found in electric or otherwise partially automated versions to reduce strain.
- Pay attention to your hand position while using tools such as needles, scissors, etc. Try to keep a straight wrist.
- Keep your work surface at elbow height.
- Keep your commonly used tools and items nearby to minimize reaching and twisting.
- Do not work through discomfort. Find out what is causing your pain and think how you might eliminate it. Look out for repetitive stress injury hallmarks such as pain, weakness, tingling, or numbness.
- Take frequent breaks or rotate tasks between intensive parts of your work.

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## Everyday Ergo (Continued)

### MUSIC

Many musical instruments require repetitive motions and/or static and sometimes awkward postures to play. For instruments that are played while seated, it is important that your chair, bench, or stool fit your body dimensions. In general, try to ensure that the height of your seat places your knees and hips at about the same level. Practice proper body mechanics for your instrument while you are playing. Remember to warm up, stretch, and take adequate breaks.

#### Keyboard Instruments

When playing a keyboard instrument (such as a piano or organ), try to use a bench that can be adjusted to your body dimensions. While seated at the instrument with fingers on keys, hands should be at about elbow level when your arms are relaxed by your sides and elbows bent. Some keyboard instruments such as pianos can be found with smaller key widths. This can benefit those with smaller hands and shorter reaches.

#### String Instruments

Ergonomically-designed string instruments are common now. Important things to keep in mind are pressure-inducing spots on your instrument. For instance, there are now guitars with beveled-edge bodies to reduce the pressure where the right arm rests on the instrument. Some violins and violas have been modified to remove part of the body to make it lighter and/or easier to play in the higher positions. There are also ergonomic cellos and other string instruments.

#### Woodwind Instruments

The use of a neck strap or support post is possible with several woodwind instruments. There are flute designs to address the difficulty of holding the instrument out to the side. A new angle between the mouthpiece and keys allows the flutist's neck and shoulder to remain in more neutral positions. Extensions can sometimes be

added to various woodwind keys to allow shorter fingers to reach more easily.

#### Brass Instruments

While generally associated with the lowest rates of performance-related injury, brass instruments have also had some ergonomic modifications developed. Support posts are available and four-valve trumpets with the valves arrayed in an arc rather than straight across are available. Fiberglass mouthpieces exist for those playing in cold weather.

#### Percussion Instruments

Work to arrange drum sets so that each instrument is within easy reach, with most used items being the closest at about a forearm's length away.

### SCHOOL

Whether you are a grade schooler or in college, it is important to be knowledgeable about ergonomics while working on the rest of your education.

#### Backpacks

Wear both straps of your backpack. A backpack is preferred over a "messenger bag" type of pack that is only carried on one shoulder. It has been suggested that no one should carry more than 25 pounds in their backpack. Those under 100 pounds themselves should carry less than 15 pounds. Find a pack with wide, padded straps and perhaps a waist belt. Plan your day to try to split your load into smaller pieces with frequent trips to a locker or other storage location. Position the backpack so that it hangs just below the shoulders and rests on the hips and pelvis. Backpacks with several compartments can help distribute the load better. Heavier items should be packed closer to the back, with pointy and bulky items toward the outside of the pack. Use the smallest backpack you can that fits your needs.

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## Everyday Ergo (Continued)

### Laptops/Notebook Computers

Because of the inherent design of the notebook computer, when the screen is at the optimal height and distance for viewing, the keyboard is usually not at the optimal height and distance for typing, and vice-versa. It is recommended that the keyboard be placed at a comfortable distance for keying and screen settings changed to make viewing more comfortable. If you are using your notebook computer for more than one hour at a time, consider getting an external keyboard and/or monitor. An external pointing device (such as a mouse) is recommended and is usually very portable.

### Computing

School work can involve hours of computing. Insert office ergo or how to setup station link to learn more about how to set up your computer workstation. These principles also apply to notebook/laptop computing, so do your best to implement them whenever possible.

### Writing and Note Taking

While writing, especially for long periods, remember to take breaks and check your posture. While not always possible in a school setting, try to find a comfortable chair that allows your knees and hips to be at about the same level, and a desk height that puts your hands and wrists at about elbow level when you are seated upright with the arms relaxed by the sides. Place feet on floor. If you cannot place feet on floor then you may need a stool or use of an item to get the support you need.

Your tools are important. Make sure your pens and pencils work well to minimize the amount of pressure you need to apply while writing. Felt-tips, gel pens, or roller ball pens all have tips that glide easily over paper. Use the lightest grip possible and consider getting wider-grip pens and pencils if it decreases discomfort. Try to keep a neutral wrist posture and don't plant your forearm or wrist on the table. Use your shoulder to initiate the movement of writing. Get close to your work surface to minimize

reaching and make sure nothing's in the way of your writing – extra items should be stored elsewhere if there is little writing surface. Try not to lean on the wrist or forearm, especially on the sharp edge of a desk. Remember to take breaks when possible.

### School Kids

Younger children and sometimes smaller people encounter their own issues with ergonomics. Items made for adults can sometimes be too large for them. Make sure that the equipment fits the body dimensions. Smaller chairs, desks, and even mice and keyboards are available for smaller bodies that do lots of school work. Adjustability is essential when a family shares a computer workstation. Begin teaching about proper postures early and it will become a habit into adulthood.

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# Quick and Easy Stretches

Stretching helps reduce the risk of musculoskeletal injuries by reducing fatigue, improving muscular balance and posture, and improving muscle coordination.

Use the following quick and easy stretching exercises before work and periodically during the day to keep your body flexible and muscles relaxed while working.

**NOTE: Consult with your physician or other healthcare provider before starting a stretching regime if you have previously had injuries to your back or other parts of the body or currently experiencing pain.**

## Neck Stretches

- Lower head toward the chest, stretch neck gently, and raise head slowly.
- Turn head gently from side to side.
- Tilt head slowly first toward one shoulder, then the other, then backward.



## Shoulder Stretches

- Shrug shoulders and roll them forward and back.
- With elbows out, move arms back to bring shoulder blades together.
- Reach arms overhead, stretch, and bend gently from side to side.



## Arm and Wrist Stretches

- Place arms out in front of body. Turn wrists so that palms turn out. Then turn wrists back so that palms turn in.
- Place arms out in front of body. Bend wrists up so that palms face out and hold for a few seconds. Then bend wrist down so that palms face in and hold for a few seconds.



## Hand Stretches

- Place arms out in front of body. Lace fingers together and rotate hands so that palms are facing out. Straighten elbows and push palms gently away from body for a few seconds. Make a fist and then extend and stretch your fingers.
- Stretch wrist with fingers pointing up and switch to pointing down.



## Lower Back Stretches

- Stand with knees slightly bent and place hands on lower back just above hips. Gently bend backwards (just a little!).
- Stand tall and reach the ceiling arching back. then bend forward curving back.



## Leg Stretches

- Sit in a chair, raise leg out in front (parallel to the floor), and hold for a few seconds.
- Place leg in front with heel on floor and lean forward as you feel a stretch on the back of your leg, keeping your back straight.



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