Guidelines for an Ergonomic Office Setup
Introduction

Ergonomic equipment, when adjusted to fit the user, can increase comfort and decrease risk of injury by promoting a neutral posture, where the stress on muscles, tendons, and the skeletal system is minimized.

If you are uncomfortable in your office workstation or thinking about purchasing a new piece of office equipment, this document will help to guide your decision making and workstation set-up.

Each section will cover considerations before purchasing, considerations when purchasing, and equipment set-up.

Please note: Ergonomic equipment plays a part in the prevention of workplace injury, but will not fix all problems. If pain or discomfort continue to occur, please consult an occupational therapist or other health professional with ergonomic training for a customized ergonomic assessment. When possible, ergonomic equipment should be trialed before it is purchased.
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Chairs

Before purchasing, try to:

- Get up and stretch more often!
- Swap chairs with somebody else
- Make adjustments to the current chair (more in the following pages)

Also consider...

Adding a rolled towel

As a temporary solution, if the chair lacks a lumbar support, tie a rolled towel to the backrest to ensure that it fits the curve of the lower back.

Adding a footstool

If the chair is too high, and is not adjustable in height add a footstool to the workstation to ensure that both feet are planted firmly on a flat surface and that both knees are at a 90 degree angle.
Chairs

When purchasing, consider that there is no one-size-fits-all chair; however, a good ergonomic chair should include the following considerations for optimal fit:

1. Chair Height

A height adjustable lever will allow the chair to be lowered or raised to achieve a 90 degree bend at the elbows, hips, knees, and ankles with the feet firmly planted on the ground.

2. Backrest Angle

An adjustable backrest angle can support the back to maintain a comfortable upright posture. The backrest should always be felt against the back when working, if adjusted properly.

3. Seat Depth

An adjustable seat depth can benefit users of different sizes. There should be at least three fingers-worth of space between the knee and the front of the seat.

4. Lumbar Support

A height adjustable backrest that can be adjusted to conform to the natural curve of the lower back and provide lumbar support.

5. Armrests

Armrests reduce stress on the shoulders, neck and back when adjusted correctly. Position them close to the body and at a height suitable to allow for a 90 degree bend at the elbows.

Armrests might not be necessary if most of one’s time is spent on typing or fine detail work. Removing them can optimize space to move freely and be closer to the desk.
Chairs

Setting-up

Adjust the armrests until they sit just under the forearms with the elbows at **90 degrees**

Adjustable or removable armrests will have a push-to-release button.

Adjust the backrest so that it fits the natural curve of the lower back. Also, make sure there is space behind the knees while seated. The hips and knees should bend at **90 degrees** while seated.

Adjust the height so that the seat of the chair aligns with the **bottom of the kneecap**

Look for any **levers** or **knobs** on the chair:
- These can be used to make adjustments
- Refer to the distributor’s manual for specific instructions
Sit-to-Stand desks

Before purchasing, remember:

- **Frequent walking** and **stretch breaks** can alleviate the discomfort of prolonged sitting. [Here](#) is a helpful guide for stretches.
- A **combination of sitting and standing** throughout the day promotes both **comfort** and **work concentration**;
- Slowly increase standing time until the recommended 2:1 ratio is achieved.
- **Setting a timer** can act as a reminder to change positions.

![2hrs = 1hr](image)

Be careful...

- Prolonged standing is **not advised** as it can lead to **neck** and **back pain**.
- Standing is **not** exercise, and a sit-to-stand desk should be used with routine physical activity.
Sit-to-Stand desks

When purchasing, consider the different types:

**Electronic desks**
- Come in a *variety of shapes and sizes* and will support the weight of heavier equipment (e.g. Two monitors)
- Are *very user-friendly* with options to pre-set sit and stand heights
- Are convenient for a *quick change* in position, making it more likely for different positions to be used throughout the day

**Converter desks**
- Can be *easily installed* on an existing desktop and are *the cheapest* of the sit-to-stand family
- This type of desk is *recommended* for an *active user* who is *motivated* to use a sit-to-stand desk

*However,*
- They require physical force to change position, which can put the user at *risk for injury*
- They can only accommodate a *smaller workspace*, and are *not recommended* for use with heavier equipment as more force will be required to position them
- The converter *adds height* to the existing desk, which may pose *problems* for *shorter users*
- The converter is *not recommended* for users with current *neck, shoulder or back pain*
Sit-to-Stand desks

Setting-up

Keyboard and Mouse

Whether they are on the desk or on a keyboard tray, they should be at or slightly below elbow height.

*For more information on office setup, refer to keyboard, monitors, or mice, pg. 10, 14, and 16

Posture

When standing, knees should be slightly bent. Also, the head, neck, torso, and legs should be in line. Occasionally, shift weight from leg to leg.

Shoe Attire

Wear shoes that provide proper support – no heels! An anti-fatigue mat may be beneficial and add extra cushioning.

Cords

Ensure that cords are long enough to accommodate standing height and are neatly organized to prevent risk of falls.
Before purchasing, remember to:

- **Type lightly**, as pressing hard on the keys repetitively over time can lead to finger and elbow pain.
- **Keep elbows bent between 90 to 110°** since overly bent elbows can compress nerves in the arm leading to sore hands.
- **Give your body breaks and stretch!** When fatigued, we tend to forget about our posture.
- **Keep wrists in a neutral position.** Excessive wrist movement compresses body structures within the wrist.
Keyboards

When purchasing, consider:

The user’s occupation and body type can affect the type of keyboard required.

Keyboard type

Compact
If working with keyboard and mouse, and rarely using the numeric keypad
• Mouse can be closer to the keyboard
• However, more wrist movements when typing

Conventional
If working with keyboard, mouse, and numeric keypad equally

Split
If user has a broad chest:
• The slight outward tilt of the keys helps keep wrists in a more neutral position when typing

External numeric keypad
If working primarily with data entry
• Should be placed in close proximity to the keyboard, but opposite to the mouse
Keyboards
Setting-up
Centering

If the mouse and keyboard are **used equally**

If main activity is **typing**

**Height**

At or slightly below elbow height and above the thighs allowing for the elbows to be bent between 90 to 110° which can be achieved with adjustments to the **chair** (refer to pg. 6)

**Positioning on a desk**

At least **15 cm** from the edge of the desk allowing for neutral wrist and elbow posture

Elbows should be **kept close** to the body while typing, and wrists should not rest on the desk
Keyboards

Tilt
If you have an adjustable keyboard tray, a slight negative tilt promotes neutral wrist positioning. If not, the keyboard should be flat on the desk

• The bottom keys should be higher than the top keys
• Avoid using keyboard feet
• When the top keys are higher than the bottom keys, the wrist is pushed further into extension, compressing wrist structures

Keyboard trays
If chair and desk heights can be adjusted to position the keyboard appropriately, a keyboard tray is not necessary:

However, if purchasing a tray, it:

• Must be stable
• Must allow space for keyboard and mouse to be at the same level
• Must allow an elbow bend of 90 to 110°
• Must allow for all frequently used items to be in reach while the keyboard tray is used
• Must allow for knee clearance
**Monitors**

**Before** purchasing, remember:
- If you are considering a **second monitor** and already have a large screen monitor, use a **split screen** instead. Click here for instructions for [Windows](#) or [Apple](#).

**When** purchasing, consider:
- A monitor that **adjusts in height and swivels**
- A monitor that is **the same size** and **type** as your original monitor
Monitors

Setting-up

• A monitor can be positioned using a monitor stand or objects (e.g. books)
• The monitor positioning should promote a neutral position of the neck and reduce excessive head movement
• The monitor should be an arm's length away and directly in front of the user
• The top of the monitor should be at the same height as the line of vision
• For users with bifocal or trifocal glasses, position the top of the monitor slightly lower than the line of vision. Speak to your optometrist about computer glasses

For two monitors:
• If they are used equally, the centre of the two should be aligned with the midline of the body
• If not, the main monitor should be positioned in front of the user following the above guidelines, while the secondary monitor should be positioned to the side and angled towards the user
Laptops

A laptop should **never** be used as a primary computer as the convenience of an all-in-one system compromises neutral positioning and comfort.

Instead, it is recommended to set up a laptop as if it was an **external monitor** by using a laptop stand or common object to achieve appropriate monitor positioning, and use an **external keyboard** and **mouse** to promote neutral positioning.

A laptop may also be used as part of a **docking station**, where it is connected to a complete workstation and a **full-sized monitor** acts as a primary dual monitor. These set-ups should follow the aforementioned guidelines.
Mice

Before purchasing, consider:

• Is the workstation assembled appropriately to the user and to accommodate desk set-up to promote **correct postures** (refer to pg. 9)

• **Avoiding** extreme postures of the wrist. Instead, move the mouse with the entire arm - do not limit to only wrist movement

• **Alternating hands.** This will reduce repetitive movements. To help, change the mouse settings so the buttons are mirrored and the functions resemble those when using with the other hand, click here for instructions for **Windows** or **Apple**

• Learn to use keyboard shortcuts to limit mouse usage. See a list of general shortcuts for **Windows** here

• Appropriate breaks (5-10 minutes per hour spent at the workstation) for stretching are recommended when using these alternative mice. Click **here** for suggestions

When purchasing:

• Choose a mouse shape that fits the contour and size of the hand
Mice

Please note: If considering an alternative mouse, consult an occupational therapist or other health professional with ergonomic training for a customized ergonomic assessment.

Potential alternative for those who experience wrist pain or cannot hold their arm into the standard mouse positioning.

Vertical

- **Hand-specific** navigation only and does not allow for alternating hands.
- **Eliminates repetitive movements** in the wrist and promotes movement controlled from the shoulder.
- **Not recommended** for those with tendinopathies and/or pain in the shoulder or elbow.
Mice

Potential alternatives for those who experience tendinopathies and/or pain in the shoulder and elbow

Roller

- **Reduces** repetitive reaching
- Allows for use of **right** or **left** hand

However,

- **Time commitment** required to use the mouse optimally

Trackball

- Can **alternate hands** with **top trackball version**
- Can be used with **limited desk space**

However,

- **Cannot** alternate hands **with thumb trackball version** as illustrated
- Can **limit movement** of the arm which will decrease repetitive motion. Break periods are required to encourage movement
- **Cannot** use functions such as copy, cut, paste, and click and drag without the combination of keyboard functions
Mice

Setting-up

The mouse

• Position the mouse to either the side of the keyboard, as close as possible to keep the shoulder relaxed and arm by your side
• Ensure enough space for when using the mouse to allow ample space for arm movement. You should never have to lift the mouse

The hand

Maintain a neutral position of the wrist at all times, while using the mouse

Mouse pad + Wrist rest

• A mouse pad can be beneficial if desk textures do not allow for the mouse to freely move without friction
• A wrist rest can be used if using a thick keyboard. This will allow the wrist to remain in a neutral position when alternating between mouse and keyboard
• Comfort is key - if a mouse pad is required remember that continuously resting the wrist can put pressure on the carpal tunnel and cause nerve damage
• A hard wrist rest can be uncomfortable and can increase pressure inside the carpal tunnel, can restrict blood flow, and cause nerve damage
Meet the authors

These guidelines were prepared by Masters students in Occupational Therapy in collaboration with the Work Well Project

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Work Well Project is a student-led project within the School of Physical and Occupational Therapy, whose mission is to promote healthy working conditions and reduce workplace disability for McGill University employees. Services have included holistic ergonomic consultations, job task analysis, creation of educational materials, and group education on a variety of topics.

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