

## Ergonomics for Workstations

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After a long day of sitting in front of your computer, taking calls and working at your desk do you ever find yourself sore and achy? Do you find yourself wondering how you could possibly feel so fatigued when you 'didn't really do anything?' While it may seem you shouldn't be sore from sitting all day, sustained static postures are a lot of work for the body. Work stations that create undesirable static postures cause muscle fatigue, which over time can lead to musculoskeletal injuries (MSI).

Ergonomics is the study of how we can modify our workstations for optimal productivity and health. Read on to evaluate your personal work station, and discover ways you can make improvements today!

### Posture Perfect

Before we look at the variables that impact your work station, it is important to examine ideal posture for minimizing tension, strain and thus the prevention of injury. Remember regardless of how great your posture is, any sustained posture is hard on the body (more on taking breaks and changing postures later in the article).

Workstation postural considerations:

- Head and neck in neutral spine position, with your eyes gazing slightly downward
- Back rest supporting your low back and pelvis in your own natural curvature
- Shoulders and upper arms relaxed with the elbows bent at 90°
- Wrists in neutral position (straight)
- Thighs supported and resting at 90-110° at the hip
- Feet fully supported

### Work Station Variables:

Examine your work station keeping the following variables in mind:

1. Work Surface
  - Size – large enough to fit your computer and any papers/ reference materials required for the job
  - Height - dual height to allow proper postures for both the monitor and keyboard (see below)
  - Surface – not shiny or bright in color (reflections cause eye strain)
2. Chair – Your chair should allow you to maintain normal spinal curvature.
  - Adjustable – height, backrest, armrests and seat pan
  - Supportive and breathable padded seat rest
  - Swivels so the worker doesn't need to twist at the waist to navigate the work station
  - 5-pronged wheels – for ease of movement without tipping
3. Foot Rests - If the adjustments of the chair for posture mean you cannot reach the floor with your feet while maintaining proper seated posture, a foot rest is required.
  - Non-slip surface
  - Approximately 1ft square
  - Adjustable tilt (10-20°)
4. Computer Monitor
  - Clear and easy to see
  - Top of screen at eye level or within 15° below
  - Less than an arms length away from you
  - Glare reduction considered

5. Keyboard
  - Height – allows shoulders and upper arms relaxed with the elbows bent at 90°, wrists straight
  - Keyboard style – at this time there is no conclusive evidence indicating certain keyboard designs (split, curved, rotated) are preferable from a scientific stand point, however personal preference should be considered
  - Wrist supports – are intended for brief rest periods and not meant to be utilized during typing
  - Tilt –adjust the tilt of the keyboard to determine what is most comfortable for you (flat or slightly down at the top)
6. Mouse
  - Should be at the same height and as close to the keyboard as possible
  - Ensure adequate room for moving the mouse
  - Use a wrist support to reduce strain to the shoulder
  - Keep your wrist straight and hand relaxed
7. Phone
  - Utilize a head set whenever possible to prevent neck strain
8. Lighting
  - Ensure adequate lighting
  - Glare control – consider potential sources of glare and work to minimize them (windows –blinds, line of sight parallel to window, work surfaces and wall surfaces – matte finish, monitor at right angle to work surface, lighting positioned overhead)

### **Lap top Computers**

It is really important to realize that while lap top computers are convenient and widely used, they are not ergonomically ideal. Whenever possible, it is not recommended to use lap tops for primary use; if they act as your primary computer try to use a docking station with an adjustable keyboard whenever possible to minimize strain.

### **On the Ball – or Not?**

While Exercise balls are an excellent tool in the home or gym for core abdominal training and back health they are not recommended for prolonged sitting such as at a workstation. Because the exercise ball is an unstable surface, the simple act of sitting on the ball engages the core abdominals. This is great for the duration of one exercise or a series of exercises; however over the course of a full day this continued firing causes fatigue in the core muscles as well as the supplementary muscles required to maintain the unsupported seated posture. Finally, utilizing the ball as a workstation seat has the additional following risks:

- Thighs, low back and pelvis aren't supported
- Risk of falling is higher
- Ball doesn't swivel for navigating your workstation
- Minimal adjustability

### **Make a move!**

No matter how much you improve your workstation design, it is important to change positions and move your body on a regular basis. The recommendation from the Centres for Disease Control and Prevention is to take 3-5 minute breaks or change tasks every 20-40 minutes. Consider setting a timer to remind yourself to change tasks or to get up and move your body.

**For more information or details on this topic refer to the following comprehensive resources:**

Health Link BC

<http://www.healthlinkbc.ca/kbase/topic/special/tr5915/sec3.htm>

Work Safe BC

[http://www.worksafebc.com/publications/health\\_and\\_safety/by\\_topic/assets/pdf/comptr\\_wrkstn.pdf](http://www.worksafebc.com/publications/health_and_safety/by_topic/assets/pdf/comptr_wrkstn.pdf)

Ontario Ministry of Labour

[http://www.labour.gov.on.ca/english/hs/guidelines/comp\\_erg/index.html](http://www.labour.gov.on.ca/english/hs/guidelines/comp_erg/index.html)

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