

SAFE WORK



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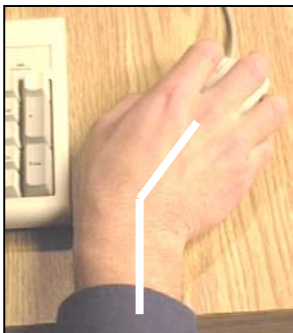
Office Ergonomics

Arm / Hand / Wrist Hazards

Office injuries usually occur gradually and often go unnoticed until there is significant discomfort. The single largest factor in office injuries is poor posture. While improper posture may not result in an injury after a week, a month or even a year, prolonged exposure to improper posture will greatly increase the risk of developing an injury. Although it is possible for these injuries to heal themselves when the ergonomic hazard is removed, cases do exist where individuals have done enough damage to require corrective therapy, in addition to removing the hazard.



Neutral Wrist Posture: There is little ergonomic risk in this position as blood flow and muscle length remain normal. Deviations from this posture increase the risk of injury.



Ulnar Deviation: (Bending the wrist away from the thumb side) Creates static loading conditions in the muscles of the hand and forearm. This posture increases pressure in the wrist area (carpal tunnel), resulting in increased reporting of discomfort and pain.

Potential Sources: Use of a mouse, especially in tight areas restricting movement; using a keyboard that is too small (compared to shoulder width).

Potential Solutions: Use of a mouse bridge, or keyboard without a number pad if space is restricted; use of a wider/alternative keyboard design if the deviation occurs with keyboard use.



Wrist Extension: (Increasing the angle of the wrist joint) Creates static loading conditions in the muscles that cross the wrist. This posture decreases the amount of space, and increases the pressure in the carpal tunnel, resulting in increased reporting of discomfort and pain. Can lead to contact stress (see below) when wrist rests on a hard surface or edge.

Potential Sources: Use of keyboard with feet extended, or keyboard positioned too low; chair positioned too high; elbows locked when using the mouse, or when typing.

Potential Solutions: Adjust chair and arm rests to obtain an elbow angle of approximately 90°; use a wrist rest to avoid contact stress and encourage more neutral posture.



Contact Stress: Occurs when a hard surface presses into the body, causing a decrease in blood and nerve supply to the working muscles. This can lead to fatigue, tingling sensations, pain, and injury. Contact stresses can also occur at the elbow.

Potential Sources: Resting the wrist, forearm or elbow on a desk surface or edge.

Potential Solutions: Adjust chair to appropriate height; use a gel wrist rest when using keyboard and/or mouse.



Excessive Elbow Flexion: (Decreasing the angle of the elbow joint) Decreases the space in the elbow (cubical tunnel) which can increase the pressure on the blood and nerves that pass through the area. There is an increased reporting of pain when working with the elbows positioned at less than 90 degrees.

Potential Sources: Using a keyboard placed on a regular desk surface; keyboard positioned too high; chair positioned too low.

Potential Solutions: Position keyboard or chair so that elbows are positioned at approximately 90 degrees; use an adjustable keyboard tray that is wide enough to accommodate a mouse.

Alternative Equipment Options

Split Keyboard: Provides a wider keyboard to reduce internal shoulder rotation. The middle of the keyboard is elevated compared to the edges, and the split keys are angled, both of which promote neutral wrist posture.



Touchpad: (not shown) Used by pointing or moving a stylus (electronic pen) on a touch surface. Reduces non-neutral wrist posture common with other input devices. Available with different dimensions and features.



Trackball: Provides an alternative to the traditional mouse. Appropriate under limited workspace conditions. Increases stress on the fingers. Requires user to hold the wrist in a steady, usually unsupported, position. Not suitable for users experiencing pain in the wrist or fingers.



Mouse Bridge: A stable surface that covers the number pad (on the keyboard) and allows for the mouse to be used at the same height as the keyboard. A mouse bridge can be used when there is not enough room to position the mouse at the same level as the keyboard.

NOTE: Injuries occurring in the arm/wrist/hand area are often difficult to diagnose. It is possible for injuries that manifest in this area to be caused by problems more central to the body. Therefore, *this bulletin is not intended for self-diagnosis of injury*. The information in this bulletin is intended to identify potential ergonomic hazards which are shown to increase the risk of developing a work-related musculoskeletal disorder (WMSD); identify potential sources of these hazards, as well as corrective actions, that if taken, can reduce the risk of developing an injury. If you are experiencing pain, consult your physician immediately.

Cette information existe également en français au www.gov.mb.ca/labour/safety/index.fr.html