

Office Ergonomics: Arm, Hand and Wrist Hazards

Potential Hazard

Office injuries usually develop gradually and often are not given attention until there is significant discomfort. The single largest factor in office injuries is poor working postures. While improper posture may not result in an injury after a week, a month or even a year, prolonged exposure to improper posture will increase the risk of developing an injury. This bulletin provides tips for preventing arm, hand and wrist injuries in an office environment.

How to control the hazard

Using a **neutral wrist posture** has little ergonomic risk because the blood flow and muscle length of your arm and hand are normal. Your wrist is in a neutral position when there is a straight line from your elbow, through the middle of your wrist to the end of your middle finger.



Improper wrist posture increases the risk of injury. The following are some common hazards involving arms, hands and wrists, and potential solutions for correcting your posture.

Hazard: Ulnar deviation (bending the wrist away from the thumb side)

Holding your hand and forearm muscles in this posture increases pressure in your wrist.

- Potential sources: Using a mouse, especially in tight areas restricting movement, or using a keyboard that is too small (compared to shoulder width).
- Potential solutions: Use a mouse bridge, a keyboard with a numeric pad on the left side or a keyboard without a numeric pad (if space is restricted).



(see over)



Hazard: Wrist extension (increasing the angle of the wrist joint)

Working in this posture affects the muscles and tendons above and below the wrists. Wrist extension can lead to contact stress when the wrist rests on a hard surface or edge.



- Potential sources: Using a keyboard with feet extended or a keyboard that is positioned too low, or sitting in a chair that is positioned too high.
- Potential solutions: Adjust your chair and armrests so that your elbows are bent at approximately 90 degrees. Use a wrist rest to avoid contact stress.

Hazard: Contact stress

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 and pain. Contact stresses can also occur at the elbow.

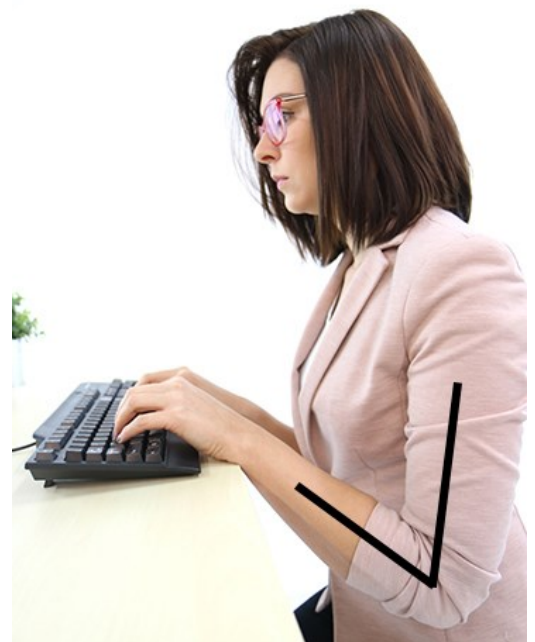


- Potential sources: Resting the wrist, forearm or elbow on a desk surface or edge.
- Potential solutions: Adjust your chair to an appropriate height. Use a gel wrist rest when using your keyboard and mouse.

Hazard: Excessive elbow flexion (decreasing the angle of the elbow joint)

Excessive elbow flexion decreases the space in the elbow (cubical tunnel) which can increase the pressure on the blood and nerves that pass through the area.

- Potential sources: Using a keyboard that is positioned too high, or a chair that is positioned too low.
- Potential solutions: Position your keyboard or chair so that your elbows are bent at approximately 90 degrees. Use a height-adjustable keyboard tray.



(see over)

SAFE Work Manitoba contact information:

Winnipeg: 204-957-SAFE (7233)

Toll-Free: 1-855-957-SAFE (7233)

Publications and resources available at: safemanitoba.com



Alternative Equipment Options

Split keyboard: The middle of a split keyboard is elevated compared to the edges, and the split keys are angled and wider apart, both of which promote a more neutral wrist posture.



Ergonomic mouse: A mouse that allows the hand, wrist and forearm to be in a more neutral posture, which can reduce tension in the forearm muscles.



Mouse bridge: A mouse bridge is a stable surface that covers the numeric pad on the keyboard. A bridge can be used when there is not enough room to position the mouse beside the keyboard.



Reference to legal requirements under workplace safety and health legislation:

- Musculoskeletal Injuries: Manitoba Regulation 217/2006 Part 8

Additional workplace safety and health information available at safemanitoba.com

- SAFE Work Bulletin 233: Ergonomics: Hazards of the Seated Posture
- SAFE Work Bulletin 234: Office Ergonomics: Neck and Shoulder Hazards
- SAFE Work Bulletin 264: Ergonomics: Adjusting Office Chairs and Workstations

Canadian Centre for Occupational Health and Safety:

www.ccohs.ca/oshanswers/ergonomics/office/

Revised: March 2018

Last Reviewed/Revised: November 2010

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