SAFE WORK

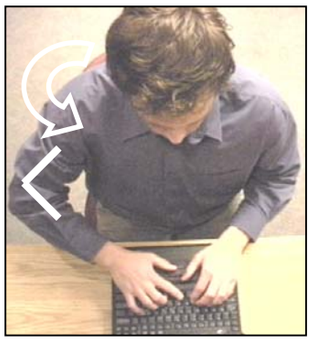
SAFE
SPOT THE HAZARD
ASSESS THE RISK
FIND A SAFER WAY
EVERYDAY

July, 2004
Bulletin No. 234

Office Ergonomics
Neck / Shoulder area 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.

Ergonomic Hazards



Explanation / Effects

Neutral Posture: (Head facing forward chin parallel with floor, elbows at the side of the body) Low ergonomic risk in this position, blood flow is normal, muscle length remains normal. Deviations from this posture increase risk of injury.

Shoulder Flexion: (Moving elbows in front of the body) Creates static loading conditions in the muscles of the shoulders and upper back. Static loading will disrupt blood flow to the muscles in the shoulder and upper back in addition to possibly affecting blood flow down the arm, affecting muscles in the forearm, wrist and hand. This can lead to rounded shoulders (see below) as the weight of the arms and position of the muscles pull the shoulders forward.

Potential sources: Reaching forward to reach the keyboard or mouse.
Potential solutions: Move keyboard or mouse closer to user, position chair closer to desk.

Shoulder Abduction: (Moving elbows out to the side of the body) Creates static loading conditions in the shoulder, trapezius and scapular muscles. Many lead to shoulder pain and possible rounded shoulders.

Potential Sources: Mouse placed on a different elevation than keyboard. Reaching for phone or other frequently used objects/materials. Keyboard placed too high. Improperly adjusted chair arm rests.
Potential Solutions: Ensure mouse and keyboard are placed at the same height, position phone closer to user, adjust armrests to be supportive of the forearm but not elevating the shoulders.

Internal Shoulder Rotation: (Rotation at the shoulder with the hand moving in front of the body) – Increases pressure in the shoulder joint, and can affect the nerves and muscles in the shoulder area. Creates static loading conditions in the shoulder muscles. Contributes to increased reporting of shoulder pain. Can lead to rounded shoulders.

Potential Sources: Keyboard too narrow for user shoulders, using a laptop keyboard, using the pointing device on a laptop
Potential Solutions: Appropriate input device which eliminates internal shoulder rotation, i.e. external keyboard, mouse, alternative keyboard design.

NECK / SHOULDER AREA HAZARDS

Ergonomic Hazards

Explanation / Effects

Rounded Shoulders: Can cause adaptive muscle change in the muscles in the chest, upper back and neck. This posture will negatively affect blood and nerve supply to the muscles in the shoulder, arm, forearm and hand. When exposed to this posture for prolonged periods there is an increased risk of degeneration and osteoarthritis in the affected joints, including but not limited to, the vertebrae in the neck, the joints around the shoulder and shoulder blade.

Potential Sources: Prolonged shoulder flexion and / or shoulder abduction. Muscle imbalance in the chest and upper back muscles. Monitor placed too low, monitor tilted down, glare on monitor, inadequate arm support.
Potential Solutions: Reduce shoulder flexion and abduction. Place chair in slight recline position to cause gravity to pull the shoulders backward into chair rather than forward. Adjust arm support to allow elbows to work at 90º with forearms supported.

Neck Extension: (Moving the chin away from the chest) Places cervical vertebrae in non-neutral posture. Increased risk of neck pain. Places neck muscles in static loading conditions. Can lead to headaches, tension neck syndrome, and adaptive muscle changes.

Potential Sources: Monitor placed too high, or chair positioned too low, for user. Using bifocals while seated at the computer.
Potential Solutions: Position monitor and / or chair at an appropriate height for the user. (Note: this height is different for bifocal vs. non-bifocal users)

Neck Flexion: (Moving the chin towards the chest) Places cervical vertebrae in non-neutral posture. Increased risk of neck pain. Places neck and upper back muscled in static loading conditions. Can lead to headaches, tension neck syndrome, and adaptive muscle changes.

Potential Sources: Monitor adjusted too low. Working on a laptop. Referencing a document placed on the working surface, or document holder placed too low.
Potential Solutions: Position monitor higher, Place document holder at same height as properly adjusted monitor.

Neck Rotation: Places cervical vertebrae in non-neutral position. Increases risk of neck and upper back pain.

Potential Sources: Monitor not directly in front of user. Referencing document on work surface or on an improperly placed document holder.
Potential Solutions: Position monitor directly in front of user. Adjust document holder into proper position.

Neck Abduction: (Tilting the head to one side) When combined with shoulder elevation this greatly reduces blood flow and nerve supply to the neck, upper back and shoulder areas. Creates static loading conditions in neck and upper back muscles. Increases risk of pain in neck, shoulder and upper back.

Potential Sources: Tasks which require using the telephone and both hands at the same time.
Potential Solutions: Maintain one hand on the phone at all times. Use a hands free system, i.e. speakerphone or headset.

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