Office Ergonomics

5th Edition

CCOHS

Prepared by the Canadian Centre for Occupational Health and Safety

Summary

Ergonomics deals with the compatibility between workers and their work. “Work” is made up of the work environment, workstations, and tasks. Poor ergonomic conditions exist when the “work” is incompatible with the workers’ bodies and their ability to continue working. Such conditions may cause discomfort, fatigue and pain and, subsequently, injury.

Injuries resulting from poor ergonomic conditions are collectively known as musculoskeletal injuries (MSI), repetitive strain injuries (RSI) or repetitive motion injuries (RMI) or work-related musculoskeletal disorders (WMSD). The causes of these injuries are prolonged work involving repetitive movements, forceful movements and awkward body postures. WMSD are painful and often disabling injuries which affect mainly the wrists, back, legs, shoulders, neck, muscles and joints.

Adequate environmental conditions are important for the overall well-being of workers and productivity. When the work area is too cold or too hot, poorly lit, noisy, poorly ventilated, or contains unpleasant odours it results in annoyance, stress, fatigue, eye strain, headache and other conditions.

Injuries and illnesses related to poor ergonomic conditions can be prevented by making the workplace and the work organization fit the physical and mental ability of each individual worker.

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Introduction

Work-related musculoskeletal disorders (WMSD) are the most commonly occurring hazards in modern offices. These injuries result from poorly designed workstations, and inadequate job design.

Two common types of WMSD are muscular strain in the neck, shoulders and back, due to prolonged sitting; and injury to joints and muscles due to excessive repetition of movements. Injuries due to repetitive movement are known as repetitive strain injury (RSI), repetitive motion injury (RMI), musculoskeletal injuries (MSI) and work related musculoskeletal disorders (WMSD). In this guide we will use the term WMSD to describe such injuries.

The following table summarizes common ergonomic and safety hazards in office work.

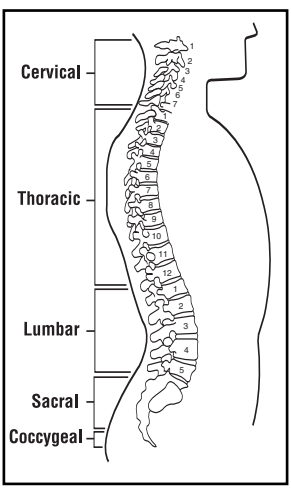
6. How do WMSD Affect our Body?

We can group WMSD in four categories:

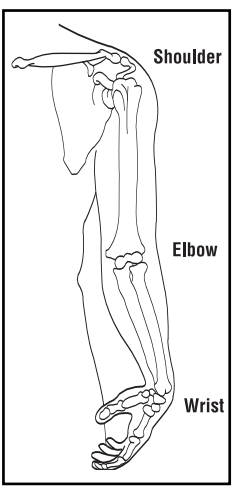
- ✎ joint injury;
- ✎ muscle injury;
- ✎ tendon injury; or
- ✎ nerve injury.

Joint Injury

A joint is the connecting point for two or more bones. Joints are of three types: (i) freely movable, (ii) slightly movable and (iii) immovable. The elbow, shoulder and spine are examples of joints. At the joint, the opposing surfaces of the bones are lined with flexible tissue called cartilage, made up of fibrous tissues and soft tissues. Cartilage provides a smooth surface for movements.



The spinal column – a series of many joints



The shoulder, elbow and wrist joints

Work Environment

The work environment includes:

- ventilation;
- noise;
- temperature and Humidity; and
- lighting and Vision.

Ventilation

The purpose of ventilation is to control the indoor temperature, humidity, odour, and airborne contaminants and to introduce outdoor air (fresh air).

There are two kinds of ventilation

1. Dilution ventilation.
2. Local exhaust ventilation.

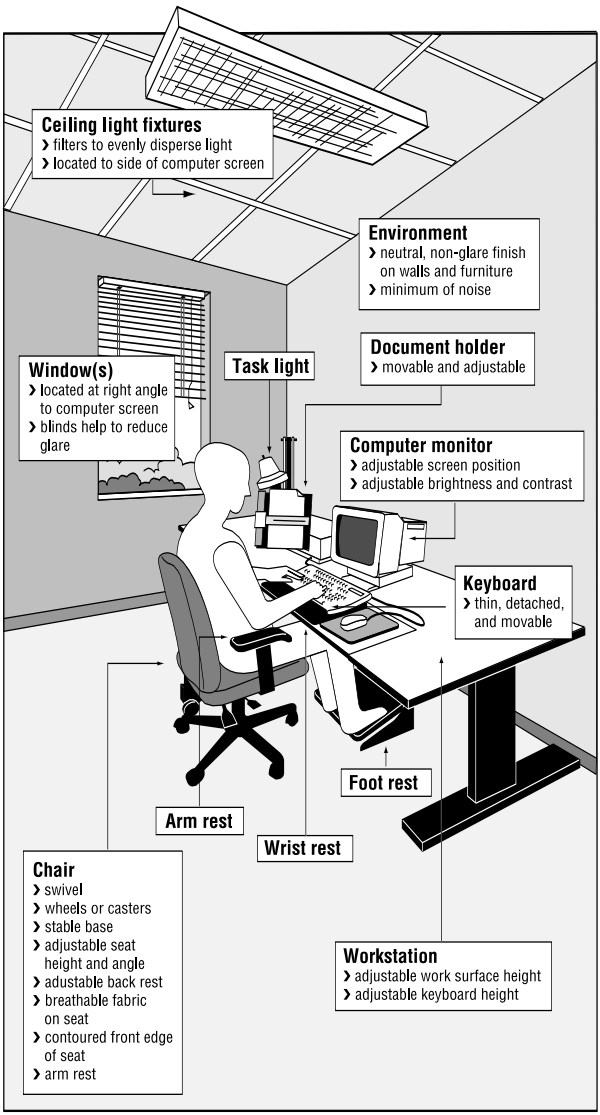
Dilution ventilation – This type of ventilation reduces the indoor air contaminants by the dilution process. The used (contaminated) indoor air is exhausted at a preset rate replaced by taking in outdoor air at an equal rate. The ventilation system evenly distributes the air throughout the occupied space.

Dilution ventilation is used when:

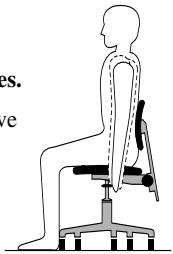
- airborne contaminants are relatively non-toxic;
- emission sources are widely distributed in an area; and
- dilution air is not contaminated.

Local exhaust ventilation – The purpose of local ventilation is to exhaust the toxic gases, fumes, dusts and vapours near the point of emission to prevent mixing of these toxic emissions with the indoor air. Fume hoods are the most commonly used local exhaust ventilation.

The VDT Workstation



4. Shoulder Roll

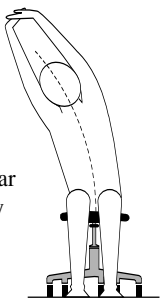


Purpose: To relax shoulder muscles.

Slowly roll your shoulders backward five times in a circular motion. Then roll shoulders forward.

Back, Side and Leg Exercises

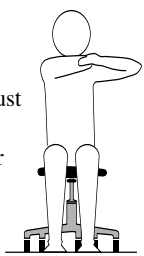
1. Back/Side Stretch



Purpose: To relax the back and side muscles.

Interlace fingers and lift arms overhead, keeping elbows straight. Press arms as far back as you can. To stretch sides, slowly lean to the left, then to the right.

2. Middle/Upper Back Stretch



Purpose: To stretch upper and middle back muscles.

Hold your right arm with your left hand just above the elbow. Gently push your elbow toward your left shoulder. Hold stretch for 5 seconds. Repeat on left arm.

3. Back Curl

Purpose: To stretch lower back and legs.

Grasp shin. Lift leg off the floor. Bend forward (curling the back), reaching nose toward the knee. Repeat with the other leg.