Ergonomics

Goal: Understand the importance of Ergonomics in the workplace.

Success Criteria: After reading the following article you should be able to answer the questions about Ergonomics and ergonomic items.



Ergonomics is the study of how the physical health of workers is affected by their workplace. Studies have shown that certain things in the workplace (including temperature, lighting, air, and furniture and equipment design) can affect the speed at which employee's work, workers' health, and how often they are absent. Ergonomic design means creating a healthier work area for employees.

When work environments are designed to be ergonomically correct, employees are happier, healthier, produce more work in a shorter period of time, miss fewer days, and quit their jobs less frequently. As a result, businesses can save a lot of money.

When workplaces are not designed ergonomically, they can cause many types of injuries to employees. The most common type of injury is *musculoskeletal injuries* (MSI). MSI happens when a worker performs the same task over and over, causing stress on nerves, muscles, tendons, or other body parts. The most frequently reported MSI in North America is *carpal tunnel syndrome (CTS)*. CTS occurs when a nerve in the wrist is used over and over with the wrong equipment. The wrist is then unable to move properly, and the person suffering cannot input data or hold objects in that hand. CTS is often caused by long hours of keying at a computer workstation that is not properly adjusted to the worker's height.

Other illnesses caused by poor ergonomically designed work areas are eyestrain, headaches, tiredness, allergies, backaches and poor circulation.

Ergonomically Healthy Work Environment

The temperature of the workplace should be kept between 15 degrees Celsius and 22 degrees Celsius (62 degrees Fahrenheit and 78 degrees Fahrenheit). Plenty of air circulation (but not drafts from open windows) is important. This reduces the amount of dust and bacteria in the air, keeping workers healthier.

Cleanliness is important because workers can develop allergies form exposure to dust, mold, and other particles in the air. Lights should not flicker because this causes eyestrain. The colour of workrooms should be neutral and soft. Pure white, very dark, or shiny surfaces can cause tiredness.

Furniture

Chairs should have five legs for stability. The height of the seat should be between 37.5 and 52.5 cm (15 and 21 inches) from the floor, and a firm seat back should allow the elbows to be bent at a 90-degree angle. The seat should be padded for comfort, but firm to maintain good posture. A good chair will help the worker's back and overall circulation. Tables and desks should provide enough space for workers to do their jobs without bumping into one another. There should be enough space under the desk to allow workers to change seating position to avoid leg injuries. The edges of tables and desks should be smooth and rounded to avoid injuries. Also, medium and light-coloured surface help ease eye strain when reading. Surfaces should have a dull finish to reduce glare, which hurts the eyes.

Computer Hardware

Monitors should have flat screens to reduce eyestrain. They should be positioned so that the top of the screen is at eye level, and at a distance of 45 cm to 60 cm (18 to 24inches) from the face, to reduce stress on the eyes and neck. Because monitors attract dust, then send it toward the user's face, they should be cleaned often. Keyboards should be kept at elbow height and at an angle that causes the fingers to land on the home row at a 90-degree angle. This prevents strain on the wrists.

Questions: Answer the following questions in your notes. You may type or hand write your responses.

1. Explain the meaning of the following words and concepts (3 marks):

ergonomics circulation ergonomically correct workplace

2. What is carpal tunnel syndrome (CTS)? Explain what causes CTS injuries. (3 marks)

3. What is a musculoskeletal injury (MSI)? Give an example of an MSI. (2 marks)

4. Describe how each of the following pieces of computer hardware and office furniture should be set-up in an ergonomically correct workplace: (4 marks)
a.monitors
b.keyboards
c.table and desks
d.chairs

5. Explain two ways in which a work environment can be ergonomically improved. (2 marks)

6. What are the benefits to employers of making a workplace ergonomically correct? (3 marks)

7. What are the benefits to workers of making a workplace ergonomically correct? (3 marks)