

Reference document

Ergonomics



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Introduction

Ergonomics comes from two Greek words: “ERGOS” (work) and “NOMOS” (laws of nature). Ergonomics is the application of scientific data from human beings to design environments, objects and systems that can be used by people.

Ergonomics applies to all human aspects. It encompasses various scientific fields, including anatomy, physiology, psychology, and design.

Ergonomists apply their vast knowledge to ensure that products and environments can be used by people with the most comfort, safety and efficiency.

Why is ergonomics important?

Because for years companies have been faced with numerous work absences and a drop in productivity due to musculoskeletal disorders in addition to rising issues such as pace, workplace environment and high cognitive requirements.

While CSST recognizes and promotes its use, ergonomics is also a valuable tool in situations that are not related to occupational injuries. A preventive or curative approach can improve workers' health, attendance record and performance. An ergonomics assessment doesn't take long and is a valuable means for managers to prevent short or long term absences!

What are MSDs?

Musculoskeletal disorders (MSDs) encompass several painful muscle, tendon and nerve disorders such as carpal tunnel syndrome, tendonitis and tension neck syndrome. They are caused by frequent execution of repetitive tasks.

They are also the result of poor posture. We cannot emphasize enough the importance of typing posture on MSDs. Some experts believe that these factors have more incidence on MSDs than any other cause.

Back pain remains as much a mystery today as it was tens of years ago. Despite cutting edge tests and interventions, back medical specialists believe that up to

80% of all back pain cases are not related to a specific physiological cause!

In addition, x-rays from a number of back pain patients show herniated or swollen intervertebral disc. Nevertheless, people who remain in a sitting position for long periods of time take the risk of suffering back pain. The two main causes of back pain are:

1. Poor seated posture (leaning forward).
2. Not changing position.

For workers who carry heavy loads, poor posture and inappropriate work methods are the two main causes of back pain.

Is it possible to prevent MSDs with our current knowledge?

Yes! Organizational, psychological AND physical factors in the workplace are associated with a high incidence of MSDs, yet it's possible to address these occupational risk factors.

THE GOOD NEWS IS that we can modify organizational and physical risk factors in the workplace. However personal risk factors are not as easy to modify.

What are the risk factors?

Risk factors are present in all types of workplaces and vary depending on the individual. Personal factors, anthropometric or predisposition factors also come into play from one individual to another. A risk factor does not typically operate alone. It's the interaction of risk factors that accounts for the increase.

Risk factors

- Repetition
- Duration
- Recovery time
- Effort

- Posture and inadequate work methods

Important: Due to the progressive nature of repetitive strain injuries, it's important to report pain and discomfort as soon as they appear!

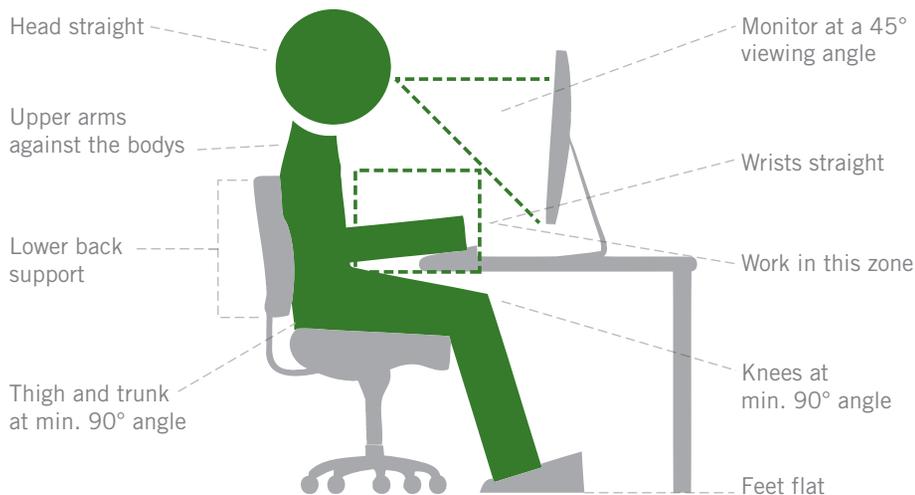
Who should I talk to?

Designate a person that will act as a direct advisor (a supervisor or manager for example). Certain people in the workplace can be trained to offer basic advice, for example on how to adjust a workstation chair. Keep in mind that specific problems can be assessed by a specialist quickly and cost-effectively. When a resource must come onsite, why not seize the opportunity to offer a brief overview on how to adjust a workstation?

Prevention is key! A properly arranged workstation and use of appropriate work methods will favor the disappearance and prevention of headaches, back, shoulder and neck pain, eyestrain, repetitive strain injuries and musculoskeletal disorders.

Adjusting a workstation

Neutral position



Key points to consider

Chair characteristics

- Seat height (feet on the ground, knees at 90°).
- Seat depth (knee-seat distance = width of two fingers).
- Chair back – support, angle, height.
- Armrests – height, depth.
- Position of the head when sitting.

Height of the keyboard

- Wrists must be straight.
- Feet must be flat on the floor.
- Use of a footrest depending on the height of the individual.

Position of the keyboard, monitor and reference documents

- Place the keyboard directly in front.
- Place the mouse or trackball mouse next to the keyboard.
- Check telephone location based on use. If you use it frequently, place it as close to you as possible to avoid extending your arm. Place frequently used objects as close to you as possible.
- Place lesser used objects farther and, as needed, far enough to get up instead of extending your arm.
- Eye-monitor distance should be at least 50 to 70 cm.

Handling and lifting heavy loads

Several risk factors can act on people's ability to handle and lift heavy loads.

Some are related to the individual such as genetics, physical condition, body weight and experience, while others depend on the object to handle including its shape, weight, level of stability and purchase.

Key principles

Although ergonomics may seem complex in terms of handling heavy loads, relying on a specialist to address recurrent problems or an employee's specific health issue, we can nevertheless apply basic principles at home.

- Slide (move a load by sliding it on the ground rather than lifting it);
- Roll (use a cart to move a load);
- Pivot (move the load by turning it);
- Shift weight (use your body to shift the weight of the load);
- Counterweight (use a lever to move the load).

As for the load itself, try to reduce its weight and instability, get a better grip, use lifting equipment and consider asking someone to lift the load with you.

Four rules to lift heavy loads

1. Position your feet in relation to the object.
2. Choose the appropriate lifting method (for example: keep a straight and symmetrical posture at all times, pivot your whole body not just your upper body).
3. Look straight ahead when lifting.
4. Keep the load close to your body.

When an employee reports pain and discomfort due to his workstation

- Check if recent changes were made in terms of work equipment or methods.
- Conduct a review with an internal or external resource to see if workstations and methods need to be adjusted.
- In most cases, these adjustments do not require purchasing expensive equipment, for example an adapted mouse or a keyboard.

Conclusion

- The key to prevention is to adapt the workstation. Don't wait for MSD symptoms to develop.
- And ergonomics assessment must take into account corporate needs and stakes as well as the physical and mental requirements of the worker.
- Contrary to popular belief, ergonomics do not involve substantial investments. The majority of solutions require little investment, but involve learning different ways of doing things.
- It's an investment that pays!

References

Association of Canadian Ergonomists: <http://www.ace-ergocanada.ca/>

Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST): <http://www.irsst.qc.ca/>

The following resources can also be helpful to manage ergonomics:

- Browse the FAQ
- Take advantage of Health *InSight* Support Services
- Turn to your company's EAP
- Confide in a qualified professional in case of emergency