Computer, Ergonomics and Laptops

Preventative approach

Many people suffer unnecessary aches and pains when using computers, laptops and other types of electronic devices. Schools have a moral and legal duty under the *Occupational Health and Safety Act 2004* and the Occupational Health and Safety (Manual Handling) Regulations 2007 to prevent this from happening. Much of this discomfort can be avoided by following safe manual handling and ergonomic principles.

Key factors in reducing your risk of injury

Your posture and how long you sit at your desk are key factors in reducing your risk of injury. Other factors include: the set-up of your chair, desk, monitor, mouse and keyboard, as well as what you store under your desk. Ergonomic chairs by themselves do not guarantee good posture or prevent injuries.

Change your posture often

It is important to remember that no posture is ideal for long a period even if it is a model posture. Sitting still requires you to use your muscles to keep you in the same posture and places a static load on your body. A variety of movement is critical and is the best way of reducing unnecessary discomfort if you use computers and electronic devices on a regular basis. To reduce discomfort:

- get up and move about

- vary your tasks - typing, writing, standing up while talking on the phone, tidying your desk,

- going to the printer each time you print something, coffee breaks, walking at lunch time, etc.

- adjust your chair settings

- do some gentle stretches so that you reverse your posture.

Ideal posture

Ideal posture for computer use involves keeping your:

- head upright and straight above your shoulders to reduce neck and shoulder strain

- eyes looking slightly downward without bending your neck

- back supported with the backrest of your chair

- shoulders relaxed but not slouching

- elbows bent at 90˚ with your forearms horizontal

- thighs horizontal with a 90 – 110˚ angle at your hip

- feet flat on the floor or using a footrest.

Chairs

Chairs are not ergonomically appropriate unless they suit each person and have been individually adjusted. Office chairs need to have a five-prong base and have adjustable height and backrests. Any armrests should be adjustable or removable. Although chairs with armrests may be more fashionable, chairs without armrests make it easier to adopt an optimum posture. If armrests are too high your shoulders will be pushed upwards into an awkward posture which can cause pain over time. You can also jam your fingers between your armrests and desk.

How to adjust your chair

The majority of people who have adjustable chairs do not know how to modify them to suit their bodies. It is important to know how to do this, as a few minutes spent learning how to adjust your chair can save you many years of discomfort.

Depending on the style of the chair that you have, it may have the following controls:

- a height adjustment lever that allows you to move

- the height of your seat up and down by pressing on it

- a back support which can be slid up or down until it is at the right height and nuzzles into your lower back

- a seat angle adjustment that allows you to adjust the vertical tilt of your seat either forwards or backwards

- armrests that can be adjusted up or down so that they are at elbow height.

Adjusting your chair

To adjust your chair:

- stand in front of your chair and raise or lower the seat until it is just below your kneecap

- move the back support up or down until it nuzzles into you and supports your lower back

- adjust the vertical tilt of your seat so that it is approximately at 90° to the floor

- make sure that the front of the seat is not pressed up against the back of your knees

- adjust any armrests on so that they are at elbow height.

Desks

The things that you use most often such as the keyboard and mouse should be within easy reach in a semicircular fashion around you. The things you use less often should be kept further away.

Desk Height

The top of your work surface, such as your desk, should be at elbow height. If you cannot raise or lower your desk, you should adjust the height of your chair.

Footrests

Your feet should be flat on the floor and fully supported. If your feet are dangling in the air you need a footrest. Cramped areas under desks lead to pain and discomfort due to poor posture. This risk can be eliminated by removing or rearranging boxes, bins, bags, electrical leads, old equipment, etc.

Keyboards

An ideal typing posture is to bend your elbows at 90˚ or greater and to keep your forearms horizontal and at the same height as your keyboard. It is best to place your keyboard flat on the desk.

It is safer not to use keyboards for long periods of time and to vary typing with other job tasks. Voice recognition software programs can reduce the need for typing and improve efficiency.

Mouse

The mouse can cause a lot of discomfort and is easily overlooked as a major ergonomics issue. To use the mouse in a safer way:

- release your grip when you are not using your mouse

- vary your work tasks so that you are not holding or clicking your mouse for long periods

- locate the mouse next to your keyboard so that your arm is not outstretched causing you shoulder and neck strain

- place your arms by your side, bending them at

- right angles and pointing your wrists straight ahead

- learn to use your mouse with both hands, changing hands takes time and patience and should be done gradually as a sudden change of hands can lead to over usage problems

- use keyboard shortcuts to reduce mouse usage

- use a cordless mouse and keyboard

- use voice activated software programs that reduce the need for constant clicking of your mouse.

Monitors

The right monitor position depends on your eyesight and the size and resolution of your monitor. To check if you are too close to your monitor put your chair where you normally work and stretch out your arm. If you can touch the monitor you are most likely too close.

Locate the monitor directly in front of you with the top of the monitor just below your eye level. Monitors should be tilted slightly at 15º away from you.

Eye strain

If you use computers and electronic devices for long periods you may have problems with your eyesight. If you wear glasses when using computers, you should seek advice from your optometrist.

Ways to reduce eye strain:

- take regular eye breaks every few minutes by focusing on something in the distance so that you can vary your focal length

- walk around to give your eyes a break

- exercise your eyes by keeping your head still and moving your eyes up and down or side to side

- check glare levels on your monitor by turning off the screen to see if there is any glare (if there is glare from a window or a light you may consider shading or changing the angle of your screen).

Document holders

Document holders for printed materials should be placed next to your monitor or between your monitor and keyboard so as to avoid neck strain.

Phones

Holding the phone with your neck while you write or type leads to neck and shoulder discomfort. Use a headset, hands free or speakerphone instead.

Other ways to avoid discomfort using the phone:

- place phones within easy reach on your desk to avoid reaching in an awkward manner

- place your phone on the opposite side to your mouse hand to balance your body

- stand up while talking so that you can rest your back, vary your posture and get your blood flowing.

Laptops

Laptops, notebooks and modern electronic devices are designed for portability rather than comfort or ergonomic safety. The same safety principles that apply to desktop computers also apply to laptops, tablets, mobile phones and other types of electronic equipment.

Common problems associated with such equipment include:

- the adopting of awkward postures while using them for long periods of time

- excessive bending of the neck when looking down at the screen

- non-ergonomic mouse and keyboard.

To reduce the pain and discomfort associated with laptops and similar devices:

- use a stand to raise the height of the screen

- attach an external mouse

- attach an external keyboard.

More frequent breaks are required when using these devices, every 20 –30 minutes to rest your eyes and stretch your hands and shoulders. Avoid awkward and cramped postures especially if you are using laptops and electronic devices at home or in a non- office environment. The same principles apply to notebook computers and other new media technologies.

Summary

Computer Ergonomics and Laptops Summary

A number of factors can cause pain and discomfort when using computers and electronic devices. To avoid this discomfort:

- vary your posture, get up and move about

- sit with your feet flat on the floor

- adjust your chair, keyboard and other items

- avoid extended use of your keyboard and mouse

- remove unnecessary items from under your desk

- attach a screen and external mouse to laptops and use a stand to raise the screen height.

The use of computers and electronic devices can also cause problems with your eyesight. To reduce your risk of deteriorating vision:

- take regular eye breaks and focus on distant objects to vary your focal length

- exercise your eyes by moving your eyes up and down or side to side

- check the glare levels on your monitor.

Remember that a variety of movement is critical and is the best way of reducing your risk of unnecessary pain and discomfort when using computers and electronic devices.

Resources

- *WorkSafe Victoria, 2006, Officewise – A guide to health & safety in the office, accessed 1 November 2012 <http://www.worksafe.vic.gov.au/forms-and-publications/forms-and- publications/officewise-a-guide-to-health-and-safety-in-the-office>.*

Further assistance

- *You can contact the Catholic Education Commission of Victoria (CECV) on 03 9267 0228*

- *or visit <www.cecv.catholic.edu.au> for advice, safety guidelines, checklists, online resources and other information on safety matters relevant to Catholic schools.*