

Ergonomics Awareness

Introduction

The office has changed rapidly over the past 20 years and continues to evolve, taking onboard new technologies and sometimes subtly different working practices.

The single most common health problem reported by computer workers is eye strain, however there are many associated problems that must be guarded against, some more serious than others. These problems can relate to work related upper limb disorder (WRULD), fatigue and stress. However, providing workers with the best conditions in a cost effective way increases productivity and morale.

More and more people in offices today throughout the country are using visual display units (VDUs) to carry out their daily work tasks.

What are VDUs?

A VDU is essentially a television-type monitor that displays information received from a computer rather than from a broadcast signal for television.

Over 30 years have passed since the introduction of mass-produced video display units (VDUs) into the workplace. These machines are also called video display terminals (VDTs) and most commonly take the form of computer screens. The rapid proliferation of computers has led to a large increase in VDU use in both the workplace and at home.

Effects on the eye

Cataracts and other eye diseases were not found to have any link with VDU work. Glare and reflections from VDU screens have been identified as a source of eye strain and headaches in extreme circumstances.

The Hazards

"Researchers have studied various factors related to the indoor work environment. These include indoor air quality, room temperature, eye fatigue caused by improper illumination, and ergonomically improper workstations."

Some individuals have experienced headaches or dizziness, and musculoskeletal discomfort. These are largely preventable if proper work environment and ergonomic measures are introduced for working with VDUs. Such measures include designing equipment, lighting and other aspects of the environment to encourage proper posture and to reduce muscular and eye strain and other stress-producing tensions.

The most common problems arising from continuous use of computer workstations are muscular aches and pains. These can be caused by bad posture when typing or operating, poor sitting of equipment, or by the body having to make the same movements over and over again. Tenosynovitis (inflammation of the sheaths

enclosing tendons) can set in, causing pain, numbness, or tingling. These problems should be identified and treated as soon as possible.

Other physical effects from using workstations are mostly sight-related. Eyes can become fatigued if they have to stare at a display screen for hours on end, especially if the screen is much darker or lighter than its surroundings, or gives a fuzzy or jittery image, or is marred by reflections in it. Some people can be upset by the flicker of the screen, and are sensitive to any display with a relatively slow refresh rate. (Normal televisions update their image at a rate of 50 Hz, which is tolerable for most people at a distance, but is generally found to be too slow for a display screen used at close quarters).

This flicker can cause headaches or trigger migraines, as can a slower kind that results from interference between fluorescent lights and display screen equipment, where the two are operating at different rates.

Finally, stress can result from overly-demanding work patterns that arise from the unchecked introduction of new equipment, and can also be caused by trying to use software or hardware that is constantly going wrong, or is poorly designed for the job.

Frequently asked questions

Am I at risk?

VDUs have been blamed, often wrongly, for a wide range of health problems. Only a small proportion of people using them suffer health problems as a result, but because there are so many users this can be a significant number. You should remember that in most cases the problems do not arise directly from the VDUs themselves, but from the way in which they are used.

The problems can be avoided altogether by good workplace and job design and by the way you use your equipment and workstation.

Can working with VDUs affect eyesight?

There are no indications, from extensive research, that VDUs will cause disease or permanent damage to eyes. But the fatigue of intensive VDU work can cause discomfort, even to healthy eyes.

Because it gives your eyes more demanding tasks, it might also make you aware of an eye problem that you did not know about before. It doesn't help your eyes if the VDU is badly positioned, or if the workplace is poorly lit. Drifting, flickering or jittering images can be very tiring and must be corrected.

I wear bi-focals. Will I be able to use a VDU?

It depends. It is important that you can see the screen comfortably without having to raise or lower your head, so your bi-focals might not be ideal for VDU work. You

may find you need glasses of a different type of work comfortably. You should consult your doctor or optician if in doubt.

I wear contact lenses. Does this cause any special problems if I work with a VDU?

Users of contact lenses find any dry environment uncomfortable and the heat generated by VDUs tends to make the atmosphere drier than in rooms without them. You may find it helps to blink more often, or use tear substitute drops. An alternative might be to wear glasses instead of your lenses for VDU work.

I sometimes see a coloured 'after-image' after working with a VDU. Is this serious?

No. This is common when someone looks at an object for a long time and then looks elsewhere. It does not harm vision in any way.

Are aches and pains caused by using a VDU?

Some VDU users may experience aches and pains in their hands, wrists, arms, neck, shoulders or back (that is to their musculoskeletal system), especially after long periods of uninterrupted VDU work. If this happens you should alert your supervisor or line manager. Usually these aches and pains do not last, but in a few cases they may become more persistent or even disabling.

Most problems of this nature can be prevented by good workplace design and good working practices.

Can work with VDUs be stressful?

Yes, in several ways. Often it is not so much because of the VDU itself, but because of the increased pace or pressure to meet deadlines. Some VDU workers experience less stress because the VDU gives them better access to information, but for others stress is intensified. This can happen, for instance, when a system does not function well or when training has not been sufficient to properly operate the system. These problems can be overcome by better training and better work planning and organisation.

Can VDUs cause headaches?

Yes, headaches can result from many factors associated with VDU work. For example, stress from the pace of work, anxiety and tension, the need for new glasses or a change of lenses, poor image quality, glare from the screen, poor posture, or a combination of these.

How long should I work with a VDU?

This depends entirely on the type of work you are doing. Individuals should attempt to give their eyes different focal points and gain a few minutes away from the VDU over their work period.

Do VDUs give out harmful levels of radiation?

No. VDUs give out both visible light (which enables us to see the screen) and other forms of electromagnetic radiation which can be harmful above certain levels. However, the levels emitted from VDUs are well below the safe levels set out in international recommendations. So, your employer doesn't have to check radiation levels from your VDU, and you don't need special devices such as protective spectacles, screens or aprons when using it.

What should I do if I'm pregnant?

You don't need to stop working with VDUs. There has been some concern about reports of higher levels of miscarriage and birth defects among some groups of VDU workers. Many scientific studies have been carried out which, taken as a whole, do not show any link between miscarriages or birth defects and working with VDUs.

If you are anxious about working with VDUs or about work generally during pregnancy, you should contact your doctor or talk to someone who is well-informed of current authoritative scientific information and advice on VDUs.

Can VDUs trigger epileptic seizures?

Most people with epilepsy are completely unaffected. A small number of people who suffer from photo-sensitive epilepsy and are susceptible to flickering lights and striped patterns may be affected in some circumstances, but even they can often work successfully with VDUs without provoking an attack.

I am taking drugs prescribed by my doctor. Can I still use a VDU?

Yes. There are no drugs which cannot be safely combined with VDU work. A few tranquillisers, other psychoactive drugs and certain eye drops prescribed for glaucoma can temporarily affect the way your eyes change focus, but this is not harmful.

Why have new regulations been introduced?

The Regulations implement a European Directive on work with display screens. They require employers to minimise some of the risks outlined above by ensuring that workplaces and jobs are well-designed in the first place.

What are the Regulations?

They are the Health and Safety (Display Screen Equipment) Regulations 1992.

Who is affected?

They affect employed and self-employed workers who habitually use VDUs for a significant part of their normal work. If this description doesn't apply to employees who use a VDU, their employers still have general obligations to protect them under Health and Safety at Work legislation.

The Regulations do not contain detailed technical specifications or lists of approved equipment. Instead, they set more general objectives.

Employers have to:

- Analyse workstations of employees by the Regulations and assess and reduce risks

They need to look at the hardware, the environment, and factors specific to the individuals using the equipment. Their views may be sought as part of the assessment. Where risks are identified, the employer must take steps to reduce them.

- Ensure workstations meet minimum requirements

The Display Screen (VDU) Regulations provide information on the minimum requirements for workstations. The aim is to ensure that individual users have workstation features which meets their needs and protects their health.

- Plan work so there are breaks or changes of activity

The length or number of these is not specified precisely in the Regulations, as the need for breaks depends how intensely and for how long the employee has been using the VDU. But short, frequent breaks are better than longer, less frequent ones, and ideally the individual should have some discretion over when they are taken.

- On request arrange eye and eyesight tests, and provide spectacles if special ones are needed.

Employees who are covered by the Regulations can ask their employer to provide and pay for an eye and eyesight test. This is a test by an optometrist or doctor. The prescription will indicate whether glasses are required for VDU work.

These employees are also entitled to further tests at regular intervals - the optometrist doing the first test can recommend when the next should be.

If in the meantime an individual has visual problems which may be related to work with VDUs, the employer has to provide another test on request.

- Provide health and safety training

This is to make sure employees can use all aspects of their workstation equipment safely, and know how to make best use of it to avoid health problems, for example by adjusting the chair.

- Provide information

This should cover what the employer has done to comply with the Regulations, such as the action taken to reduce the risks and arrangements for breaks.

How are self-employed workers covered?

Self-employed workers who habitually use VDUs for a significant part of their normal work are covered when they use a client employer's workstation. The client employer has to assess the workstation and reduce any risks identified, ensure it complies with the minimum requirements and provide information on this, as if the person was an employed worker.

Are workers at home covered?

Yes, if required by their employer to use a workstation at home.

What can I do to help myself?

Lots! You should make full use of the adjustment facilities for your VDU and work environment to get the best from them and avoid potential health problems.

If the Regulations apply to you, your employer must cover these things in training. If the Regulations don't apply to you, using these facilities is still important. Here are some specific tips.

- Adjust your chair and VDU to find the most comfortable position for your work. As a broad guide, your arms should be approximately horizontal and your eyes at the same height as the top of the VDU casing.
- Make sure there is enough space underneath your desk to move your legs freely. Move any obstacles such as boxes or equipment.
- Avoid excess pressure on the backs of your legs and knees. A footrest, particularly for smaller users, may be helpful.
- Don't sit in the same position for long periods. Make sure you change your posture as often as practicable. Some movement is necessary, but avoid repetitive stretching movements.
- Adjust your keyboard and screen to get a good keying and viewing position. A space in front of the keyboard is sometimes helpful for resting the hands and wrists while not keying.
- Don't bend your hands up at the wrist when keying. Try to keep a soft touch on the keys and don't overstretch your fingers. Good keyboard technique is important.

- Try different layouts of keyboard, screen and document holder to find the best arrangement for you.
- Make sure you have enough work space to take whatever documents you need. A document holder may help you to avoid awkward neck movements.
- Arrange your desk and screen so that bright lights are not reflected in the screen. You shouldn't be directly facing windows or bright lights. Adjust curtains or blinds to prevent unwanted light.
- Make sure the characters on your screen are sharply focussed and can be read easily. They shouldn't flicker or move.
- Make sure there are no layers of dirt, grime or finger marks on the screen.
- Use the brightness control on the screen to suit the lighting conditions in the room.

What should I do if I have any problems?

If you have problems you think might be connected with your VDU work you should talk to your management, safety representative, or your Employment Medical Adviser.