
Computer Users Handbook

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1. Introduction

Computers are an integral part of the work environment and it is important to identify and establish safe work practices and procedures that ensure hazards associated with computer use are eliminated, isolated or minimised.

Failure to control the significant risk factors in computer use may result in a range of conditions potentially classified as “serious harm” and collectively known as “Occupational Overuse Syndrome” (OOS.)

1.1 What is OOS?

Occupational overuse syndrome (OOS) is a collective term for a range of conditions - including injury – characterised by discomfort or pain in the muscles, tendons and other soft tissues, with or without physical signs. It usually develops over time and can be caused by types of work with sustained or constrained postures, repetitive and/or forceful movements. Overuse syndrome is also common in sport and home activities, and should not be confused with the normal discomforts of living, such as muscle soreness after unaccustomed exercise or activity, or with the pain of arthritis or some other condition.

The symptoms of OOS can include:

- Fatigue
- Muscle discomfort
- A burning sensation
- Stiffness
- Aches and pains
- Soreness
- Weakness or
- Numbness and tingling

Every case of OOS has the potential to be classified as “serious harm” according to the definition in the first schedule of the Health and Safety in Employment Act. This is because it can lead to injury resulting in absence from work for extended periods and temporary severe loss of bodily functions. This also means that the risk factors for OOS need to be treated as significant hazards.

1.2 How OOS can occur

OOS Stems From Muscle Tension

Muscles and tendons get blood through capillaries passing between the muscles fibres. A tense muscle squeezes on these vessels and they collapse, slowing the flow of blood. Blood flow restriction begins when the muscle exerts 5% of full power, and is stopped completely at 50% of full power.
When the blood flow stops, the muscle has enough stored energy to cope with brief periods of tension. When this is used up, it switches to the inefficient anaerobic metabolism. This quickly exhausts the energy store in the muscle and leads to a build-up of acid wastes in the muscle (lactic acid). These acids products stimulate pain receptors.

This muscle pain makes the neighbouring muscles tense up in sympathy by a reflex action (the splinting reaction). This is a normal reaction to injury, and is good where bracing is needed for acute injuries like a broken bone, or an infection. In overuse syndrome, however, a self-sustaining pain cycle can occur. This pain fluctuates in intensity, from being mild to intolerable. Another feature is that the pain tends to migrate from one part of the affected limb to another.

An inadequate blood supply to nerves may also cause numbness and tingling. If larger nerves passing between muscles are squeezed, more definite tingling and numbness may result.

**How Overuse Leads to Muscle Tension**

This view incorporates the finding that when high rates of repetition or high force occurs in a task, the risk of OOS is increased. The risk is increased yet further when repetition and force are present together. Repetition often disguises the presence of muscle tension. Muscle tension may, therefore, be regarded as a primary cause for both the localised and diffuse conditions.

In summary, aspects of overuse which are thought to lead to both the localised and diffuse conditions are:

- Holding muscles tense through a poor or prolonged posture
- The repeated application of force
- Jerky movements
- Social stressors
- A tendency for people to be over extended or to over extend themselves.

All of these may be imposed on people by conditions at their place of work. Note that although these are stressors in that they impose an extra “weight” on people, too small a stressor (a light “weight”) can have an equivalent effect. A physiological link between the job with a boring repetitive content and a general lessening of physical alertness may predispose people to the problem.

Vibration, which tends to increase muscle tension, is an additional causal factor.

### 1.3 Risk Factors of OOS

The risk factors of OOS can be summarised as:
• Poor planning for VDU work;
• Poor work organisation;
• Inappropriate selection of computer hardware and software;
• Inappropriate selection of office furniture;
• An inappropriate VDU environment;
• Poor workstation layout; and
• Lack of education, training and skills.

One or more of these risk factors will almost certainly be present where OOS occurs. However, the nature of OOS is such that individuals may be affected differently by these risk factors. There may be a relation between the intensity of work, the length of exposure to it and the onset of the condition. Thus it is impossible to predict the exact impact of these risk factors on each individual.

This means that when assessing an individual, the assessment needs to be carried out in relation to each individual’s situation. This situation may include aspects of life outside work, such as secondary employment, hobbies, sports or crafts. Sometimes OOS can be precipitated or made worse by these outside work activities.

2. Responsibility

2.1 Employers/Management’s Responsibilities in Preventing OOS

It is important that management become familiar with the Approved Code of Practice for the use of VDUs in the place of work and to use it as a reference when making decisions concerning computer usage.

As an employer the University is morally and legally obliged to provide healthy work environment. This responsibility extends to all management within the organisation.

Interactions between the person, the VDU hardware, the workstation, the environment and the way the work is organised all need to be considered if health and safety of all concerned is to be maximised.

2.1.1 Training

It is essential that management and staff are provided with training and education about OOS if they are to learn how to avoid developing OOS and reduce its incidence within the workplace. It is the management’s responsibility to ensure that computer users have received adequate training before being put “at risk”.

2.1.2 Work Environment

A range of factors controllable by management can contribute to the development of OOS.
Social factors include workload, deadlines, interpersonal relationships, supervision styles, control over the work environment, adaption to changes in the workplace and to new technology are all external stressors which may drive people to work beyond their safe capacity.

Physical factors such as lighting, heating, ventilation and noise can all contribute to elevated stress levels, and should be controlled within accepted criteria.

Equipment design and maintenance - Appropriate and suitably adjustable equipment as described in the Code of Practice should be provided. Work design should allow a person to carry out a variety of tasks within a single job. It should also allow for a variation in posture and the muscles used. Where a task requires sustained or repetitive activity the task should incorporate micro pauses and rest breaks.

‘Supportive’ atmosphere that encourages early reporting of health and safety concerns and removes delay to early intervention. Involve users in the planning and decision making process.

2.2 What is My Role As An Employee in Preventing OOS?

All staff has a responsibility to work in a safe manner and not to put themselves or others at risk.

Management on training needs may require your assistance and be expected where you have health/safety concerns.

Access the information provided and maintain an appropriate level of understanding of the hazards associated with computer use and accepted means of controlling these hazards.

Adjust your workstation in accordance with recommended principles in order to provide the most comfortable working conditions.

Plan your working day to provide as much variety in tasks as is possible.

Ease back into computer work after extended breaks, eg. holidays. Take appropriate breaks and use micro pauses and relaxation exercises frequently.

Report early to supervisors or the Health and Safety Office any conditions that you consider may be hazardous or any overuse concerns you may have.

If unsure, seek advice from the Health and Safety Office.
2.3 What do I Do If I Think I Have OOS?

The University actively encourages early reporting of symptoms so that prompt intervention can be initiated.

Don’t think “it will go away” or “management” will not be happy. This may only exacerbate any existing condition. The University management supports your efforts in preventing and managing OOS.

- Be aware of the symptoms as described in this booklet
- Report these early to your supervisor or the Health and Safety Office
- Check that your workstation is adjusted as recommended
- If your symptoms are work related or impact on your work and cause you to visit your General Practitioner (GP), please advise your supervisor immediately.

2.4 What If I Am Diagnosed As Having OOS?

If you are diagnosed by a medical practitioner as having work related OOS you must complete an “Accident/Incident Report Form” available from your faculty/dept office, the Health and Safety Office, or print it off the Massey Health and Safety Web Site. This must be sent immediately to the Payroll Office. In certain circumstances the Payroll Office is required to notify the Department of Labour OSH.

The University is required to investigate serious harm incidents in order to determine likely causes and implement controls to reduce similar future occurrences.

2.5 How Can I Manage My OOS?

Once an employee has been diagnosed as having OOS that is wholly or partly work related, it is the joint responsibility of the employee and their manager to work with the University’s Health and Safety Office to ensure effective and efficient recovery. Each individual will be given a personal workplace assessment. It is vital that the employee follows the advice given when managing OOS.

The aim of rehabilitation is to restore the person with OOS to the fullest physical, psychological, social, and economic wellbeing where possible. It requires the co-operation of all parties concerned. Managerial and collegial support at work are needed and various strategies may need to be pursued in order to maximise the rehabilitation process.

At work, it may be necessary to consider workstation modifications, and a change in work practices. In some cases a change of duties may be required. At home the individual will need to enlist the support and assistance of family to ensure that activities do not aggravate the condition.

A return to work requires close monitoring in order to detect and reverse any relapses. A gradual resumption of former duties is important to ensure
permanent recovery. If a change of duties is recommended these should be prescribed accurately and examined carefully by an appropriate health professional to ensure that they do not also expose the employee to further risk of OOS.

3 Recommended Resources


3.3 “The Pocket Ergonomist” - Produced by OSH 1988. A quick guide to the causes and reduction of muscle fatigue at work.

3.4 “The Floppy Ergonomist” - a computer software package detailing appropriate exercise and work station regimes. Available from Computing Services, both for student instruction and staff use.

3.5 More details are available from the Massey University Web site. http://massey.ac.nz/hs-php3

4. Further Information

For further information contact your Health and Safety Office on your local campus.