

Occupational Overuse Syndrome

GUIDELINES FOR PREVENTION AND MANAGEMENT

Published by the Occupational Safety and Health
Service of the Department of Labour,
with assistance from the Accident
Compensation Corporation,
Wellington, New Zealand.

First Edition: August 1991

ISBN 0-477-03485-3

\$9.95 incl. GST

Compiled jointly by:

Accident Compensation Corporation, New Zealand Council
of Trade Unions, New Zealand Employers' Federation,
Occupational Safety and Health Service of the Department of Labour,
and OOS support groups.

Contents

- INTRODUCTION** **5-7**
- AIMS 5
- THE COMPILERS 5
- THE COST OF OOS 5
- RSI = OOS 5
- OCCUPATIONAL OVERUSE SYNDROME 6
- THE SYMPTOMS 6
- THE CAUSES 6
- THE PEOPLE AFFECTED 7

- PREVENTION** **8-11**
- DESIGN OF EQUIPMENT AND TASKS 8
- ORGANISATION OF WORK 8
- JOB DESIGN 8
- WORK RATES 9
- BONUS-INCENTIVE SCHEMES/ELECTRONIC MONITORING /MACHINE PACING 9
- THE WORK ENVIRONMENT 9
- SOCIAL FACTORS 9
- PHYSICAL FACTORS 9
- TRAINING AND EDUCATION 9
- TREATMENT PROVIDERS 11
- POLICY DEVELOPMENT 11

- STRATEGIES FOR OOS** **12-15**
- MANAGEMENT RESPONSIBILITIES 12
- MANAGEMENT STRATEGIES 12
- WORKPLACE INVESTIGATIONS 12
- EDUCATION PROGRAMMES 13
- REPORTING SYSTEMS 13
- REGULATING WORKLOADS AND WORKFLOWS 14
- STRATEGIES FOR INDIVIDUALS AT RISK 14
- SAFE WORKING 14
- TAKE BREAKS 14
- EARLY REPORTING 14

SUPERVISORY STYLES	14
SEEK HELP	14
HELP OTHERS	14
PACE YOUR COMEBACK	14
COST IMPLICATIONS	14
MEDICAL MANAGEMENT OF OOS	15
REHABILITATION	16
REHABILITATION PLANNING	16
STEPS TO TAKE IN REHABILITATION	16
GLOSSARY	17
ELECTRONIC MONITORING	17
ERGONOMICS	17
INCIDENCE	17
JOB DESIGN	17
MACHINE PACING	17
MICROPAUSE	17
MUSCULO-SKELETAL	17
PREVALENCE	17
STRESS	17
TASK DESIGN	17
WORKING RHYTHM	17
WORKING TECHNIQUE	17
APPENDIX A: COSTS OF OOS	18
NATIONAL COSTS	18
INDUSTRY COSTS	18
PERSONAL COSTS.....	18
APPENDIX B: SAMPLE CHECKLIST	21
APPENDIX C: SURVEY METHOD FOR INVESTIGATING OOS	21-22
RESOURCES	23
REFERENCES	24

INTRODUCTION

AIMS

The aims of this Guideline are:

- To help prevent people developing Occupational Overuse Syndrome (OOS); and
- To help those who do experience symptoms to get effective treatment and rehabilitation.

The Guideline begins with a description of the condition known as OOS. A glossary gives definitions of the technical terms used and a list of resources indicates where professional advice and assistance may be found.

The Guideline is aimed at people at risk of OOS and those involved in prevention, treatment and rehabilitation. While it is directed at work situations, much of the Guideline has relevance to people with problems which develop outside work. It is not possible to cover all aspects of these topics in this general publication. A further document, *Treatment and Rehabilitation for Occupational Overuse Syndrome*¹, on medical details of treatment and principles of rehabilitation, is in preparation at the time of publication.

THE COMPILERS

The nature and scale of the problem of OOS in our working community has been recognised and this Guideline has been produced by some of the key groups involved.

The Guideline was compiled by representatives of the Occupational Safety and Health Service of the Department of Labour, the Accident Compensation Corporation, the Council of Trade Unions, the New Zealand Employers' Federation and RSI support groups. The initial draft was sent to a wide variety of individuals and professional, medical, union and employer organisations for

comment, and has been modified according to many of their remarks.

THE COST OF OOS

It is difficult to assess accurately the cost of OOS to New Zealand because of the lack of reliable data. The incidence of OOS is believed to be much higher than reports indicate. The personal and social costs of OOS must also be taken into account.

It is recognised that in the current economic climate, where efficiency is at a premium, expectations of extra performance can be placed on workers, and that these may lead to the onset of OOS. One of the basic features of OOS is that the symptoms occur only once a certain threshold of activity has been exceeded. The compilers of this Guideline are in agreement that economic success should not occur at the expense of poor worker health as a result of OOS.

Further information on the costs of OOS can be found in Appendix A.

RSI = OOS

The term Occupational Overuse Syndrome (OOS) is now being used in place of the term Repetitive Strain Injury (RSI). The reason is that while most people have been aware of the term RSI, few people realise what it refers to.

This group of medical conditions received wide media attention in Australia and New Zealand in the 1980s. This followed the increasing use of keyboards with the spread of personal computers and word processing technology. The result was that, in the public mind, the term RSI became inextricably linked to keyboard operators, even though it is also found in other occupational groups.

The compilers believe that Occupational Overuse Syndrome more accurately reflects the types of medical condition found.

OCCUPATIONAL OVERUSE SYNDROME

The condition Occupational Overuse Syndrome is a collective term for a range of conditions, including injury, characterised by discomfort or persistent pain in muscles, tendons and other soft tissues².

THE SYMPTOMS

It is necessary to distinguish the symptoms of OOS from the normal pains of living, such as muscle soreness after unaccustomed exercise or activity. OOS pains must also be distinguished from the pain of arthritis or some other condition. The early symptoms of OOS include:

- muscle discomfort
- fatigue
- aches and pains
- soreness
- hot and cold feelings
- muscle tightness
- numbness and tingling
- stiffness
- muscle weakness.

THE CAUSES

OOS often develops over a period of time. It is usually caused or aggravated by some types of work. The same conditions can be produced by activities away from the workplace. The work that may produce OOS often involves repetitive movement, sustained or constrained postures and/or forceful movements³.

The development of OOS may include other factors such as stress and working conditions⁴.

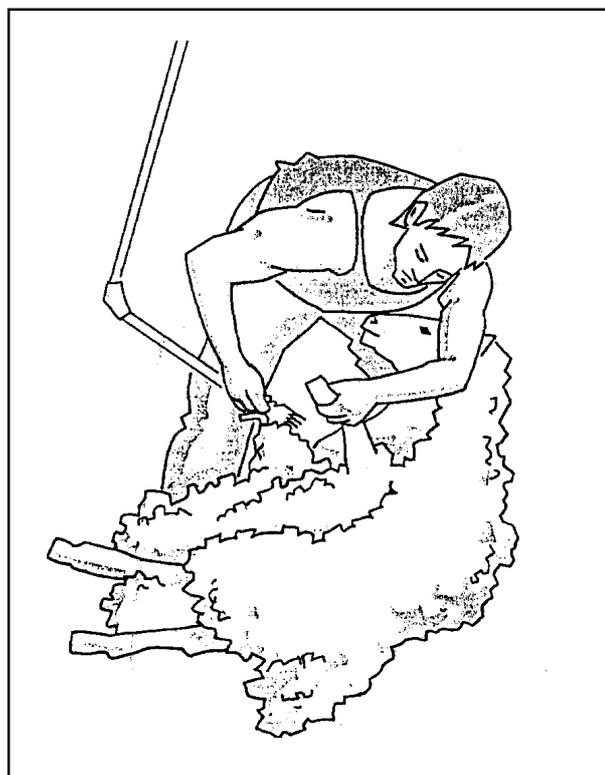
Some conditions that fall within the scope of OOS are well defined and understood medically, but many are not, and the reasons for their cause and development are yet to be determined^{5,6}.

There are a number of theories about the causes of OOS. One of these is as follows and gives a useful picture which leads on to prevention strategies:

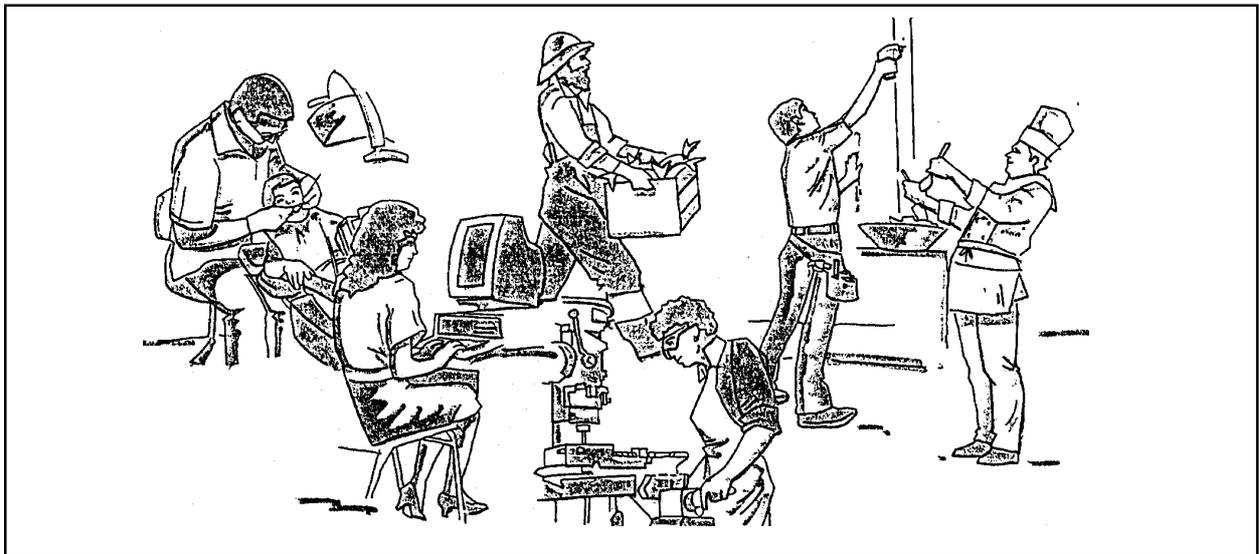
Muscles and tendons are nourished by blood which travels through blood vessels inside the muscle. A tense muscle squeezes on these blood vessels, making them smaller and slowing the flow of blood.

The muscle can store a little oxygen to cope with momentary tension, but when this is used up the muscle must switch to a very inefficient form of energy production. This uses the stored energy very quickly, tires the muscle, and leads to a build-up of acid waste products, which make the muscle hurt. As these wastes build up in the muscle, it becomes mechanically stiff and this makes it still harder for the muscle to work.

The muscle and tendons can withstand fatigue and are able to recover if they are given a variety of tasks, and regular rest breaks. It may be the absence of variety and rest breaks that strains the muscles and tendons beyond their capacity for short-term recovery.



Absence of variety and rest breaks may strain muscles and tendons beyond their capacity for short-term recovery.



Occupational Overuse Syndrome has been known for centuries and affects people in a wide range of occupations.

THE PEOPLE AFFECTED

Occupational Overuse Syndrome can affect people in a wide variety of occupations, including the following:

- process workers
- cleaners
- machinists
- kitchen workers
- keyboard operators
- clerks
- meat workers
- knitters
- potters
- musicians
- carpet layers
- painters
- shearers
- hairdressers
- typists
- mail sorters
- supermarket workers
- carpenters.

History shows that OOS has occurred in a variety of occupations. An Italian physician described OOS in 18th-century scribes and clerks', while in the 19th century terms such as "Upholsterer's Hand" and "Fisherwoman's Finger" are examples of OOS.

PREVENTION

There are five main areas in which we can prevent Occupational Overuse Syndrome. These are:

- the design of equipment and tasks
- the organisation of work
- the work environment
- training and education
- the development of policies.

Prevention is always better than cure, but it is particularly important when dealing with OOS. This is because of its widespread nature, the difficulty of treatment and its potentially debilitating consequences.

A sample checklist (see Appendix B) is one of a series of seven covering policy development for OOS, work organisation, workplace design, keyboard workstation design and working technique. It illustrates how the above aspects of work may be assessed using such checklists.

DESIGN OF EQUIPMENT AND TASKS

Equipment must be designed to accommodate people of differing sizes⁸⁻¹⁰. Professional help may be needed, for example from an ergonomist.

Tools and equipment should be designed so the operators can avoid having to hold tense and undesirable postures¹¹. The design should allow the operator's joints to be comfortable and free from strain.

User groups should be consulted at all stages of equipment purchase and design. Work should allow a person to carry out a variety of tasks within a single job. This should allow for variations in people's postures and the way they use their muscles.

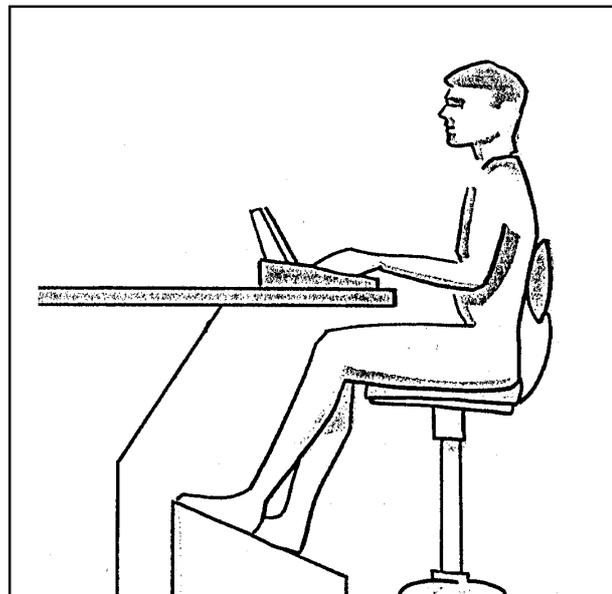
Where a task requires a sustained period of repetitive or static activity, the task should incorporate rest breaks and micropauses (see Glossary for definition).

ORGANISATION OF WORK

JOB DESIGN

Where possible, job rotation, automation and task modification should be considered to reduce the effects of sustained postures and repetitive movements.

Good job design will incorporate a range of factors, including consultation with the worker, so that there is a match between the individual and the job.



A good physical match between the person and the workplace is illustrated by:

- The head inclines only slightly forward.
- The arms fall naturally on to the work surface.
- The back is properly supported.
- There is good knee and leg room.

Good workstation design allows the operator's joints to be comfortable and free from strain.

When a job is designed, the breaks that workers will take should be part of the design. For many types of repetitive work, it is a standard ergonomic principle that designing breaks into the job increases productivity.

WORK RATES

When work rates are set, consideration should be given to the total job demands. Work rates should not be based on the capacity of machines alone. Performance varies between individuals.

When setting work rates, consideration should be given to the experience of the person in the job, their individual ability, the time needed to adapt to new technology, and the need to workup to speed gradually following an absence.

BONUS-INCENTIVE SCHEMES/ ELECTRONIC MONITORING/MACHINE PACING

These should not be used to encourage workers to push themselves beyond their personal limits.

THE WORK ENVIRONMENT

Social and physical factors in the workplace may place undue strain on workers.

SOCIAL FACTORS

Occupational stress has been identified as one of the factors leading to the development of OOS. Various strains (external stressors) have been blamed:

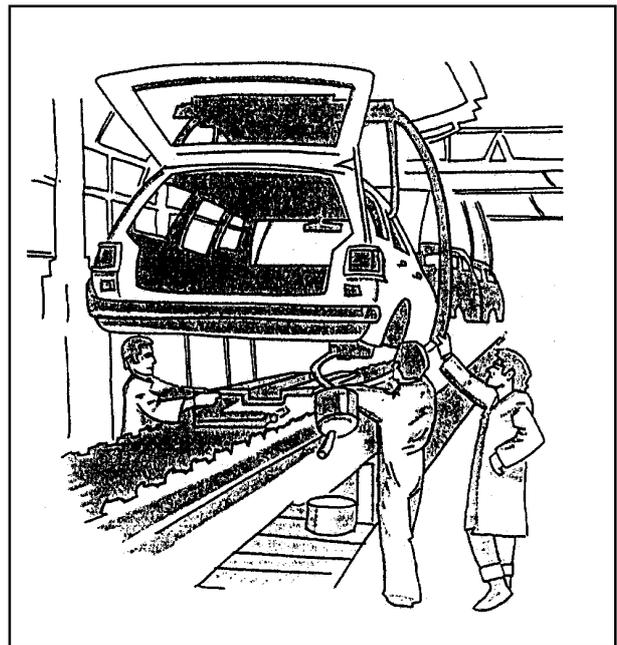
- workload
- deadlines
- interpersonal relationships
- supervision styles
- control over the work environment
- adaptation to changes in the workplace
- adaptation to new technology
- supervisors' attitudes.

Financial and domestic considerations are part of the normal stressors of life, but may drive people to work beyond their capacity. Often the most conscientious worker is the one most at risk.

Open communication between managers, supervisors and staff helps to reduce stress in the workplace.

PHYSICAL FACTORS

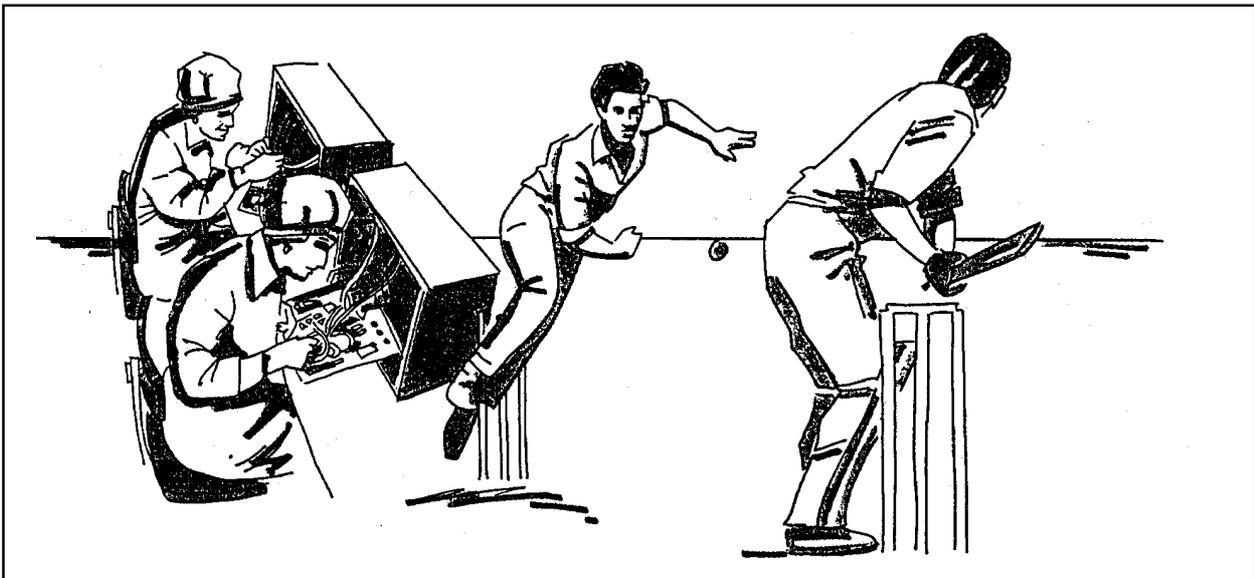
Stressors of an environmental origin can add to the general background strain. Lighting¹², ventilation¹³, humidity and temperature¹⁴, and noise levels¹⁵ should meet the minimum standards given in regulations or suggested in guidelines.



Lighting, ventilation, humidity, temperature and noise levels should meet standards in regulations or guidelines.

TRAINING AND EDUCATION

Effective training and education is essential to the success of an OOS prevention programme. Suitable training programmes, incorporating the principles outlined in this Guideline, are



Skilled operators are valuable! We need more emphasis on training employees in the skills needed for their work.

developing. One of the aims of this Guideline is to encourage this process.

Training and education for OOS aims to:

- Increase understanding and knowledge of OOS problems among all in the workplace.
- Decrease the incidence of OOS by teaching:
 - safe working techniques
 - optimum use of the body
 - awareness of the possible hazards
 - the appropriate early reporting procedures.

For these purposes, the involved parties need the following types of knowledge:

Managers need knowledge of:

- Causes and risk factors for OOS.
- Symptoms of OOS.
- How to identify at-risk workers.
- Prevention strategies, including resources and sources of help.
- Principles of treatment and rehabilitation.
- Where to obtain treatment and rehabilitation.
- ACC procedures.
- Standards and legislation.
- Communication and human relation skills.

- Productivity advantages of work breaks.
- Information on technology used, including health and safety aspects.

Managers should refer to section 3 for further details of their responsibilities.

Supervisors and middle management need knowledge of:

- Causes and risk factors for OOS.
- Symptoms of OOS.
- ACC procedures.
- Communication and human relation skills.
- Productivity advantages of work breaks.
- The economic consequences of OOS.
- Workload, time and resource management
- Work adjustment procedures for new staff and those returning from absence.
- Basic ergonomic principles including posture, hand tool and equipment design.
- Basic skills of body use including working techniques, relaxation and rhythm. Basic skills of body use including working techniques, relaxation and rhythm.
- The different types of work break, the reasons for taking them, and the circumstances in which they are important.

- The correct use of equipment, including the hazards specific to the task.
- To report symptoms early.
- Where to go for help.

Health and safety representatives and union representatives need knowledge of:

- Causes and risk factors for OOS.
- Symptoms of OOS.
- Prevention strategies, including resources and sources of help, and how the principles in this Guideline relate to their own industry.
- Standards, legislation and union agreements.
- Basic ergonomic principles including posture, hand tool and equipment design.
- Basic skills of body use, including working techniques, relaxation and rhythm.
- The correct use of equipment, including the hazards specific to the task.
- Where to go for help.
- Information on the technology in use, including its health and safety aspects.

Purchasers, designers and manufacturers of equipment need knowledge of:

- Standards and legislation.
- Basic ergonomic principles, including posture, hand tool and equipment design.
- Basic skills of body use, including working techniques, relaxation and rhythm.
- Information on the technology in use, including its health and safety aspects.
- The value of the preventive approach.
- How to involve users in the equipment selection/design process.

TREATMENT PROVIDERS

General practitioners, specialists, occupational health service staff, physiotherapists, occupational therapists, psychologists and rehabilitation coordinators need knowledge of the principles of OOS prevention. In view of the great variety of treatments used for OOS, and the

potential for inappropriate treatment to worsen the condition, it is essential that treatment providers are familiar with the basic elements of OOS treatment, as outlined in the separate Guideline: *Treatment and Rehabilitation for Occupational Overuse Syndromel*.

Treatment providers should be aware of the agencies able to investigate workplaces. Where a problem occurs in a workplace, it should be investigated promptly to minimise the chance of a recurrence, and to ensure that fellow workers are not experiencing similar problems.

POLICY DEVELOPMENT

OOS prevention policies should be incorporated into the standard curriculum of educational institutions. Habits learned early in life are likely to continue. Educational institutions should ensure that students who work where there is a potential for OOS problems are provided with a suitable workstation and are given education and advice about OOS prevention.

These institutions, and those responsible for apprenticeship training, should realise that early postural and work technique habits will carry on through life. They should therefore ensure that, where appropriate, the principles outlined in this Guideline are included in courses.

STRATEGIES FOR OOS

Successful OOS prevention requires the involvement of employers and employees. Employees have their part to play, but are most able to do the best for themselves when management takes the lead.

MANAGEMENT RESPONSIBILITIES

OOS need not occur in today's workplace. Management has a vital role creating a safe working environment. In all matters relating to occupational health and safety, it is important that management realise the need for appropriate strategies for OOS.

These strategies should be developed in association with those who have expertise in this area. Development of these strategies will need a broad consensus to achieve real acceptance, including consultation within the workplace and with external agencies¹⁶.

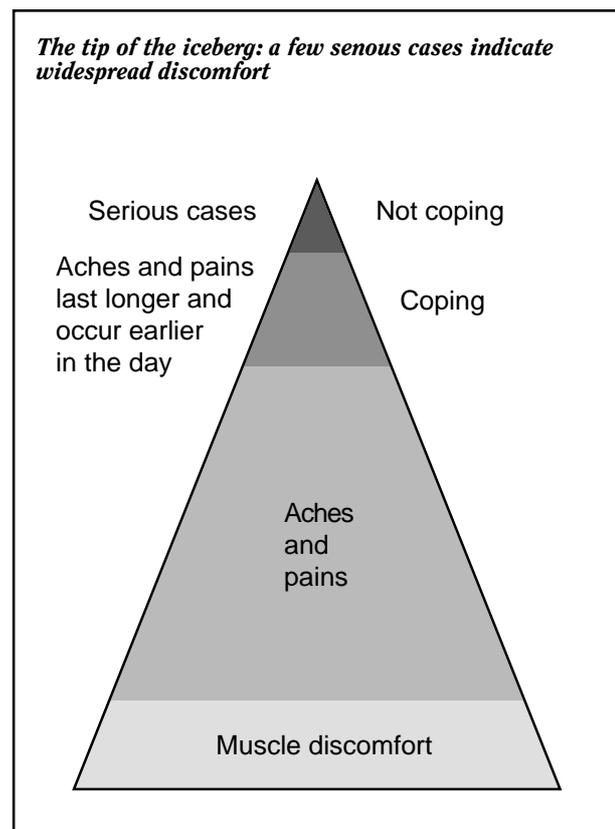
The responsibility to provide, as far as reasonably practicable, a safe and healthy working environment lies with the employer. Employers should recognise that this responsibility extends to all managers and supervisors, each of whom has a responsibility for the management of health and safety.

Other professionals, such as architects, designers, planners and so on, also have a role in the prevention of OOS. Often, the ability of management to control a situation has been limited by the workplace design and the type of equipment already in use.

Health and safety considerations, in this case the prevention of OOS, should be an integral part of the management and decision-making process. This should be reflected in the way the intervention strategies described here are considered¹⁷.

Although it is important that each workstation is considered individually, decisions should be made in relation to an overall plan, and not on a one-off basis.

As the diagram below shows, a few serious cases of OOS can indicate widespread discomfort. As with all health and safety programmes, OOS prevention should aim at the bottom of the "iceberg". At this stage it is possible to promote comfort.



MANAGEMENT STRATEGIES

The best intervention strategy will be a preventive one, which will try to anticipate problems before they arise.

In establishing a workplace strategy, management has the following responsibilities:

WORKPLACE INVESTIGATIONS

Management should carry out or organise investigations of the workplace and the work organisation. The purpose of the investigations is to establish the current situation in a company.



Managers should carry out investigations of the workplace conditions and work organisation

This has three parts:

- Investigating work practices and job design;
- Assessing the condition of the equipment and environment; and
- Measuring the prevalence of early warning symptoms of OOS.

Work organisation, including work practices and job design and the condition of equipment and the environment, can be assessed by reference to current standards and checklists (see Appendix B and references). Professional help may be required.

Early warning symptoms of OOS can be established by survey methods. A sample method is included as Appendix C.

EDUCATION PROGRAMMES

Management should be aware of suitable education programmes. The prevention section of this Guideline outlines the elements of education programmes for the different groups found in a commercial situation. Good education, before problems begin, is vital.

The promotion of comfort at work and the avoidance of OOS problems should, like , any safety-oriented problem, be a responsibility of line

management. Supervisors are in the best position to detect problems early and implement the required solutions. Their education is therefore vital to success. The knowledge and skills required are outlined in the prevention section of this Guideline.

Education should cater for existing staff on an ongoing basis. Those new to a company will need training during their induction.

REPORTING SYSTEMS

An internal reporting system should be established, with clear guidelines to supervisors on the action to be taken when a worker reports to them with OOS-related problems. Workers should be informed of the system and encouraged to report early. People who report should not have their current and future employment prospects prejudiced.

It is important that the reporting system ensures that early remedial action is taken, where appropriate, to maintain credibility.

Managers are reminded of current legal requirements to notify workplace accidents (including OOS) within 48 hours of the occurrence of the accident.

REGULATING WORKLOADS AND WORKFLOWS

The regulation of workloads and workflows is a shared responsibility. While managers and supervisors must set a pace that is achievable, workers must do their part to ensure that they or their colleagues are not overloaded.

Methods of dealing with heavy workloads and repetitive tasks are to provide job rotation and rest pauses and breaks (micropauses). Both types may be essential, depending on the particular job.

People who return to work after an absence, and people new to the job, may need to build up to a full work pace gradually.

SUPERVISORY STYLES

The manner in which managers deal with their staff can have an effect on health. Efforts to create a pleasant, co-operative working environment will contribute to the reduction of mental and muscle tension.

COST IMPLICATIONS

Managers should be aware of the cost implications of OOS. Standard accountancy methods for costing poor quality⁸ can be used to measure the direct and indirect costs where an employees' work output is diminished because of OOS, where people are off work, or where people who leave work must be replaced.

STRATEGIES FOR INDIVIDUALS AT RISK

These suggestions are directed at people at risk:

• SAFE WORKING

Make sure your workplace and work practices are correct for you and your job.

Get involved, when possible, with meetings and decisions about your job, with the design of your workplace and the introduction of new equipment.

• TAKE BREAKS

Take micropauses and rest breaks. These are important to ensure that people can get relaxation from job pressures, or where there is a high level of repetition, awkward movements or static muscle load.

• EARLY REPORTING

Be aware of the early warning symptoms of OOS and report these EARLY. Act immediately.

Find out as much as possible about the OOS condition, its prevention, treatment and your obligations and rights. Discuss your condition with your colleagues.

Information may be obtained from groups listed in the resources section at the back of this guideline.

• SEEK HELP

Seek supportive professional help (see resources list).

• HELP OTHERS

Be supportive of others with the condition. OOS support groups can also provide help.

• PACE YOUR COMEBACK

Following an injury, or after a holiday, make a gradual return to full working capacity. This is necessary to re-establish fitness equal to the demands of the task.

MEDICAL MANAGEMENT OF OOS

Treatment and rehabilitation for OOS are covered in a further document, *Treatment and Rehabilitation for Occupational Overuse Syndromel*. This will be available from local OSH branch offices. Page 6 of the present Guideline gives an outline of the causes of OOS.

The following broad principles of medical treatment are suggested:

An early and specific diagnosis.

- The removal of the precipitative factors at work or, where necessary, the removal of the person from the factors.
- An explanation to the patient of the nature of the problem, the proposed treatment programme and the likely outcome.
- An immediate start to the treatment programme.
- The identification and correction of adverse work and environmental factors, and advice on home and recreational activities, if appropriate.
- The identification of possible social and psychological factors and the arrangement for appropriate assistance, including suitable advice and support for partner or family.

When a person visits a medical practitioner about OOS, the following information will be relevant to the consultation:

- An accurate description of the job or task, including sustained postures and/ or repeated movements. (Information on hobbies and sports should also be collected).
- The duration and speed of movements and/or sustained postures.
- Details of rest periods and their effect.

- The stage of the job or task at which symptoms began to appear.
- Experience in and training for the type of work.
- Details of the workstation design.
- Details of the organisation of work.
- Details of the environmental conditions in the workplace (heat, light, noise, vibration).

In view of the amount of information needed by the practitioner for a proper assessment, it is recommended that a friend or family member accompany the person to the consultation. This will help with remembering the advice given.

REHABILITATION

REHABILITATION PLANNING

A range of strategies can be put in place to avoid the progression to pain during work. These have been detailed in other parts of this Guideline and include attention to the factors affecting the work and the affected worker.

Rehabilitation is a process to restore the person with OOS to the fullest physical, psychological, social, vocational and economic usefulness possible. It is a process that depends on the active co-operation and support of all parties concerned.

Rehabilitation can be achieved where the worker remains on the job with modified hours, modified work, or when the worker is given alternative duties. Any time off work should be used profitably for progressive rehabilitation.

It is desirable that rehabilitation should occur while the worker remains at work. This is because once the worker is away from the work, rehabilitation becomes much more difficult.

STEPS TO TAKE IN REHABILITATION

If medical assistance is required, a referral from the person's general practitioner or from the work doctor to a rehabilitation agency may be appropriate.

Once an initial assessment has been made, it is management's responsibility to see that a programme of rehabilitation is prepared, after consultation with all the affected parties.

Agencies which are involved in this form of rehabilitation include:

- Occupational therapists (in hospitals)
- Rheumatologists
- Medical specialists in occupational health and safety
- Support groups for OOS

- Rehabilitation units
- ACC rehabilitation co-ordinators
- Physiotherapists
- Rehabilitative psychologists
- Occupational health nurses.

On-the-job rehabilitation must be monitored so that the condition is not aggravated.

Affected workers may require varying amounts of time off work, depending on their progress during rehabilitation.

It is important that good work practices, including micropauses and work breaks, are undertaken, and that a full work load is resumed progressively following a work absence of two or more weeks.

Any changes in conditions of employment, such as reduced hours of work or a rearrangement of duties, should be discussed with all affected parties including, where appropriate, the union.

THE ROLE OF ACC

The Accident Compensation Corporation can provide financial assistance for people affected by OOS if it can be established that personal injury by accident has occurred, or the condition is in the nature of an occupational disease. This may take the form of assistance for the cost of treatment as set out in the medical fees regulations, which cover the nature and amount of treatment. There may also be provision for maintenance of income.

To establish if you are eligible for ACC cover, the following procedure should be followed:

- Consult your doctor about OOS.
- Obtain a medical certificate.
- Take the certificate to your employer, who may forward all necessary documents to ACC on your behalf, or may ask you to take the certificate to the ACC.

Earnings-related compensation may be available from ACC when there is a loss of earnings, on the

completion and acceptance of a full claim form (C1). This applies whether the worker is off work or on selected duties.

A doctor's certificate and details of your absences from work, supplied by the employer, will be necessary to support a claim. A claim may be lodged at any ACC office by the affected person independently of the work situation.

When returning to selected duties or alternative work, pay can be "topped up" by the ACC until earning capacity returns to normal. Eligibility for income maintenance should be checked by the case manager, who is often the ACC rehabilitation co-ordinator.

There are a number of different options available, for example "work trials" or retraining. The local ACC office can provide further information. If retraining for different work is necessary, the worker's skills should be assessed with professional help in this field. This protects workers from undertaking work below their potential and allows for increased efficiency¹⁹.

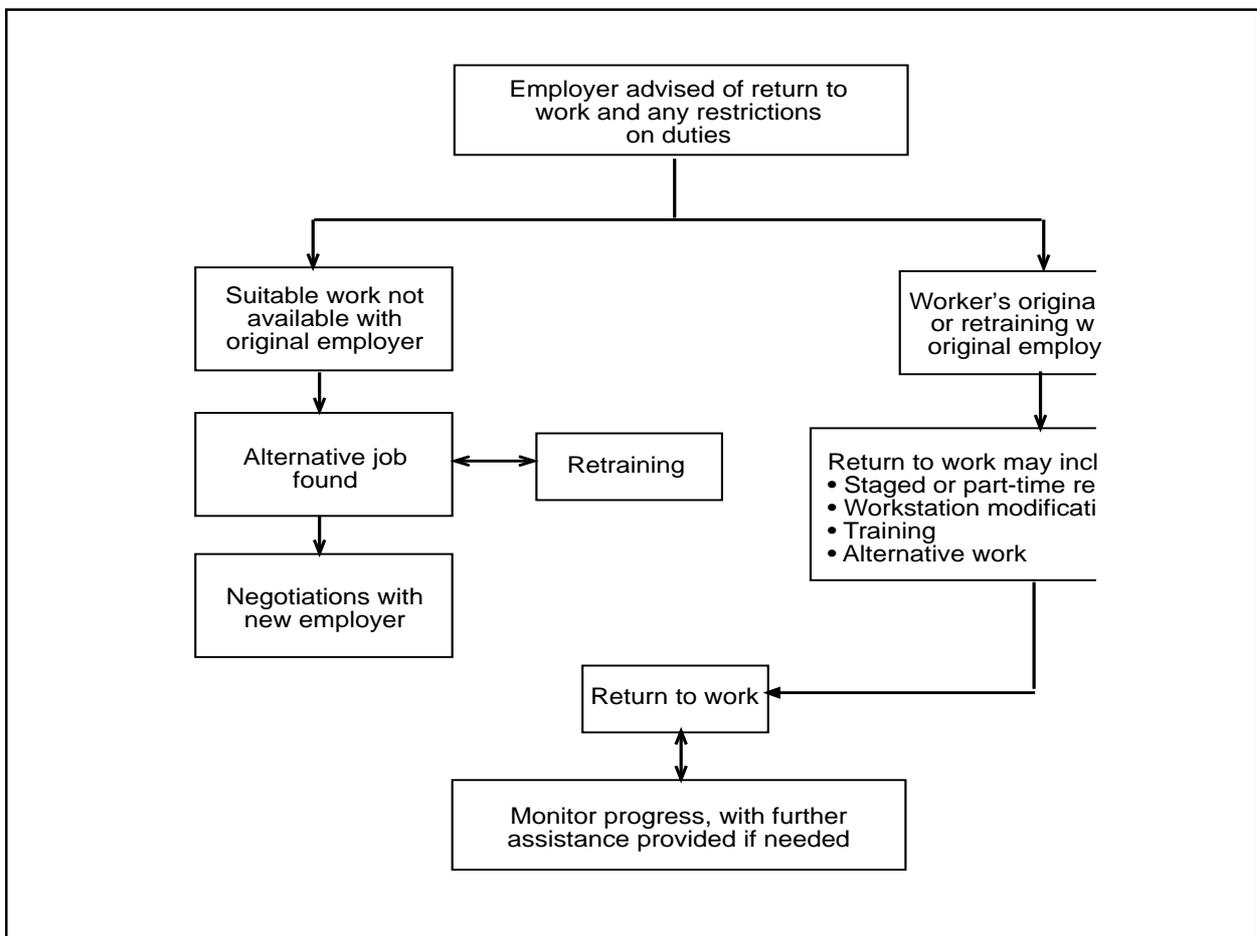
If a degree of permanent disability is diagnosed, a payment may be available on application to the ACC.

RETURN TO WORK

The chart below shows the stages involved in an employee's return to work after an absence due to OOS.

CHRONIC CONDITIONS

Some people have developed a severe problem which has persisted for months or years. In some cases the problem has been severe enough to interfere with normal daily life over a long period of time. These people require specialist treatment. For further guidance, see the separate Guideline *Treatment and Rehabilitation for Occupational Overuse Syndrome*.



GLOSSARY

ELECTRONIC MONITORING

The situation where work output is measured automatically. For example, the number of keystrokes made each hour on a word processor can be measured.

ERGONOMICS

The study of the relationships between people and their workplace.

INCIDENCE

The number of new cases of a disease in a given period of time (normally one year).

JOB DESIGN

Deliberate attention given to the way all the aspects of a person's job are designed and integrated together to form a job.

MACHINE PACING

Where a person's workrate is determined by the rate at which a machine operates.

MICROPAUSE

A short break in work accompanied by muscle relaxation. Micropauses allow for restoration of blood flow in muscles which have been tense for some time. Micropauses are recommended, typically, for 5-10 seconds every three minutes. Unless the muscles relax fully, micropauses are of no value.

MUSCULO-SKELETAL

The body's system of bones, muscles, ligaments and tendons.

PREVALENCE

The number of cases of a disease at a point in time.

STRESS

The reaction within a person to factors acting from outside the person.

TASK DESIGN

Deliberate attention given to the way a person's individual work tasks are designed.

WORKING RHYTHM

The way a person builds pauses for relaxation into their work.

WORKING TECHNIQUE

The way a person uses their body (parts) to do their work. Having a good posture, keeping joints straight, using momentum to help get the work done, using smooth actions are a few examples of good technique.

APPENDIX A: COSTS OF OOS

NATIONAL COSTS

It is not possible to assess the present financial costs of OOS to New Zealand. Data available indicate that the cost of compensation claims is increasing. ACC figures show that the total cost of compensation for OOS-related conditions was some \$6.7 million in the 1989 year.

At present there is a lack of reliable data on the incidence of the condition. Much of the data that does exist is difficult to assess and often its reliability is uncertain. It would seem reasonable to assume that the actual incidence is much higher than many reports indicate.

One factor in this under-reporting is that affected workers, especially those from two-income families, will often leave the workforce without seeking compensation, or are not recognised as having a compensatable condition.

INDUSTRY COSTS

The cost of OOS to individual industries is difficult to determine. It is clear that the prevalence of OOS varies considerably between occupational groups. Few industries have identified the actual costs of OOS, or the costs of avoiding OOS within their workplaces.

Some of the identifiable costs to industry would be:

- ACC levies.
- Initial period of sick pay paid by the employer.
- Lost production time.
- Loss of skill and experience.
- Modification of workplace to reduce or eliminate OOS.

- Replacement costs (including training and retraining).
- Support staff costs (e.g. health professionals).

Some of the less easily identifiable costs to industry would be:

- Reduction in output from OOS-affected workers.
- Redistribution of workload.
- Lower morale, increasing the likelihood of industrial conflict.

PERSONAL COSTS

Perhaps the most important cost of all is the personal cost borne by every person with OOS. This is a cost that cannot simply be measured in financial terms, as can the national and industry costs.

The personal cost to a person with the problem must be viewed against what many have reported as being a prevailing background of ignorance and inconsistency. This tendency is often revealed to those who have OOS by the attitudes of fellow workers, employers, family, friends, medical professionals, unions, government agencies.

The major personal costs are reported to include factors such as:

THE PHYSICAL: The effect of constant pain, and the inability to carry out even the most basic task that others take for granted.

THE FINANCIAL: The inability to work, the sudden drop in income, and future financial uncertainty.

THE SOCIAL: The loss of friends and workmates, and the inability to participate in many social, workplace, and family activities.

THE EMOTIONAL: Stress, fear of job loss if unable to perform satisfactorily, fear of the future, loss of self-esteem, feelings of inadequacy, loss of dignity, loss of independence, and general despondency.

APPENDIX B: SAMPLE CHECKLIST

WORK ORGANISATION

RISK FACTORS

A "No" answer can indicate an increased risk of OOS, but all factors should be considered

TENDS TO DECREASE RISK OF OOS

TENDS TO INCREASE RISK OF OOS

A Task Specification:

yes no

- | | | | |
|---|--|-------|-----|
| 1 | Are there clear job descriptions? | [[] | [] |
| 2 | Are there clear performance specifications? ^{7*} | [[] | [] |
| 3 | Do operators get feedback from supervisors about their performance?* | [[] | [] |
| 4 | Do supervisors get feedback from operators about their performance?* | [[] | [] |

B Task Nature:

- | | | | |
|---|--|-------|-----|
| 1 | Does the operator understand what is required in the job? | [[] | [] |
| 2 | Do operators have some control over their work flows? | [[] | [] |
| 3 | Does the job have a variety of tasks to avoid monotony? | [[] | [] |
| 4 | If the job lacks a variety of tasks, is there job rotation? | [[] | [] |
| 5 | Is the job interesting to the person?* | [[] | [] |
| 6 | Does the job structure prevent pressures on the individual from becoming too great?* | [[] | [] |
| 7 | Is there only one supervisor for the operator?* | [[] | [] |

C Task Organisation:

- | | | | |
|---|--|-------|-----|
| 1 | Can operators take regular breaks? | [[] | [] |
| 2 | Can operators use the micropause technique?* | [[] | [] |
| 3 | If any recent changes have been made to work/tasks, was the risk of OOS taken into consideration?* | [[] | [] |

D Amount/Rate of Work

- | | | | |
|---|---|-------|-----|
| 1 | Does the method of payment avoid systems which may increase the risk of OOS?* | [[] | [] |
| 2 | If overtime is worked, is it organised to minimise the risk of OOS?* | [[] | [] |
| 3 | Are deadlines organised so that workloads remain reasonable? | [[] | [] |
| 4 | Does the job avoid boredom? | [[] | [] |

E Organisational Practices:

- | | | | |
|---|---|-------|-----|
| 1 | Is work monitoring for discipline purposes avoided?* | [[] | [] |
| 2 | Is there a mechanism for dealing with seasonal volumes of work? | [[] | [] |

This checklist may be used to evaluate a particular job in an organisation.

* Refers to a note below.

NOTES

A2 A performance specification removes uncertainty, and gives everyone concrete goals to aim for. For example: a 1-3 page document will be done by 4.30 pm if presented by noon, otherwise, it will be ready by noon the next day.

A3 and A4 Positive feedback on good performance always improves morale, regardless of the person's position. Sometimes upward feedback needs to be formalised.

B5 Where a job allows for and/or requires decision-making, creativity, initiative and leads to further learning, workers are likely to be more involved.

B6 Stress is an important feature in the development of OOS.

B7 A person with two supervisors can end up having to meet conflicting deadlines.

C2 The micropause technique consists of using a 5-10 second complete relaxation for every three minutes of work. In line with ergonomic theory, productivity increases may be expected when the micropause technique is carried out properly. Micropauses are ineffective unless the person relaxes fully during them.

C3 Changes which are often associated with the development of OOS are speeding up the work, the introduction of heavier workloads, overtime or a bonus system of payment, the arrival of a new supervisor or being assigned to new duties.

D1 Bonus systems and the job and the finish payment method are both likely to increase the risk of OOS because they may encourage people to work beyond their natural capacity.

D2 Overtime increases the amount of work and decreases the time for recovery.

E1 Work monitoring is necessary for proper management. When it is used for discipline purposes, or when work monitoring leads to conflicts between the company's requirements and the way workers do their jobs and deal with clients, it can result in increased stress on workers.

This checklist is an example of a simple risk assessment procedure for OOS. This, and other checklists covering the topics listed below, are available from your local OSH office:

- 1 Policy Development
- 2 Organisational Preparedness
- 3 Work Organisation
- 4 Workplace/Workstation Design
- 5 Keyboard Workstation Design
- 6 Operator Technique
- 7 Hand Tool Design.

SURVEY METHOD FOR INVESTIGATING OOS

To establish the prevalence of OOS among the staff of a company properly requires a medical practitioner to make a diagnosis of the condition. To carry out a full survey using a medical practitioner is often impractical.

The questionnaire over the page shows a method of assessing muscle/tendon aches and pains. This information can be used to improve comfort at work, as well as indicating which workers may have more severe problems.

The questionnaire shown is a sample only. It should be adapted to the needs of the organisation. The questions listed, however, are generally regarded as the relevant minimum.

The questionnaire could be used by an individual to keep track of how muscle/tendon problems are progressing. Alternatively, the personnel department of an organisation or the occupational health nurse might use it to establish the prevalence of problems. Where workers are reluctant to give their names, it may be used anonymously.

Standardised questionnaires of the type shown are a convenient investigation method after alterations to the workplace/workstation. Before and after assessments can be made to establish if improvements in comfort have occurred.

Particular note should be taken of any adjectives which staff use to describe more severe feelings.

INITIAL SELF-ASSESSMENT OF MUSCLE/TENDON DISCOMFORT

Name:

Company:

Date:

1 What type of work do you do, and how many hours each day do you spend on each job?

2 Do you have any discomfort now? If so, when did you first notice it?

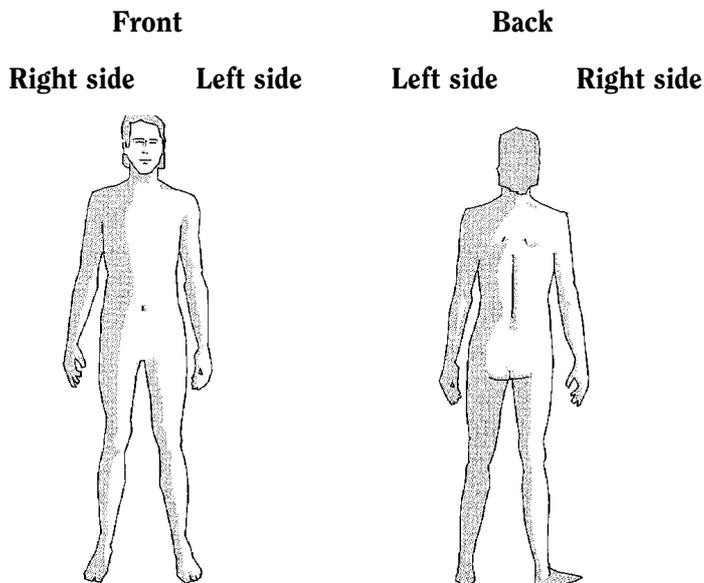
3 Of the tasks you do, which causes the most discomfort?

4 Which is the second most serious cause of discomfort?

5 What job were you doing when this feeling developed?

6 Describe how it felt at first?

7 Use the diagram to shade in the areas most affected. To the right, describe how it feels now.



What time of day does the feeling begin?

What time of day does it stop?

Are you free from discomfort at the weekends?

Are you free from discomfort during the holidays?

Has it ever woken you at night?

Has it ever kept you awake at night?

Is the discomfort aggravated by housework?

Does it prevent you doing housework?

RESOURCES

Assistance in setting up prevention strategies, preparing prevention and rehabilitation programmes and information about OOS may be obtained from:

- Accident Compensation Corporation injury prevention and rehabilitation staff.
- New Zealand Employers' Federation health and safety advisors.
- Occupational health nurses in area health boards.
- The local OSH office (Occupational Safety and Health Service of the Department of Labour).
- Union Health and Safety Centres in Auckland, Hamilton, Palmerston North, Wellington, Christchurch and Dunedin.

A variety of health professionals in private practice also have the skills and information required.

REFERENCES

- 1 Department of Labour. *Treatment and Rehabilitation for Occupational Overuse Syndrome*. OSH, Department of Labour, Wellington, 1991. (In preparation)
- 2 National Occupational Safety and Health Commission. *Repetitive Strain Injury: A Report and Model Code of Practice*. Worksafe Australia, Canberra, 1986.
- 3 Putz-Anderson V. *Cumulative Trauma*. Taylor and Francis, London, 1987.
- 4 Wigley, R.D. "Repetitive Strain Injury: Fact not Fiction." *New Zealand Medical Journal*, pp. 75-76, 28 February, 1990.
- 5 Reid J. and Reynolds L. "Requiem for RSI: The Explanation and Control of an Occupational Epidemic." *Medical Anthropology Quarterly*, 1990 (4), pp. 162-190.
- 6 Wright G. D. "The Failure of the RSI Concept." *Medical Journal Australia*, Vol. 7, September 1987, pp. 233-236.
- 7 Ramazzini B. *The Diseases of Workers* (translated Wright W. C). Hafner Publishing Co. New York, 1964.
- 8 Grandjean E. *Fitting the Task to the Man: An Ergonomic Approach*. Taylor and Francis, London, 1986.
- 9 Clark T.S. and Corlett E.N. *The Ergonomics of Workspaces and Machines: A Design Manual*. Taylor and Francis, London, 1984.
- 10 Pheasant S.. *Bodyspace: Anthropometry, Ergonomics and Design*. Taylor and Francis, London, 1986.
- 11 Tichauer E. *The Biomechanical Basis of Ergonomics*. Wiley, New York, 1978.
- 12 Standards Association of New Zealand. NZS 6703:1984 *Interior Lighting Design*. SANZ, Wellington, 1984.
- 13 Standards Association of New Zealand. NZS 4303:1990 *Ventilation for Acceptable Indoor Air Quality*. SANZ ,Wellington, 1990.
- 14 Department of Labour. *Atmospheric Conditions in the Workplace*. Wellington, 1983.
- 15 Sundstrom E. *Work Places: The Psychology of the Physical Environment in Offices and Factories*. CUP, Cambridge, 1986.
- 16 Department of Labour. *Code of Practice for Health and Safety Committees and Health and Safety Representatives*. Wellington, 1989.
- 17 Brown D.A. *On-Site Management of Occupational Overuse and Fatigue*. Department of Health, Wellington, 1989. (Available from the Department of Labour.)
- 18 Morse W.J., Roth H.P. and Poston K.M. *Measuring, Planning and Controlling Quality Costs*. National Association of Accountants, Montvale, New Jersey, 1987.
- 19 The ACC has a number of pamphlets available which may be of interest. Contact your local ACC office.