

SEGMENT THIRTEEN - Ergonomics and Workstation Design

After studying this segment you should have a greater understanding of the need for well designed equipment, working practices and workstations and the potential problems that poor design can cause.

AIMS OF THE SEGMENT

The main aim of this segment is to help you to understand how workplace, equipment and task design affect health & safety and be able to:

- Give examples of how musculoskeletal disorders can be caused or aggravated by work activities and workstation design;
- Describe the key features of task and workstation design and adjustment which can reduce the risk of musculoskeletal disorders;
- Appreciate the need to follow procedures and instructions, and report early signs of possible problems.

ERGONOMICS

Ergonomics is the art of making sure the things we use (tools and equipment etc) fit our bodies. Ergonomics is one of the reasons that cars fit us, that seats are comfortable to sit in and that table tops are the right height to work from – at least for most of us.

And that is the important point about ergonomics, it means that things are designed to fit the average person and not all of us are average in height, weight, reach or strength.

In health & safety terms, ergonomics is about ensuring that the equipment we use and the workstations we work at do not present a risk or hazard to our health.

To understand the content of this Segment we need to look at the long term hazards presented by the equipment and workstations we use. This is the key difference between ergonomics and most other parts of health & safety, the effects of ergonomics can take a long time to show themselves.

In many ways it is related to and similar to some aspects of occupational health.

MUSCULOSKELETAL DISORDERS

Much of our working lives involves moving and handling materials, reaching, lifting or simply standing or sitting. Using our muscles and joints in a repetitive and restrictive way day after day can cause problems with muscles, joints and bones.

For example:

- repetitive lifting of a load involving twisting, stretching etc can lead to **low back pain**;
- **injury to hands and arms** can result from simple manual handling activities;
- gripping a filleting knife all day can lead to pain in the fingers and in more serious cases problems with tendons;



WORK RELATED UPPER LIMB DISORDERS (WRULD or RSI)

It used to be called repetitive strain injury but now we talk about Work Related Upper Limb Disorders or WRULD.

Tendonitis and Tenosynovitis

These are the tender swelling of the tendons, which connect muscles to the bones in order to work the joints of the body.

Symptoms

Pain, tenderness, and swelling of the affected area, and also stiffness of the joint which is moved by the tendon. It may just last a few days, but in some cases can go on for many weeks or even months.

Causes

Probably the most common recognisable cause is overuse through heavy and/or repetitive physical activity. It is sometimes caused by rheumatism or arthritis and may be caused by infection.

Carpal Tunnel Syndrome

This condition is related to Tendonitis and Tenosynovitis. It occurs in the hand and has similar causes. The difference is that the swelling tendon puts pressure on the nerves leading to fingers. These pinched nerves result in numbness and tingling in the fingers.

These are all examples of **WRULDS**.

An important consideration in the design of workstations is how far users need to reach and how often to do their job. When reaching, operating the equipment and at rest, what is the position of their hands, arms and back – their posture.

Sadly, too many work processes and workstations force users to stretch too far, too often and to hold their limbs at an awkward angle – creating or making worse any problems with muscles, joints and bones.

TASK ANALYSIS

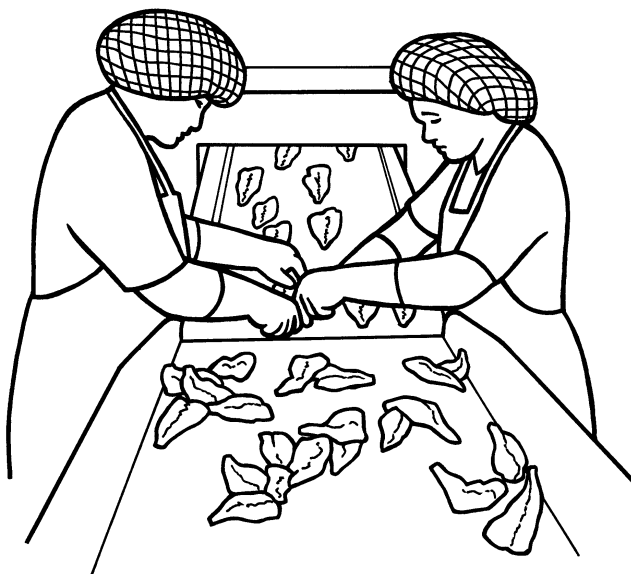
Task analysis is not the most interesting job in the world, but it plays an important part in health & safety. Many of the hazards we face during the working day only become risks because of the tasks we are asked to perform.

Let me give you an example.

The 50kg sack of sauce mix in the dry goods store is a manual handling hazard but it only presents a risk if you attempt to lift it yourself. It is the combination of the hazard and the task that presents the risk. Now, one of the reasons you are not asked to lift 50kg sacks is because someone has analysed the task and decided it is too risky.

* HAZARD		* TASK		* RISK		* CONTROL	
Haddock	✓	✓	✓	✓	✓	✓	✓
Cod	✓	✓	✓	✓	✓	✓	✓
Coley	✓	✓	✓	✓	✓	✓	✓

CORRECTIVE ACTION



That is why you have smaller bags to lift manually and mechanical assistance to lift heavier loads.

The main steps of task analysis involve breaking down a complicated activity into its individual parts. Even lifting a smaller bag of sauce mix and pouring it into a mixer is a complicated activity.

Manual Handling Ergonomic Assessment

Manual handling tasks are common in the seafood industry and persons carrying out some of these tasks may suffer from back, shoulder, arm and hand injuries (typical musculoskeletal disorders).

One common approach to reducing risks of musculoskeletal disorders is to reduce the size of the manual handling operation and to adjust the workstation.

WORKSTATION DESIGN AND ADJUSTMENT

Workstations include the desks at which some of us work at, the processing lines, shop counters and other items of 'working'.

As we are not all of the same height, physical build or have the same physical abilities it is impossible to build a workstation that is suitable for everyone who might possibly use it.

Workstations tend to be designed about an 'ideal' or 'average' person. Someone of average height, build, reach, strength etc.

Even this is not ideal, so many workstations have some amount of adjustment designed into them to account for those of us who are not entirely average.

Adjustments may take the form of platforms to raise you up to a comfortable working height, the possibility of adjusting the position of tools to reduce the amount of stretching involved.

The following guidance is Seafish's guidance for working at an office desk. While you may not work at a desk, this guidance illustrates the key features of workstation adjustment and what can be done to avoid injury.

Working at a workstation - Self help techniques

1. Adjust your chair and screen 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 screen casing.



2. Make sure there is enough space underneath your desk to move your legs freely, move any objects such as boxes or equipment.
3. Avoid pressure on the backs of your legs and knees, a footrest, particularly

for smaller users may be useful.

4. Don't sit in the same position for long periods, make sure you change your posture as often as is practicable. Some movement is desirable, but avoid repeat stretching movements.
5. 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 hands and wrists while not keying in data.
6. Don't bend your hands up at the wrist when keying, try to keep a soft touch on the keys and don't over-stretch your fingers.
7. Try different layouts of keyboard, screen and document holder to find the best arrangement for you.

8. Make sure you have enough workspace to take whatever documents you need, a document holder may help you to avoid awkward neck movements.
9. Arrange your desk and screen so that bright lights are not reflected in the screen, you should not be facing windows or bright lights directly. Adjust curtains or blinds to prevent unwanted light.

The Role of Procedures

The procedures and instructions given to you by your employer about your job should serve three important purposes.

Firstly, they should ensure that the job you carry out is done efficiently and effectively, to the standard required by the company.

Secondly, the procedures and instructions are there so you know what you are expected to do to carry out your job well.

Thirdly, the procedures and instructions should be carefully designed to ensure that everything you do in your job is safe and does not expose you to risks.

The possible outcomes of not following the accepted procedure is that the job will not be carried out correctly, you will get into trouble and you may put you and your co-workers at risk.

SUMMARY

In this segment I have tried to explain that many musculoskeletal injuries can be caused by poor ergonomics – the design of the task and the design of the workstation and equipment.

A key difference between these types of injuries and accidents leading to injuries is time.

Ergonomic problems take time to have an effect, sometimes years which is why it is important to look out for the early signs of injury.

These signs include:

- backache that takes too long to go away, aches in joints and limbs;
- tingling and pain in fingers and hands, particularly if the result of a particular activity;
- factors that can contribute to these problems such as:
 - Poor posture when working;
 - Workstations that cannot be adjusted;
 - Too much repetition without proper breaks.

The important thing is, if you have any indication of a problem you must go and report this to your health & safety officer or a manager or supervisor.

Their role will be to look into it and see what can be done to remove or reduce to a safe level any hazard that may be present.