

M8-EN.2 INTRODUCTION TO MUSCULOSKELETAL DISORDERS (MSD), VISUAL DISPLAY UNITS (VDU) AND MANUAL HANDLING

The Musculoskeletal disorders (MSD) are one of the most common work related health problems in the European Union. A recent study in the 15 EU countries has indicated that:

- 30% or 44 million employees suffered from waist problems
- 17% complained for pains in the wrist the arms or the legs
- 45% suffered from pain due to tiring work places
- 33% reported that it is necessary to manually handle heavy loads

M8-EN.2.1 Causes – factors for MSD

The main causes and physical factors associated with the onset of MSD are:

- Manual handling of loads
- Repetitive movements
- Difficult/ bad work postures
- The intensive use of hands
- The vibration of the body
- The bodily fatigue

The MSDs can be caused due to:

- Excessive use of the musculoskeletal system
- Abrupt movements that happen while at work
- Lifting or handling of excessive loads
- Wrong method of carrying out the task

In this chapter, we will analyse two of the main causes that contribute to the onset of MSD in the work place:

A) The sitting work posture in conjunction with the use of Visual Display Units (VDU)

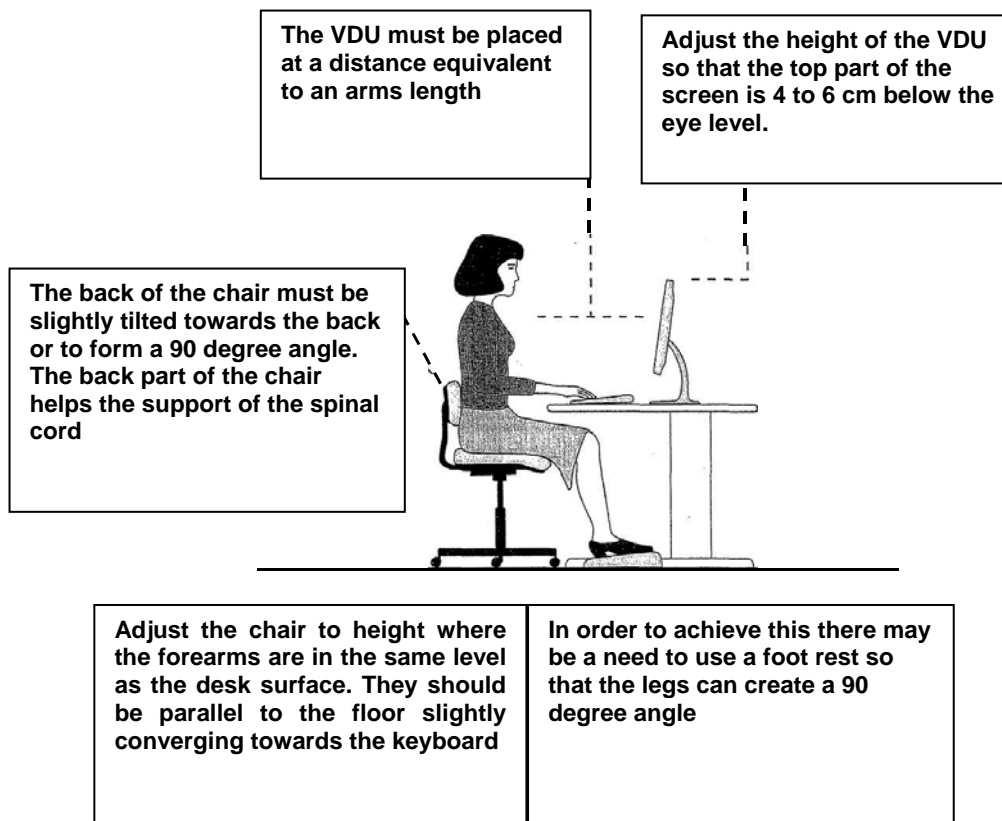
B) The manual handling of loads

M8-EN.2.2 The sitting work posture in conjunctions with the use of VDVs

An office workstation that is properly organised and adjusted is able to reduce the risk of serious MSD that may arise as a result of using a wrong sitting work posture.

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Adjust the chair height to a level where the forearms are in the same level with the desk surface. They should be parallel to the floor, slightly converging towards the keyboard. In order to achieve this there you may need to use a footrest so that your legs can create a 90 degree angle.



The back of the chair must be slightly tilted towards the back, or to form a 90-degree angle. The back part of the chair helps the support of the spinal cord.

The screen must be placed at a distance equivalent to an arms length. Adjust the height of the screen so that the top part of the screen is 4 to 6 cm below the eye level.

The layout of the PC, the keyboard, the mouse and the other documents in the workspace must such that:

- you have freedom in your movements
- you are able to rest your arms so that you have better support instead of having them unsupported at all times

Press the keyboard keys and mouse softly without using strength. Such an activity is a matter of habit.

In order that the eyes do not tire, adjust the intensity and contrast of the screen. Also, clean the screen for better clarity. If there is a need then tilt the screen towards the front in order to reduce the interference that may created from intense light or reflection. The position of the screen must be such that sunlight is not reflected on it. If this is not possible, then close the curtains or roll down the blinds and increase the size of the characters so that you can easily read them.

The workstation must so designed to reflect the type of task you are carrying out.

Place the items that you frequently use in an easily reachable distance. The keyboard must be placed directly in front of you and the mouse to be placed along the same line right next to it (**M08.02.02**). Avoid supporting your body by the forearms and

especially the wrists. Use whenever possible a document holder, wrist support and leg support.

If you are using a laptop computer for long periods, keep a keyboard in your office that can easily be plugged to the laptop. Place the laptop at a surface where the screen is at an eye level. The best solution is to plug the laptop with an appropriate screen and keyboard.

Organise your work so that you are not in front of the screen continually for more than 1½ -2 hours. Sit up from your chair and take a number of steps in your office space. Carry out a different activity such as archiving, writing, incoming mail, etc. This helps the musculoskeletal system.

Employees using glasses should check their eyesight at least once a year. People that do not use glasses but feel eyestrain or have headaches should visit an eye-specialist the soonest

Correct workplace design and posture



Wrong workplace design and posture



Remember:

For the sitting work stations there must be provided:

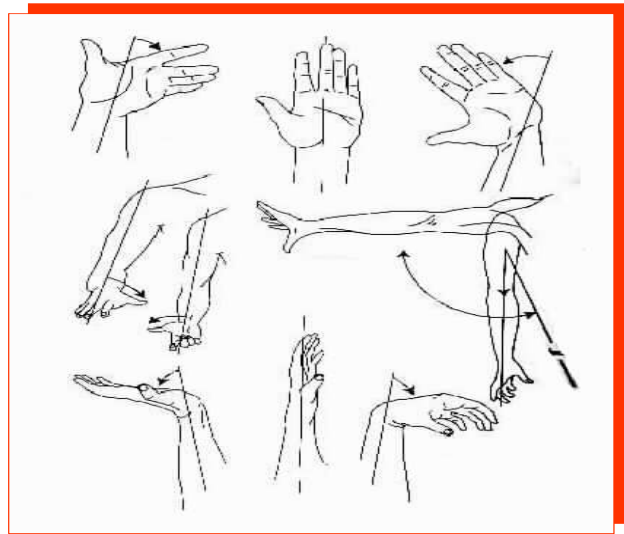
- Adequate desk
- Ergonomically designed chair
- Low radiation VDU
- Soft keyboards
- Adequate lighting
- Adequate ventilation
- Adequate temperature



All of the above aspects are regulated by the relevant health and safety legislation and more specifically by the Minimum Health and Safety at Work Regulations (KDP 174/2002) with respect to work place ventilation, temperature etc. Additionally regulation number KDP 455/2001 defines the minimum standards for the proper use of VDUs and it defines the requirements for the desk, the chair, the screen and the keyboard.

Exercises for the arm and wrist

In order to relax your hands the following simple exercises can be used as shown in the pictures



Checklist

Carry out a self-assessment test of your workstation using the following questions:

OBJECT	Yes	No
Chair		
Is it adequate and in the good condition?		
Is it properly adjusted?		
Do you have a problem with the support of your forearms?		
Desk		
The layout of the PC, the screen the keyboard, the mouse and the other documents on your office are such that they allow you to have enough free space for your movements?		
Are you allowed to rest your hands on the desk for better support, instead of having to leave them unsupported all the time?		
Screen		
Is it clean?		
Are there any reflections?		
Can you read the characters with ease?		
Mouse and keyboard		
Are they positioned in such a place where you can handle both with the arm in a horizontal position and vertically with the body?		
Do you press the keys softly and without excessive strength?		
Breaks		
Have you organised your work so that you are not in front of the screen for more than 1½ -2 hours continually?		
Eyesight		
If you are using glasses, have you visited your eye-specialist this year?		
If you are not using glasses and you feel eyestrain or experience headaches, have you visited an eye-specialist yet?		

M8-EN.2.3 Manual handling

The manual handling of loads includes the transportation of boxes, the storing of materials, the archiving and the transportation of equipment or even the loading of the fax of photocopier with paper.

The diseases that can be caused from bad practices during the handling of loads with hands include damage of the spinal cord, sprains, pulls, injuries, rapture of the ligaments and even bone fracture. **(M08.02.03)**

Most people lift loads using the wrong method. This causes the whole of the musculoskeletal system to strain and particularly the spinal cord. In many cases, just one wrong lifting of load, even with a relatively light load, is enough to cause a serious damage to the musculoskeletal system.

The main backbone and waist problems that can be caused due to bad manual lifting of loads are:

1. Muscle pulls
2. Rapture of the muscles
3. Slipped disc
4. Arthropathy of the discs

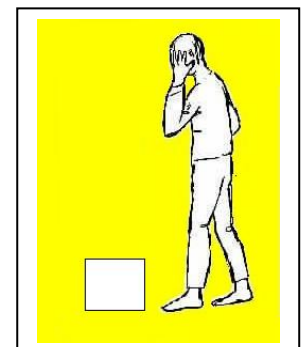
In order to avoid the above problems use wherever possible the appropriate mechanical means.

Whenever there is a need to lift something do not take unnecessary risk. Estimate the weight of the load before attempting to lift it.

Please find below the five (5) simple steps for safe manual handling of loads

Step 1: Plan the lift

Type of load; Does it contain breakables - Where to move - How high is to be lifted - The estimated weight - Can it be moved using mechanical means - Is there a need for assistance



Step 2: Take the right position

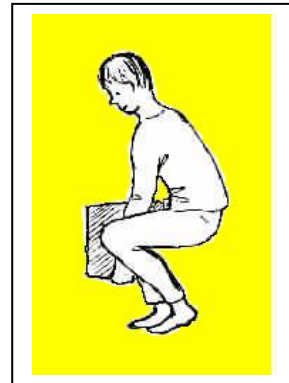
Looking to the direction of movement, place one foot slightly on the side of the load

Keep enough distance between the feet so that you adequate stability

Step 3: Bend the knees

If you are lifting the load from a low point, bend the knees and keep the back in a straight line, bending slightly forward

Grab the load tightly with both hands



Step 4: Stand up

Stand up giving the weight to the legs without bending the back

Step 5: Move and place the load

Keep the load close to the body. Walk slowly and steadily with uniform movements without talking. Once you reach the destination, leave the load down carefully in the reverse manner paying special attention not to crash the fingers and toe.



During the transport of the load do not make any unnecessary movements and do not twist the body.

How much weight can we lift?

This is a question with no easy answer because this depends on a number of factors such as the shape and nature of the load as well as the capabilities of the person or persons doing the lifting.

Basic ergonomic principles in the manual handling of loads

- Minimise the need for the manual handling of loads
- Reduce the weight of the loads

- Reduce the frequency of the manual handling of loads
- Use mechanical means (trolleys, hoists, fork lifts, etc)
- Better work planning
- Improve the work environment
- Train the employees

The manual handling of loads is regulated in Cyprus by the relevant legislation on health and safety at work and more specifically by the Manual Handling of Loads Regulations (KDP 267/2001).