

Internet: Health and Safety

You are going to be sitting in front of a computer for a considerable amount of time when you are studying this Unit. It is very important that your health and safety have been taken into account. Observing the advice given by the European Directive (UK Display Screen Equipment (DSE) regulations), it will help you avoid or reduce health problems arising from computer use.

If you are at college, extensive health and safety checks and audits will have taken place to ensure the suitability of your environment, but you also have to take responsibility for your own well being.



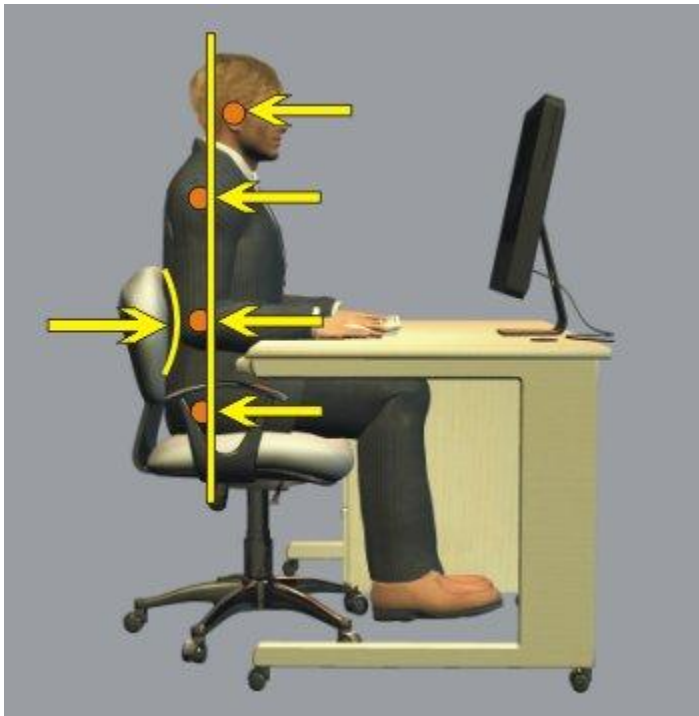
Activity - By this stage in your course you should be aware of how you have been sitting. Have you had stiff shoulders? Got a sore neck? Check out the following site:

<http://www.openerg.com/dse/setup.html>

Look at the images below. Is this the way you're sitting? See what you should or should not be doing.

Follow these simple steps to set up your working environment for computer use....

Using a desktop computer



First, get into a good sitting posture that will keep [your static muscle effort](#) as low as possible:

1. Sit upright, fully back in the seat with your back straight and head up.

If you can't get fully back in the seat because the cushion is too long, you need to adjust the seat-back forward, if you can, or [change the chair](#).

2. As far as possible, try to get your ears, shoulder, elbows and hip bone all in a vertical line.



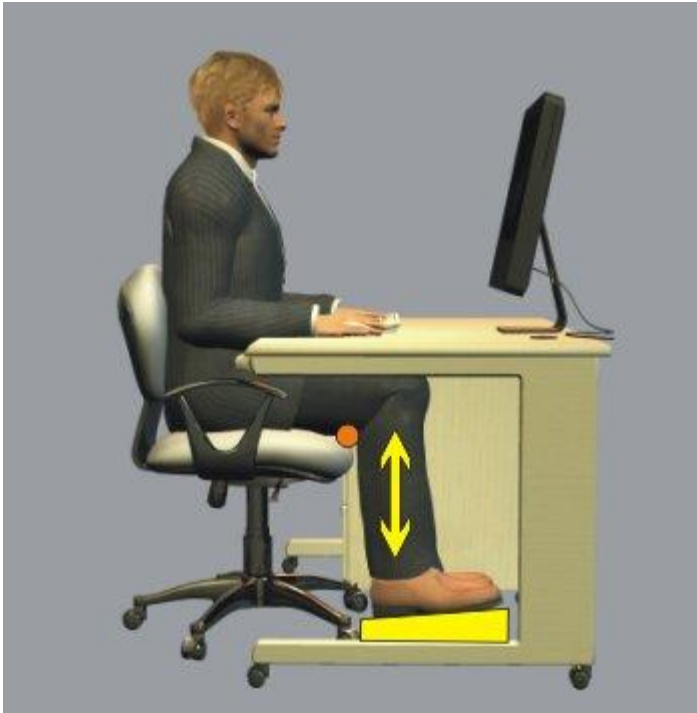
Next, set your seat to support you in that posture at your desk:

1. Adjust your chair height so that the underside of your elbow is at desk height, when it is vertically under your shoulder.
2. Adjust the seat-back forwards or backwards, and perhaps up or down, to support the small of your back in the upright position.

If your chair back will not fit you like this, you need a [back support](#), or a [different chair](#).

3. If your chair has fixed armrests, they may well be too low, when you sit correctly. If so, pad them to make them higher, or remove them. Don't leave them as they are or they will tempt you to slump down to them.

Note that if you are doing a spell of paperwork, you should lower your chair for that period, to restore the intended work height for paperwork as opposed to computing.

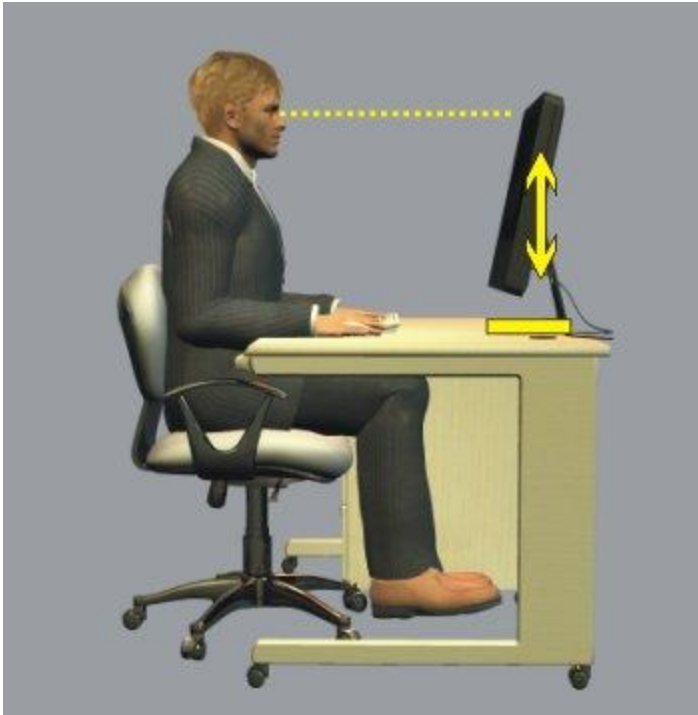


Roughly half of all people will need a footrest, to support the lower leg at the right height. This is because standard desk height was originally set for paperwork.

You should have light pressure under the front of the thighs. This is because heavy pressure will tempt you to slide along the cushion to relieve it, while on the other hand too little support will transfer pressure uncomfortably to the upper thigh/pelvis area and the feet.

You should choose a footrest of a suitable height to achieve this. You can experiment with books or anything similar to find the ideal height of a footrest for you, to achieve that light pressure under the front of the thigh.

Then find a permanent [footrest](#) of that height. Make sure it is wide and long enough for you to change the position of your feet from time to time.



Adjust your [monitor](#) height to suit your position, so that your head is facing straight ahead not up or down. Otherwise your neck muscles will work too hard supporting your head.

Generally this means having the top of the visible area at eye height; then your head is nearly in balance, while your eyes naturally look slightly downwards at the screen.

If your monitor is too low, you can stand it on something - an old phone book, perhaps or whatever you have to hand according to the rise you need.



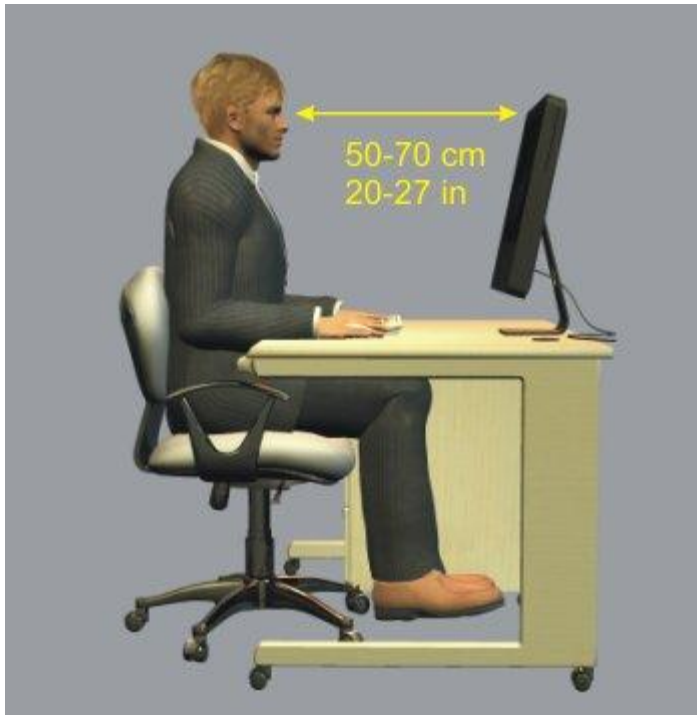
Roll your chair towards your desk, so that when typing and using the mouse, your elbows are vertically under your shoulders not pulled forwards.

You may need to remove any fixed armrests from your chair, if they collide with the desk. Better chairs have short armrests to prevent this problem.

If you are working at a curved corner of a desk unit you may find it impossible to sit close enough to your mouse and keyboard. If so, move the monitor out of the corner so you can work at a straight section. In general, modern monitors have made corner placement unnecessary, and in fact they are often too far away then.

There should be enough space under your desk to place your legs and feet comfortably, and to change their position. It is not a good idea to store things there.

You should not work with things between you and the keyboard - use a document holder if you're [copy typing](#), either next to the screen or in front of it.



Next, adjust the distance from your eyes to the monitor. You should be able to find a distance where you can read your screen easily and without peering forwards at it, but at the same time have your eyes relaxed - not working to focus on the screen.

Make sure the monitor is not too far away

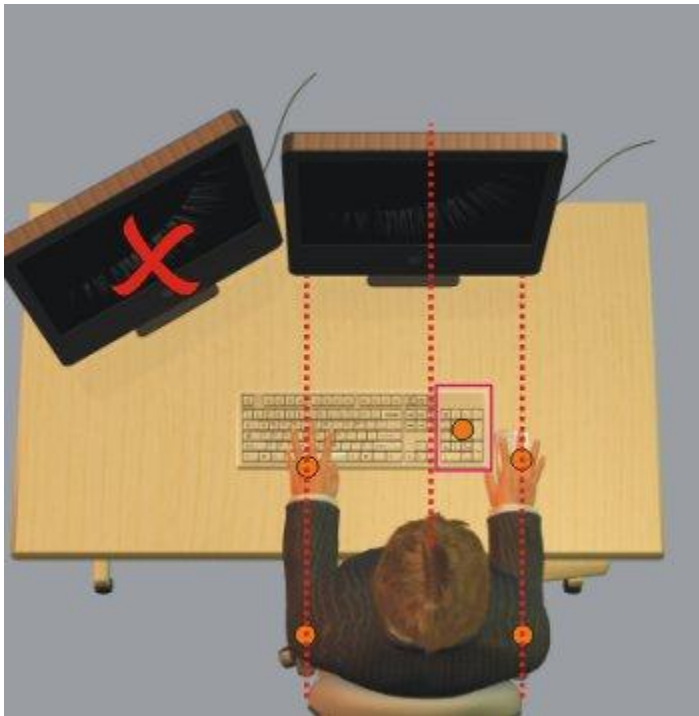
If you are short of space, you may be able to pull your desk away from the wall and let your monitor overhang the back of the desk, or you may need a deeper desk, or [glasses that adjust your eyesight](#) to a suitable distance.

If you use reading glasses, you may find that the computer distance is in between your natural focus with and without them. If so, special varifocal glasses are available with an enlarged zone around screen distance

If reading the screen is not effortless, you may need a better [monitor](#), or to run it at lower resolution if it is an old-style CRT type. Also it may need cleaning.

When choosing an LCD monitor, beware of ones that are high resolution but small in size, these need very good eyesight.

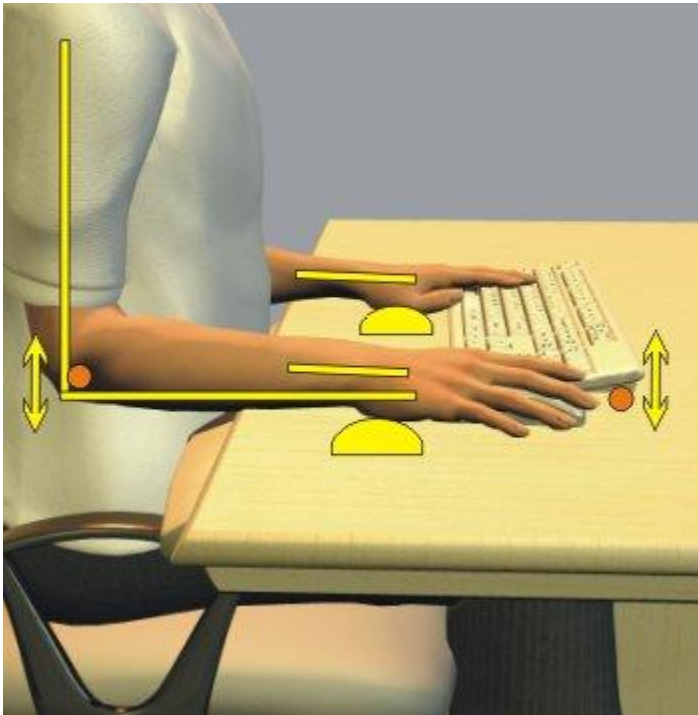
Your operating system and software may allow you to increase the size of screen elements and text, to make reading easier.



Now check that you are sitting squarely facing your monitor, not twisted. Make sure you can roll your chair along your desk to sit squarely, if need be. Drawer units under the desk can normally be removed to make space for this, if necessary.

When your hands are on your mouse and keyboard, they should not pull your elbows away from being vertically under your shoulders, either sideways or forwards, otherwise your shoulder muscles will be working all the time. Try using the mouse with your Left hand, even if you are right-handed you may find you can learn to be skilled enough. Or you can move the mouse and keyboard over if you are using one intensively.

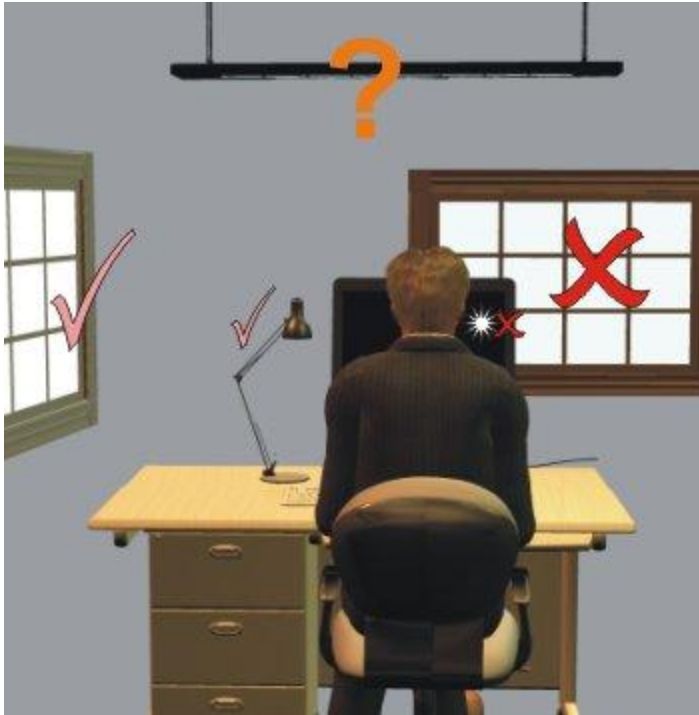
Unless you make regular use of the numeric keypad, a narrower keyboard without that extension will make it easier, if you are fixedly right-handed. Or alternatively, a left-handed keyboard will achieve the same effect.



Now fine-tune your setup so that your wrists are not working at an angle. Your hands should be in line with your forearms, both looking from the side and looking from above. You should also be able to rest your palms on something whenever you are not actively typing.

1. Don't deploy the feet at the back of your keyboard unless you really need to.
2. Use a gel "wrist rest", or a palm rest with your keyboard, or a mouse mat, for the heels of your hands to rest on (not your wrist which has tendons moving in it).
3. Make small adjustments to your chair height, so that your forearms line up with your hands.
4. If your mouse keeps 'escaping' across the desk pulling your elbow away, try cutting down a mouse mat or a piece of blotting paper and fixing it to the desk with double-sided tape or blu-tak.

After this stage you should now be able to relax the muscles in your back, neck, shoulders, arms and hands, either all the time or at least frequently.



Set up your position in the room and the lighting to make things easy for your eyes. The background to your monitor should be a similar brightness to the monitor, or just slightly darker.

1. Try not to face a window.
2. Try not to have your desk against a wall. It helps your eyes if they can easily relax by focusing on more distant things from time to time.
3. Try not to have a window behind you that will cause reflections on your screen.
4. If this cannot be achieved, use blinds.
5. Make sure the room lighting is not in your eyes or causing reflections. Ask yourself if the overhead lighting needs to be switched on at all.
6. Consider using a desk lamp for reading paperwork. A tall lamp with a full shade is best.
7. Look at your monitor while it is switched off, to check for reflections.



Maintain the air quality in your office:

1. Make sure you have fresh air, from a window or from the heating/ventilation system. You don't need a window open all the time, just some air changes periodically.
2. Monitor the humidity, it can drop to uncomfortable levels with warming from the computer, leading to eye and throat discomfort. 40-49% is generally comfortable, to monitor humidity simple gauges called hygrometers are [widely available](#) and are very cheap.
3. Plants are a good way of maintaining humidity and air quality.
4. If possible, direct control of temperature can be a positive thing, otherwise make sure you have effective communication with whoever controls it.



Manage [stress](#) and how you work:

1. Take regular breaks, at least 5 minutes away from your screen every hour, ideally with [exercise](#) or movement. Try not to have lunch at your desk.
2. Do some different types of work during the day.
3. Take control of the order in which you do tasks.
4. Limit pressure to meet deadlines to what is realistic.
5. Try to limit sudden changes in workload.
6. Communicate effectively with people who affect your work.
7. If [stress](#) becomes a problem, consult your managers and health and safety representative.
8. If there is distracting noise, get it seen to.
9. Make sure there is enough space on your desk. Use proper storage and filing, and try to avoid storing things on your desk. Consider moving e.g. a printer onto an adjacent surface like a filing cabinet.

Set-up for Laptops

Laptops have some particular problems...

This section should be read in addition to the advice given above.



This image shows how a laptop screen is too close to its keyboard. This has several bad effects:

1. The screen is too low, pulling your head down.
2. The keyboard is too far away, pulling the elbows forward and up.
3. The screen is too close, making your eyes work hard to focus on it.
4. Thus, overuse injuries may occur in the eyes, neck, shoulders and back.
5. The high elbow position may also lead to wrist problems.

In general, Laptops and Notebooks are not suitable for intensive or prolonged use on their own.



You can make a big improvement by using a separate keyboard and mouse, connected to your laptop.

Then by raising the laptop to the height of a normal screen, the posture problems can be solved.

The one remaining problem is that the screen will normally be smaller than a desktop screen, so it has to be closer to the eyes. This means the focusing muscles in the eyes have to work harder.

The keyboard and mouse can plug into a USB port or they can connect wirelessly, or you can use a docking station. They make an economical solution to extend the safe periods of use, but it is a compromise. For all-day use you should use a full-size desktop monitor as well.



By plugging in a desktop monitor, you can have the same quality of setup as a full desktop computer.

The laptop itself can be placed anywhere convenient (on most models you can close the lid while a monitor is connected).

If you are choosing a laptop/notebook computer, check that it has a suitable port for connecting an external monitor. Check the price and exact benefits of a docking station before you decide to use that method.

Summary

