

Correct Sitting Posture: **Working at a Desk**



Achieving the correct sitting posture is only the beginning when you work at a desk and use other equipment such as computer screens, laptops, phones and a mouse.

The first step is to sit correctly then simply roll your chair up to your desk.

There should be space to get your legs and any arm rests attached to the chair under the desk. If you can't do this due to the arm rests, remove them. If you cannot remove the arm rests then, ideally, the desk should be adjusted.

Height adjustable desks offer several advantages over fixed desks. They are good if you are tall, short or in a wheelchair; if people of different heights are likely to be sharing a desk; or even if you wish to stand and sit for different periods throughout the day.

In terms of the ideal height of the desk, if you are seated with your chair correctly adjusted then your arms should be bent to 90 degrees and the desk should be set to the height of your forearms.



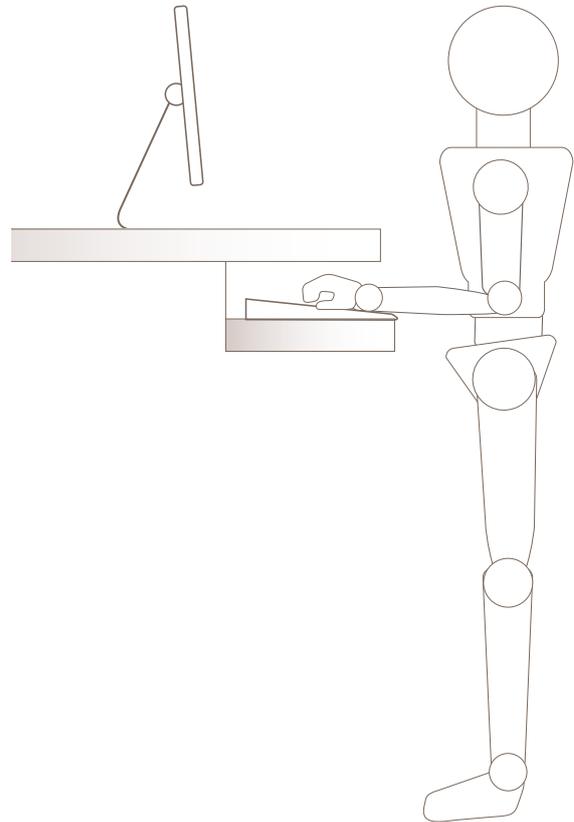
If using the arm rests to support the arms, an under keyboard/mouse tray can be used.

The elbows are still at 90 degrees but are now resting on the chair arms instead of the desk.



The same principle is true of the standing desk.

The elbow height dictates the height of the desk, as the elbows need to be bent to 90 degrees.



If you are unable to adjust the height of your desk to allow this, then either:-

1. *The desk is too low as you are too tall and cannot get your chair/legs under it.*

Solution A –

Raise the desk. Desks can often be raised using small devices.

Solution B -

Lower your chair height. This is not the preferred option as it will lead to elevated knee to hip (thigh) height and posterior pelvic tilt. This in turn leads to increased pressure in the lumbar spine. Try to stand regularly if this is the posture you are forced to adopt.



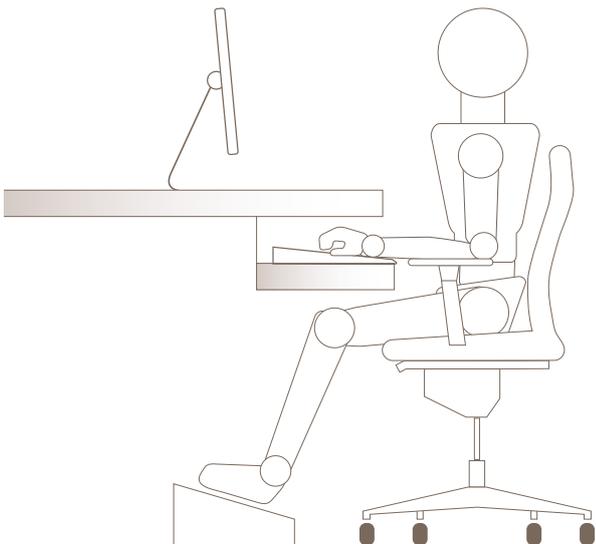
2. *The desk is too high and your elbows are too high, raising your shoulders.*

Solution –

Raise your chair height until your elbows are at 90 degrees. This may leave you with your feet off the floor, which is not ideal, so a foot stool can be used.

A height adjustable foot stool is preferable, as a small tilted angle is ideal for keeping the ankle in the neutral position (the same angle as when standing). Adjust the foot stool until your thighs are back at the correct angle (slightly pointing down at 20-30 degrees).

In order to maintain good posture, both your chair and the height of your desk need to be set up correctly. Support of your forearms is vital for your shoulders and neck so try to avoid sitting at a curve in your desk as much as is possible.



Using a monitor

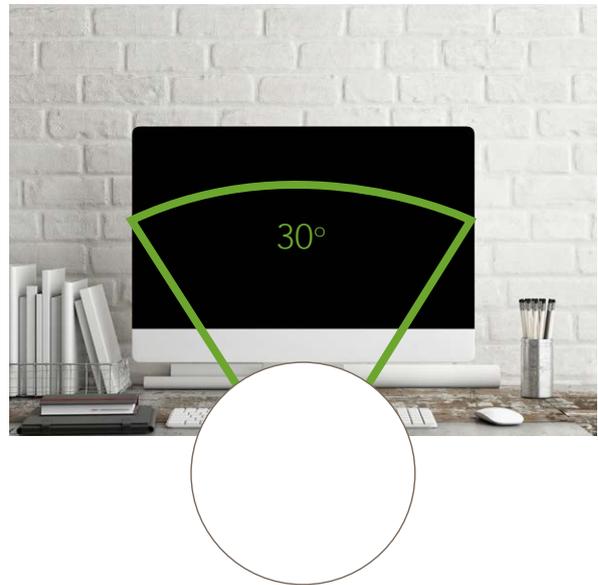
When sitting at a desk using a monitor - also known as VDU or DSE - it is important that it is at the correct height, as continually looking up or down can lead to fatigue and cause discomfort and pain.

Once again, the recommendation is to only sit at your screen for 20 minutes before changing your posture i.e. sit at your computer for 20 minutes then get up and stand, even if only for a few seconds. This helps your entire spine to change the muscles it is using and allows your posture to effectively reset. Remember the 20/20 rule – after sitting at your desk/screen for 20 minutes, get up and look 20 feet (6 metres) away for at least 20 seconds so that your eyes can re-adjust.

To set the height of your monitor, make sure the top edge – not the middle - of the screen is in line with your eyes. This height will ensure you keep your neck in a neutral position. This position is recommended as it is easier to scan down with our eyes. Research shows that, at rest, the eyes naturally look straightforward and cast down. This is called the normal line of sight.

There are people – including those that wear bi-focal or varifocal glasses - who may need to have their monitor slightly lower.

The monitor should be of sufficient size that you can read the text (you can always increase the size of the text) but should not be so big that you have to scan down more than 30 degrees.

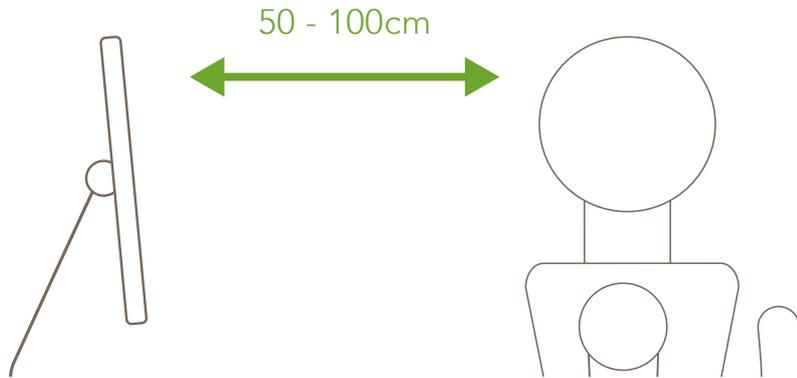


The amount we have to scan with our eyes dictates the distance from the monitor at which you should sit - the bigger the monitor, the further away it needs to be.

If the monitor is too far away it can make you lean forward and strain to see small text, which can cause eye fatigue and place stress on the muscles of the neck.

If it is too close it can make your eyes work harder to focus (convergence issues) and may require you to sit in awkward postures. For example, people may tilt their head backward or push their chair away from the screen, causing them to type with outstretched arms. The distance between the monitor and the user should allow a viewing angle of 30 degrees across the screen.

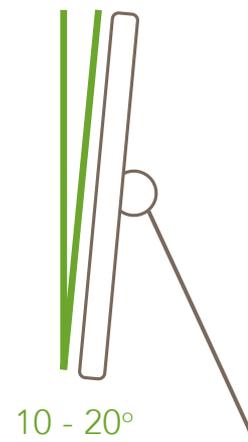
You should sit at a comfortable distance from the monitor where you can easily read all text with your head and torso in an upright posture and your back supported by your chair. Generally, the preferred viewing distance is between 20 and 40 inches (50 and 100cm) from the eye to the front surface of the computer screen (about an arm's length). The wider the screen, the further away you will need to be.



Modern computers, laptops and tablets often have very high definition screens with certain elements, such as menus and text, appearing very small and difficult to read without leaning in towards the monitor. This is not ideal for your neck so, while high resolution displays are great for videos and games, they should be tested before committing to one for business or work applications.

The angle of the screen from the vertical position is also an area of debate; a slight upward tilt of the monitor by approximately 10-20 degrees is recommended.

Although this may reduce the amount of fatigue in the neck by improving the scanning range for the eyes, tilting the monitor back can increase the glare from overhead lights and so is not appropriate for everyone. If in doubt, keep the monitor flat.





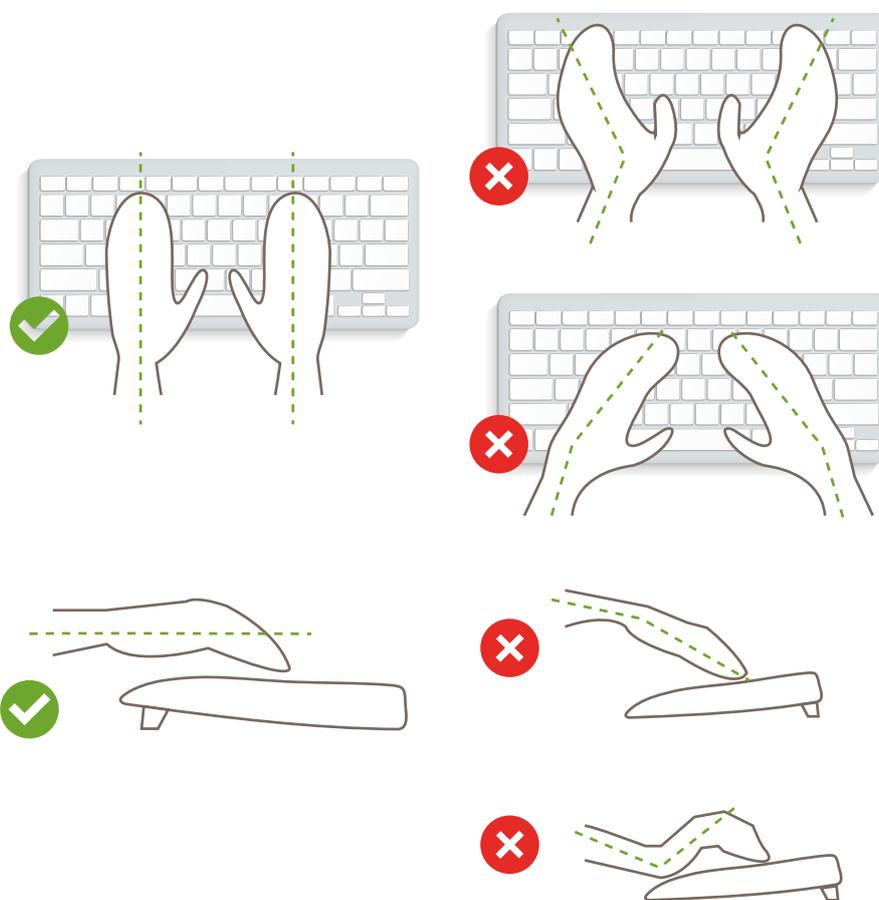
Wrist and Hand Posture

The position of elbows, wrists and hands and how we use keyboards and mice is often overlooked. Research shows that, of people who use computers for more than two hours a day, 24% had elbow pain, 67% had wrist pain and 64% had finger pain, with wrist pain being the third most common problem at the workstation after eye strain and back pain.

It seems many of us are willing to change our monitors and chairs to improve our posture but often overlook the cheapest thing to change - our keyboards and mice.

Using a Keyboard

When using a keyboard, try to keep your wrist in a neutral position:

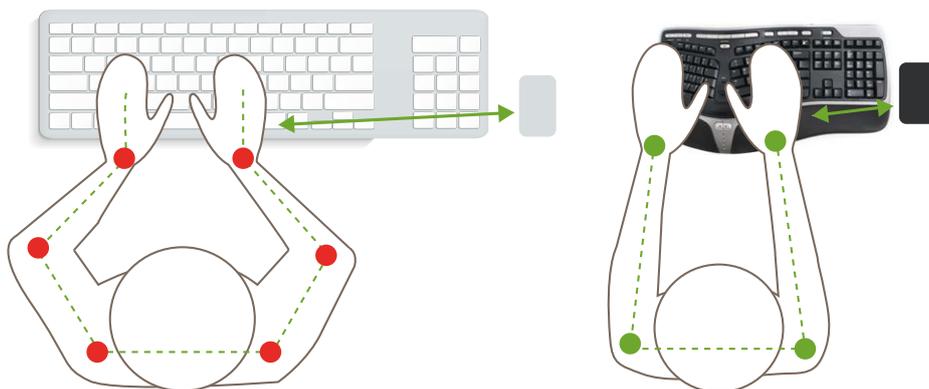


This means keeping your hands parallel to each other and not angled inwards (radial deviation) or outwards (ulna deviation). This is because both the in and out angles stretch one side of the elbow/wrist whilst forcing the other side to work harder, and can result in tennis or golfer's elbow or wrist pain.

Ergonomic keyboards are designed to account for this but do not suit everyone. The best advice is to trial one if you really can't hold a neutral position by any other means.



An ergonomic keyboard will most often have the keys separated to allow the arms to rest in a straight line with your body rather than pulling inwards. This reduces the strain on the elbows and wrists.



They are useful in cases of wrist pain on either side (the lateral or medial sides) and elbow/forearm pain. Many are also available with a slightly tilted design, allowing the forearms and wrists to sit in a more natural position.

As everyone is a different size and shape, fixed keyboards often don't fit anyone 100% correctly. To combat this, a split design has become more popular as the two sides of the keyboard can be a variable distance apart.



Keeping the wrists in a neutral position helps reduce strain on the top and bottom of the wrists and in the fingers, as well as reducing the strain on the outside of the elbow (the uppermost side of the elbow as you type). This reduction in strain can help with symptoms of tennis elbow and carpal tunnel syndrome (pain in the wrist). It is also important to keep the hand level over the keyboard (the legs on key boards can help with this).

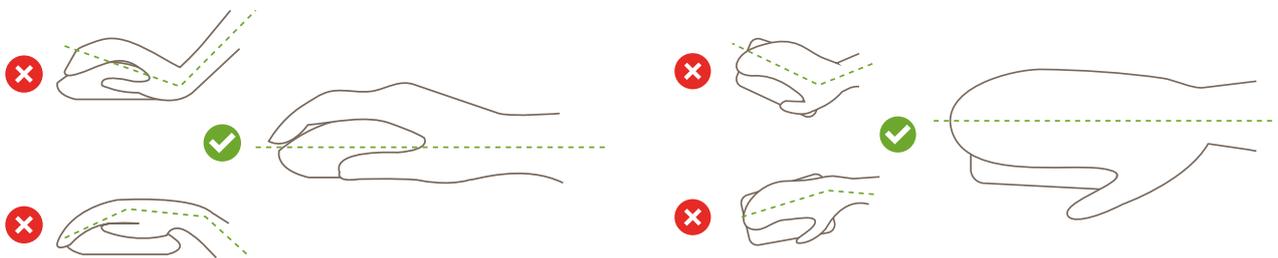
Some people find a small mat in front of the keyboard can help with keeping a neutral horizontal position.



It is important to limit keyboard use to periods of less than 20 minutes, then rest the hands and arms for a couple of minutes to allow the muscles to reset their resting length.

Using a Mouse

Using a mouse is a similar principle to using a keyboard - try to keep your wrist in a neutral position. Modern mice are often shaped to keep the wrist more neutral and are often a lower profile to help keep the wrist in a better position.



Try to move the mouse and not your wrist. This prevents you from performing too much radial or ulna deviation (the left to right wrist motions). Hold the mouse so your first and ring fingers are in a straight line with the gap between them across the middle of the mouse (this allows for easy mouse button use).

If the mouse still causes problems, an ergonomic mouse may be a suitable alternative.

1. Trackballs:

With a trackball the fingers move a ball rather than your wrist moving a mouse.

Trackballs are extremely popular in very mouse intensive tasks like video editing, CCTV work and photo touching.



2. Handshoe mouse

A handshoe mouse is shaped to fit your hand with the wrist in a more natural position (hand neutral from top to bottom but slightly turned out rather than flat). This position works well to reduce elbow and wrist strain, particularly on the upperside of the wrist and the outer side (tennis elbow side) of the elbow. Handshoe mice are sided i.e. if you are left handed, you will need a left sided one.



3. Verticle mouse:

A verticle mouse places both the wrist and forearm in a neutral position, whereas most other mice place the forearm in a pronated or turned down position. This reduces the likelihood of repetitive strain injury (RSI) occuring in the forearm. These mice are also sided for both right and left handed use.



4. Pen display/tablets input

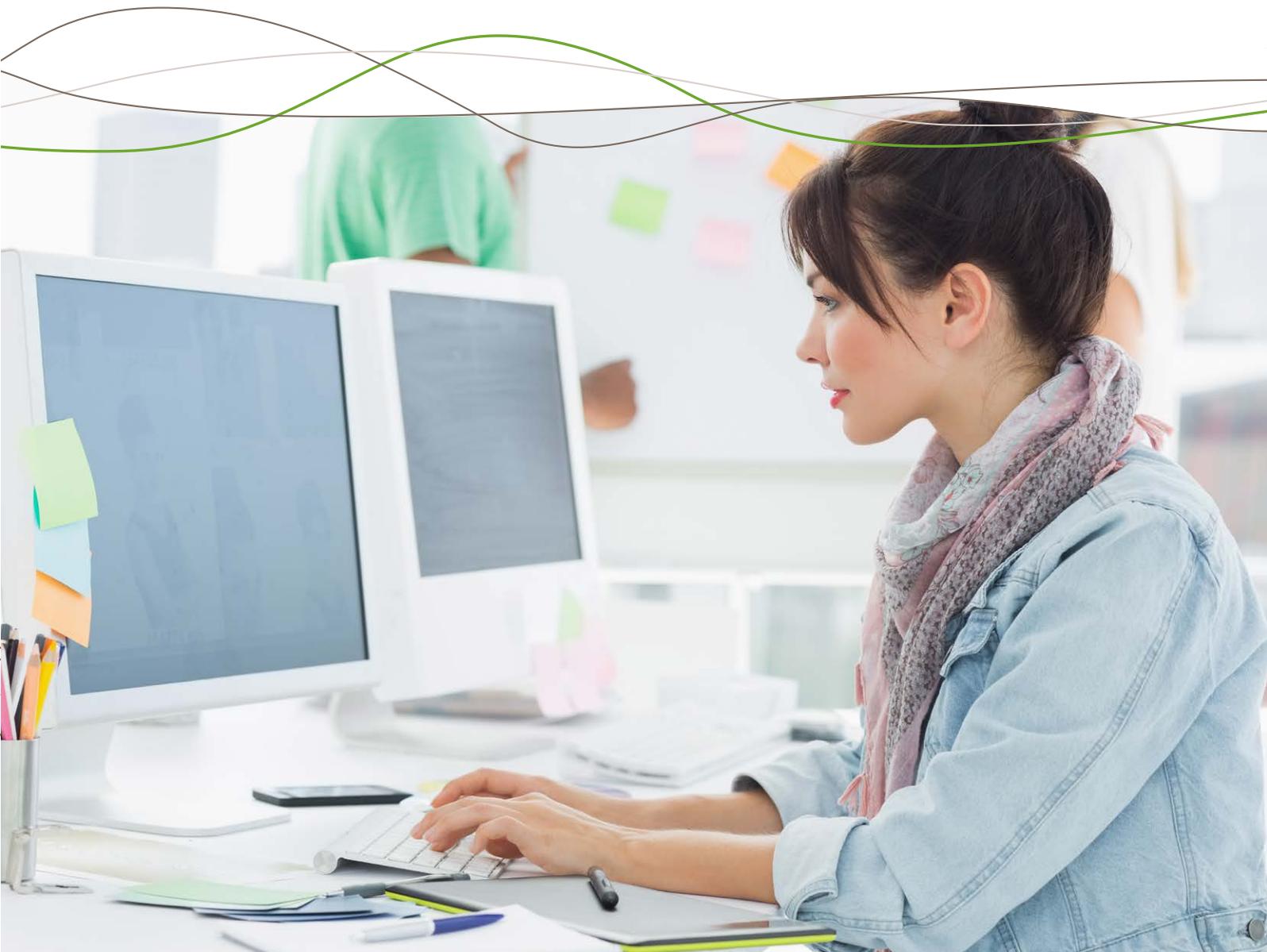
People who use fine cursor actions very frequently, such as graphic designers, architects and CAD designers, often find a tablet input not only the most comfortable but also the most reliable.



The simplest form of this input is a flat screen on which a pen is used. These screens are very similar to the writing position and hence have the same inherent problems as writing. They do however massively reduce the amount of input that would be required from a mouse to achieve the same results and as such are considered a much better option if a lot of cursor work is required.

If working directly on a tablet, it is recommended that the screen be adjusted to a tilt of around 30 degrees.

Some computers/monitors now include a touch screen function to allow for direct cursor input. These systems are usually adjustable for tilt and height and are also best set at a 30 degrees angle, but need to be much closer to the operator than an ordinary screen. They should be placed so that the elbow can still rest on the desk/arm rest of the chair whilst allowing the elbow to bend to input on the screen – so the base of the screen will be almost at the elbow. The screen size should also be considered - very large screens require you to lift your elbow from your desk to input, which can lead to shoulder and neck strain.



Standing Desks

The idea of standing at work whilst using a computer has become more popular in recent years and desks have been developed specifically to enable this.

The desks fall into two main categories:

1. Desks that are fixed for standing only use
2. Desk that can be adjusted for standing or sitting

There is little evidence to suggest that standing all day at a desk is better than sitting all day at a desk, and there are health implications for both.

Experts agree that desks which allow sitting and standing are beneficial due to their versatility, although the same benefits can also be achieved by frequently moving from sitting to standing throughout the day.



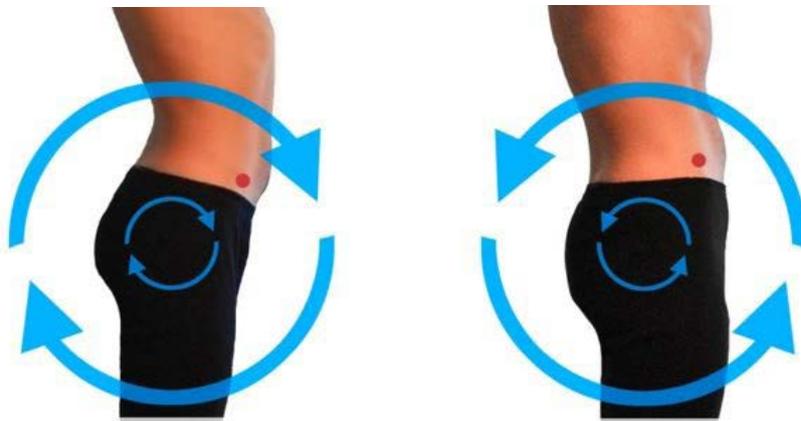
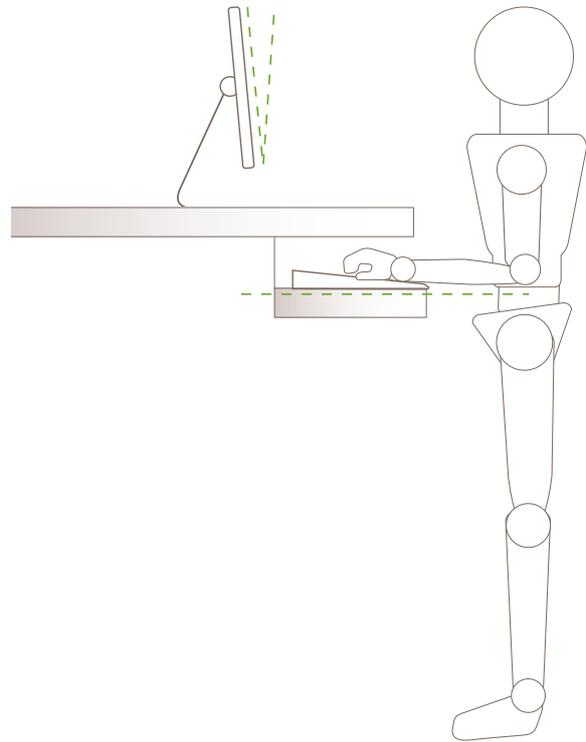
How to Stand At a Desk

Standing at a desk requires the desk be the correct height - your elbows should be bent to 90 degrees and the desk should be set to the height of your forearms.

This means your shoulders are able to be in the relaxed position as your forearms rest on the desk.

Your legs also need to be positioned correctly and, ideally, you should be standing on an even surface. Try to position your feet in a straight line with your knees and hips. To achieve this position, first stand with your feet together, then turn your toes outwards as far as you comfortably can. Then bring your heels into a straight line with your toes – you should now be standing with your feet roughly hip width apart. Try to stand with your weight evenly distributed across both legs.

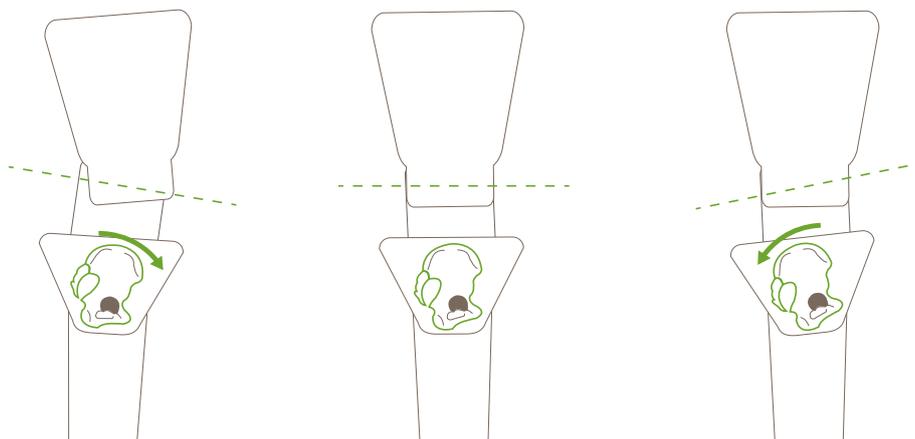
You then need to position your pelvis. The easiest way to do this is to stand with your hands on your hips, then rotate your hips as far forward as you can, and then rotate the pelvis backwards as far as you can. Because you need to find the middle position, this may take a few attempts.



Forward

Middle

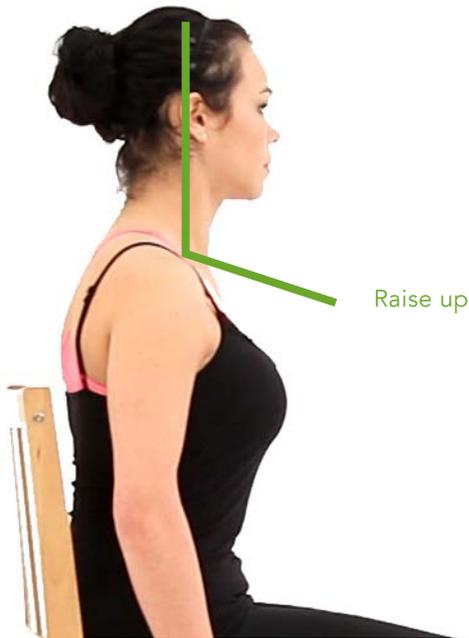
Backward



The next step is to position your rib cage or thoracic spine. To do this, imagine a piece of string is pulling your chest upwards towards the ceiling. Raise up slightly from the chest but do not let your lower back arch anymore. This is often only a very small movement.

Once your chest is over your pelvis, the next step is to position your shoulder blades (scapula) by aligning the shoulder joints with the body.

Most people round their shoulders, leaving them with a posture like this.



To put the shoulders to the neutral position, start by pulling your shoulders all the way up (shrug your shoulders).



Now relax the shoulders forwards to the mid position where your hand would naturally fall in line with the middle of the pelvis.



Then pull the shoulders backwards from this position.



Then pull the shoulders down from this position.



With the shoulders set, the next step is to set the position of the neck. Most people stand with their head slightly forward, but this posture puts pressure on the lower neck as it is forced into flexion (as if looking down), whilst the upper part of the neck is forced into extension (as if looking up).



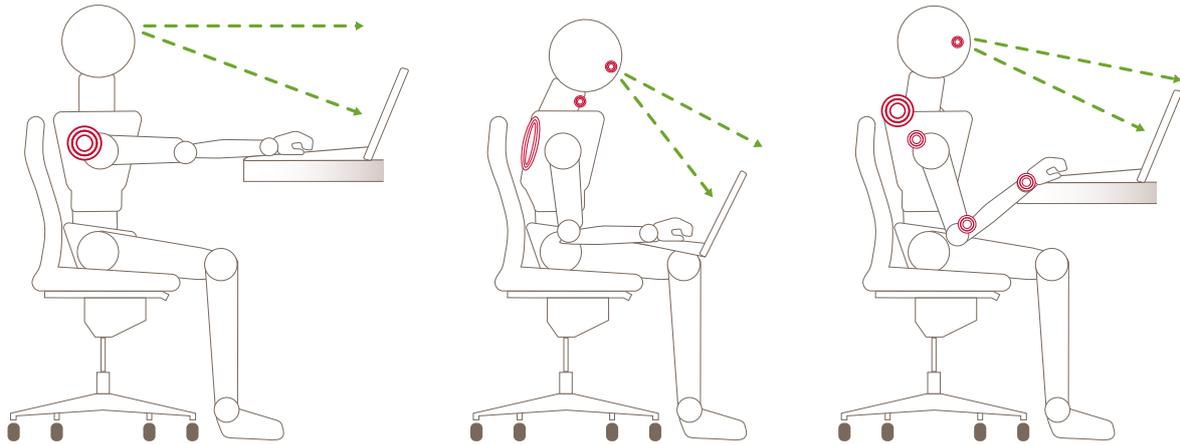
Bringing the neck back to the neutral position is a simple process as long as the rest of your posture is already correct. You need to look straight ahead and tuck your chin back as if you are holding a small ball under it. Your ear lobe should now fall within the triangle made up by your collar bone and neck muscles.

This neutral posture can feel unnatural at first, as most people actually stand incorrectly. You should try it for a few minutes at first and increase the hold time gradually, eventually aiming to be able to hold it for 20 minutes.



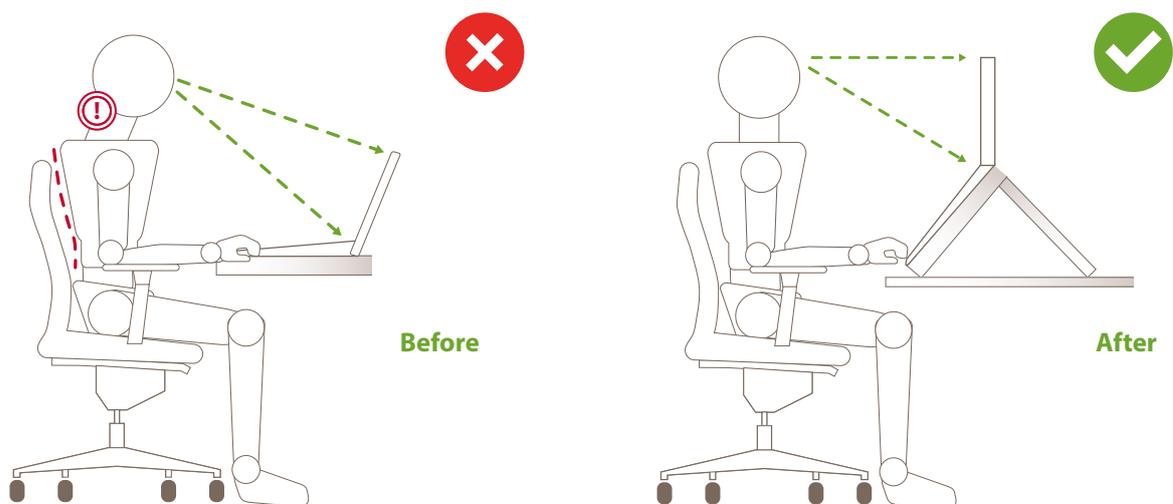
Using a Laptop

Laptops do not make ideal work stations because, without adaptations, they create some type of strain, regardless of where you place them.



For long term use, there is no way to get the screen and the keyboard to the correct orientation without using a peripheral device.

If a laptop is to be your main computer, investment in a laptop stand, peripheral keyboard and mouse is advised



Now the laptop screen can be set for height and distance whilst a separate keyboard and mouse are used lower on the desk. As we have already seen, the top of the laptop screen should be at eye level with the screen vertical (or tilted back by 10-20 degrees if lighting allows). The other option is to use a separate monitor but this still requires a separate mouse as using a trackpad in front of the keyboard is not ideal either.

For those using laptops away from a desk/office scenario, use should be limited to short periods of up to 20 minutes at a time.



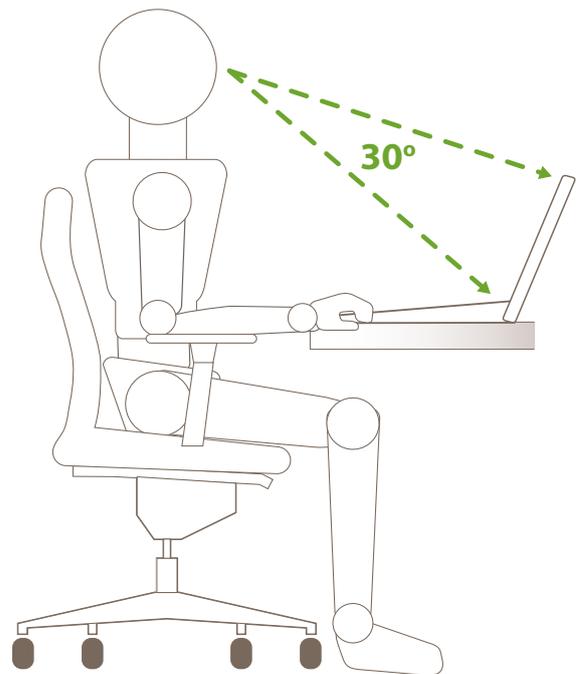
In these situations, it is better to use the laptop on your lap rather than a table, as this allows the elbows, wrists and hands to adopt a more natural posture. However, this does cause your neck muscles to work harder as you will naturally be looking down. Experts recommend this position as the larger neck muscles are better at resisting the higher forces and strain than the smaller arm muscles.

If you have - or have had - neck problems, raising the screen even higher is preferable. Using a laptop on a desk or table can actually be better despite this placing more stress on the arm muscles.

If you have to work on your laptop with it on your lap then a small laptop platform can help to align the elbows and wrists/hands more effectively.

Try to keep your elbows tucked into your sides to keep the wrists as straight as possible. Tilt the screen back between 12 and 37 degrees to minimise neck stress.

Remember, with the laptop on your lap you are sacrificing neck stress for reduced arm stress. However, the rules of sitting posture still apply, so don't forget to sit correctly in your chair!



Using a Tablet

There are many different ways of using tablet devices both in the workplace and for leisure. In a recent study, the Department of Health found four common positions which people adopt when using their tablets, then looked at the ergonomics in each position. All of the positions had their own problems:

1. Lap hand position - this increases stress on the neck and shoulders.



2. Lap case position - using a tilted tablet stand designed for use on the lap. Although better for the neck and shoulders, this still increases the pressure in these areas and has the disadvantage of increasing wrist and hand stress as the arms are at the wrong angle.



3. Table riser position – this is much better for the neck and shoulders, so long as the screen is raised so the top edge is in line with the eyes and the tilt is set at 10-20 degrees. This position can be further improved with the addition of a remote keyboard and mouse.



4. Table movie position - most commonly used for viewing entertainment on a tablet with it propped up on a table. This position increases neck and shoulder strain and is a poor position for the wrists and hands, although user input is minimal.



If you are using a tablet for several hours a day, use a case with a stand or acquire a separate stand to position the tablet upright and maintain a neutral position for your head/neck. Try to get the tablet so the top edge is level with your eyes and tilt it back 10-20 degrees.

If you are doing a task that involves a lot of keyboard use, the use of an external keyboard will help keep your elbows, wrists and hands in an appropriate position. When using a keyboard, keep your arms to the sides and elbows bent to 90°. Don't reach forward to the keyboard - bring the keyboard toward your hands and arms.

Move every 20 minutes for at least 20 seconds and remember the 20/20/20 rule: look away from your screen every 20 minutes and look 20 feet (6 meters) away for 20 seconds.

And remember, just because you are using a tablet you should not forget to sit correctly!



Using Document Holders

If you need to have documents at your work station, a document holder is a good choice for providing better access to them whilst still maintaining posture.

1. In-line document holder – this sits between the keyboard and the monitor and uses the same principle as a monitor stand (the document is tilted back 10-20 degrees and you now only have to scan down to read it). However, this position does force the user to look down beyond the 30 degrees we normally would during intensive tasks, therefore increasing the strain on the neck.



2. 2) Screen-mounted document holder – this should be positioned to the side of your screen on your dominant eye side. This type of holder has the advantage of being at the correct height and inclination, whilst also offering good scanning range for your eyes, although using them on a wider screen can cause you to scan more than the recommended 30 degree range.



3. 3) Freestanding document holder – this should be positioned next to the side of the screen, at a height and angle in line with your monitor. Once again, try to use these on your dominant side.



Using a Phone at Your Desk

If you are an occasional phone user at your desk a standard telephone is fine, but just holding a phone to your ear can increase stress in the neck, shoulder, elbow and wrists. Using your shoulder to balance your phone whilst talking, to free the hands to write/type, is even more stressful for your body.

If you use the phone for more than 20 minutes per day, or type/write whilst on the phone, a headset is a good option.

Headsets allow for correct head, neck and shoulder positioning and have been shown to reduce fatigue and neck/shoulder problems. They have even been shown to increase productivity whilst on the phone by up to 43%.



Writing/Drawing at a Desk

If you frequently write or draw then a flat surface may not be the best solution for your posture in the long term, and a writing slope can help.

Writing slopes help to put the neck into a better position and reduce strain and the potential for injury. Most are adjustable for angle, with the recommended minimum being ten degrees, although many people prefer 20 degrees.

It must be stressed that, although this position is better for the neck and shoulders, it can also increase stress on the elbows as they will be bent well beyond 90 degrees and should only be considered if you are writing for extended periods.



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