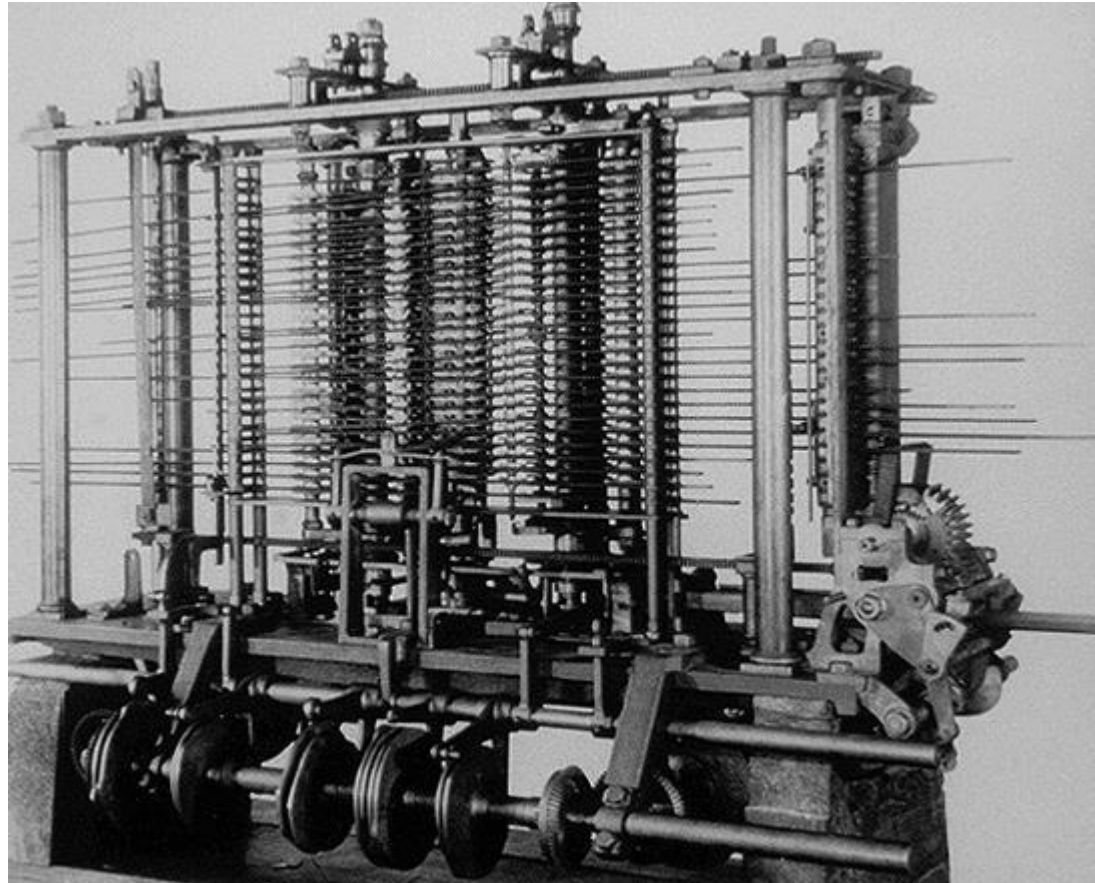


# Safe Use of Display Screen Equipment Session



## Aim of this session

To ensure students using Display Screen Equipment (DSE) understand how to:

- Identify and prevent possible health issues from happening
- Choose the right equipment for their study
- Set up a workstation correctly to reduce risks
- Follow good working practices



# Definitions

Definitions used in this session are:

- **Display Screen Equipment:** Devices or equipment that have an alphanumeric or graphic display screen and includes display screens, laptops, touch screens and other similar devices. e.g. Computers, Tablets
- **Use:** Use of DSE
- **User:** Any person who uses DSE
- **Workstation:** The workstation includes: the screen, desk, chair, keyboard, telephone, disk drive etc. and the immediate environment around the DSE

## Risks from DSE Work

Only a small proportion of users suffer ill health with problems often caused by the way we use the DSE and not the DSE itself.

The following outlines common health problems often associated with DSE use:

- Upper limb disorders (pains in the neck, arms, elbows, wrists, hands, fingers)
- Back and lower limb pains
- Temporary eyestrain and headaches
- Fatigue and stress

**Note:** There is some evidence DSE could affect people with pre-existing conditions, e.g. epilepsy (associated with fast moving and flickering pictures). Seek advice from your Doctor if you have concerns

# Avoiding health problems

## Wrist and Finger Pain

**Cause:** Chair not at the correct height or too far from the desk so fingers are not horizontal to the keys or mouse. Dirty mouse or using it incorrectly. Striking keys too hard

**Effect:** Head tilts forward, shoulders hunch, circulation is restricted as feet wrap around the chair

If the fingers are not horizontal to the keys or mouse the wrist ends up unsupported causing additional strain



### Correction:

- Move your chair to the desk and sit back on the seat
- Adjust the chair back to support your upper body
- Raise your chair seat so your upper arms are vertical with the elbows and level with or just above the desk
- Place your mouse directly in front of your shoulder and as close to your body as possible
- Keep the mouse clean
- Use keyboard shortcuts to stop overuse of the mouse

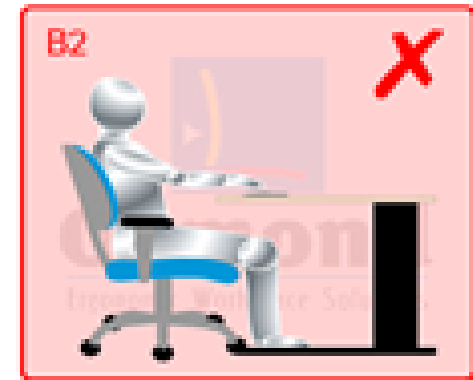


# Avoiding health problems

## Shoulder Pain

**Cause:** Setting the chair so feet are firmly on the ground leading to the chair being too far from the desk OR fixed chair arms stopping you getting close enough to the desk. Both cause you to sit with arms stretched out rather than in the L position (see *Wrist & Finger Pain* above)

**Effect:** Arms stretched forwards, shoulders lifting causing muscle tension and pain



### Correction:

- Set your chair as *Wrist & Finger Pain* above
- Use a foot rest if your feet don't touch the ground when the chair seat height is adjusted
- Height adjustable chair arms do support your upper body, but if they restrict desk access consider removing them



# Avoiding health problems

## Lower Back Pain

**Cause:** Chair set at the wrong height. Using a chair that does not have an adjustable back, separate from the seat which can offer lumbar support. Sitting on the edge of the chair leaning forwards. Sitting with the legs crossed causing uneven weight on each buttock. Cramped conditions so you can only sit at the desk by twisting or leaning forwards

**Effect:** Unnecessary strain on the back muscles leading to back ache and discomfort

### Correction:

- Ensure your chair has adjustable height and back support to achieve the correct sitting posture
- Ensure the under desk space is kept clear and that legs are not obstructed by drawer units / equipment
- Don't sit with legs crossed
- Use a footrest to support legs if the floor can't be reached after adjusting the chair seat height

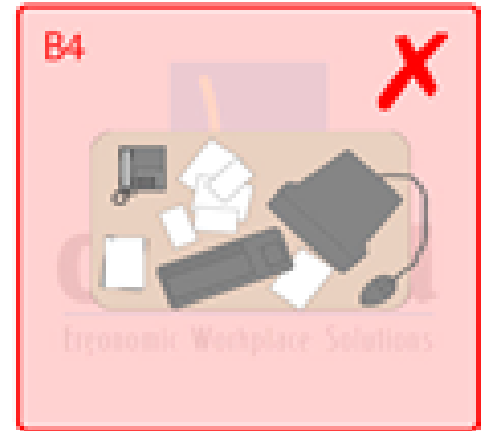


# Avoiding health problems

## Neck Pain

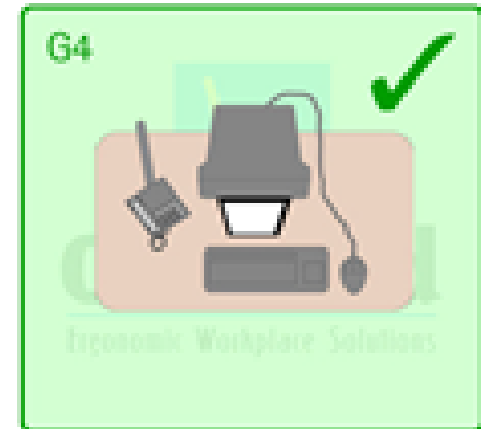
**Cause:** Too much up and down movement of the neck. Sitting with a telephone handset held at the base of the neck. Using bifocal glasses so the neck is bent backwards to focus on the screen. Twisting to see the monitor

**Effect:** Constantly moving the neck or sitting with the neck in one position for a prolonged period can cause muscle fatigue leading to aches and pains



## Correction:

- Sit with your monitor face on
- Use a document holder placed at screen height and in the same focal plane to minimise head twisting/tilting
- Hold your handset in the 'non-writing' hand or use a headset instead of a handset
- Seek an Optician's advice if you wear bifocals or varifocals





# Avoiding health problems

## Eye Sight Defects / Headaches

**Cause:** Staying in the same position, concentrating for too long. Poor positioning of DSE. Poor legibility of the screen or source document. Flickering screen. Glare from monitor, lights or windows

**Effect:** DSE is not associated with eye damage but it can raise awareness of those with pre-existing vision defects.

Temporary visual fatigue can lead to impaired visual performance, red or sore eyes and headaches.

Glare can cause eye strain and some contact lens wearers suffer from dry eyes due to the heat generated by DSE



# Avoiding health problems

## Eye Sight Defects / Headaches

### Correction:

- Make sure there is a comfortable viewing distance between your eyes and the screen
- Ensure the top of the monitor is just below your eye level (differs if you wear bifocals / varifocals)
- Position the screen to avoid glare from windows / lights
- Check your screen settings are right for colours, fonts, screen savers etc.
- Drink plenty of water to avoid dehydration
- Take regular screen breaks – any change of activity that stops you staring /focusing at the same distance for long periods e.g. coffee break, phone call, focusing on an object in the distance
- Get your eyes tested (see *Eyesight Tests* below)
- Clean the screen regularly to remove dirt / dust



# Avoiding health problems

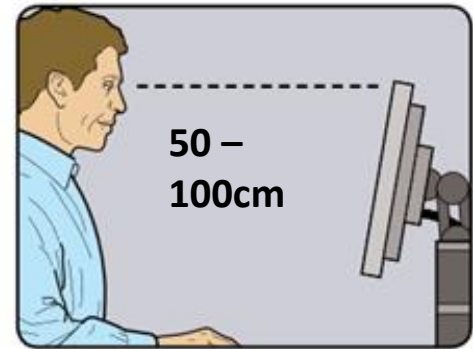
## Fatigue / Stress

**Cause:** Poor work organisation. Including unsuitable equipment, uncomfortable environment, increase in work pace, pressure to complete the task

**Effect:** Fatigue and stress and their associated side effects e.g. headaches, dizzy spells, vision problems, nausea

### Correction:

- Ask for training if you are unsure how to use software
- Set up your workstation to suit you
- Take regular breaks, change posture
- Drink plenty of fluids



# Your DSE Workstation

Your workstation may consist of the following items:

## Equipment – Essential

Chair, desk, screen,  
computer, mouse etc.,  
keyboard, connections,  
cables

## Software – Interface

Should be suitable  
for the task and easy  
to use

## Equipment – Other

Phone, speakers,  
headphones

# Your Working Environment

## Space

Remove clutter, design the working area better with enough room to move

## Humidity

Plants may help in a 'dry' room

## Noise

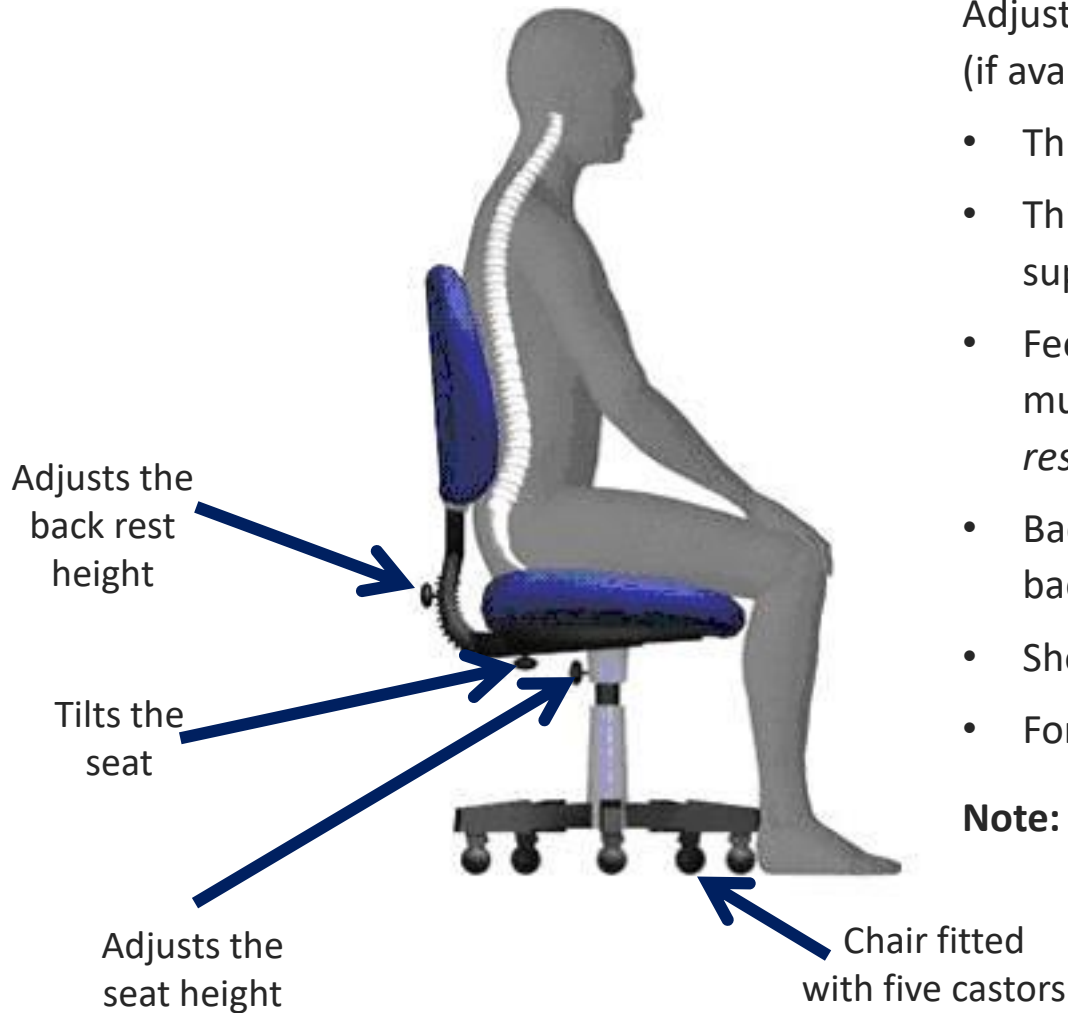
Computer noise may indicate a problem

## Reflections

Look to redesign/move your desk

Look to redesign/move your desk

## Setting up your Workstation – Chair

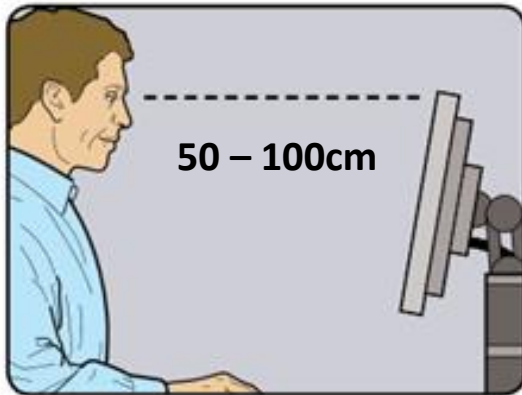


Adjust the back rest, seat height and tilt (if available) so you can sit with your:

- Thighs and lower legs at right angles
- Thighs parallel to the floor and supported by the seat
- Feet flat on the floor, without too much pressure from the seat (*a foot rest may be used to achieve this*)
- Back straight with the small of the back supported by the back rest
- Shoulders relaxed
- Forearms horizontal when typing etc.

**Note:** Remove chair arms if in the way

## Setting up your Workstation – Display Screen



You should be able to raise and tilt your display screen until you can do as follows:

- Directly facing the screen (this includes if sitting at a curved desk)
- With a distance of 50cm – 100cm between you and your screen
- With eyes level with the top of the screen

**Note:** Screen risers, large, strong books may be used to raise the screen height. **Do always check the screen is stable though**

**NOTE:**  
Remember all the monitors you use on your desk must be set at the correct height / distance

## Setting up your Workstation – Display Screen

The screen image should be stable with text and images clear and comfortable to read. The following provides general advice:

### Set Up:

- Choose text and background colours that work well together
- Change background colour or refresh rate to reduce flicker
- Increase / decrease text size
- Adjust brightness and contrast

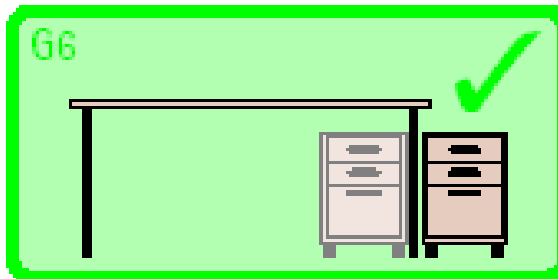
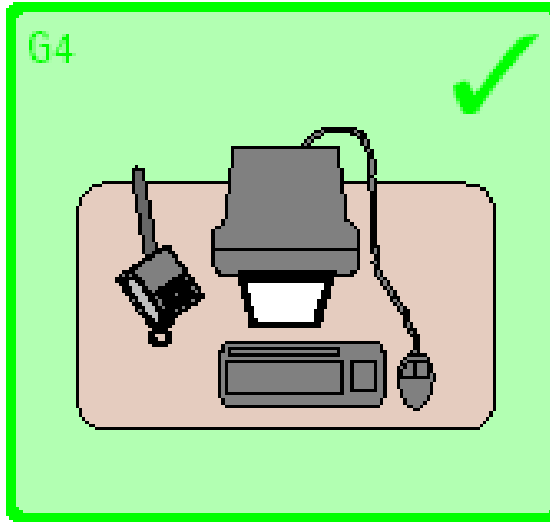
### Reducing Glare/Reflections:

- Select dark colours on a light background
- Adjust blinds to decrease glare from windows
- Use task lighting rather than overhead lights
- Use blotters or mats to reduce glare from the desk
- Using a matt keyboard may help

**It is essential you keep the screen clean and dust free**



## Setting up your Workstation – Desk



Your desk should be large enough to hold necessary equipment and papers with items you use regularly within comfortable reach:

- Remove unnecessary clutter
- Place computer towers under the desk
- Arrange equipment so frequently used items are within reach
- Place the mouse close to the keyboard
- Use a document holder (at the same level as the screen) if needed
- Keep the area under the desk clear to allow leg movement
- Move free-standing drawers / pedestals to create more space

## Setting up your Workstation – Keyboard



Tilt the keyboard. Push the screen further back to make room for the keyboard, hands and wrists

Your keyboard should:

- Be separate from the screen
- Be clean with clearly legible keys
- Have keys that work and do not stick

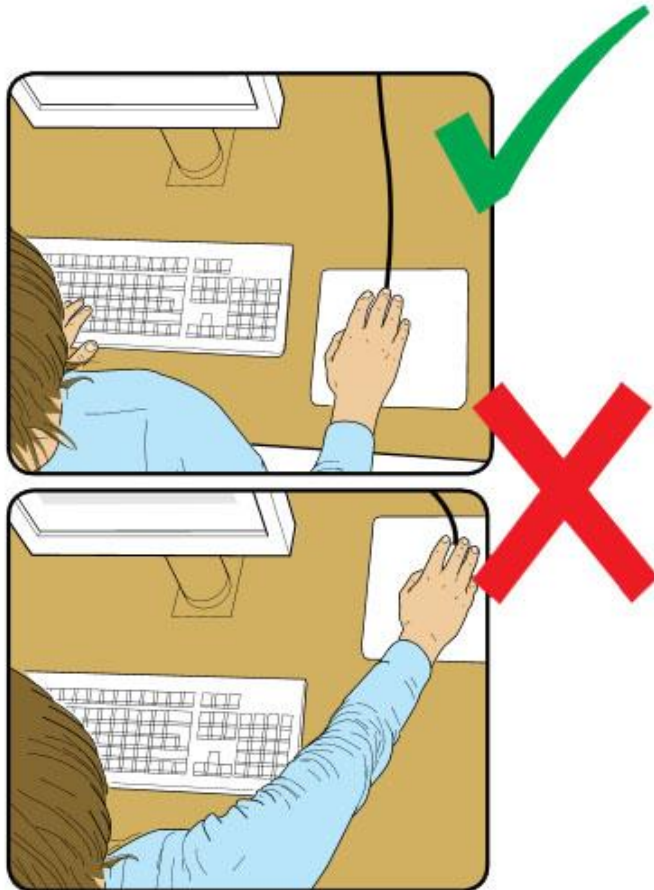
The keyboard position should allow you to type in comfort:

- Sufficient space between the keyboard and desk edge to place hands and wrists
- Forearms horizontal when typing

### AVOID

- Resting wrists on the desk edge
- Bending hands up at the wrist
- Hitting keys too hard
- Overstretching – arms / fingers / wrists

## Setting up your Workstation – Mouse, Trackball etc.



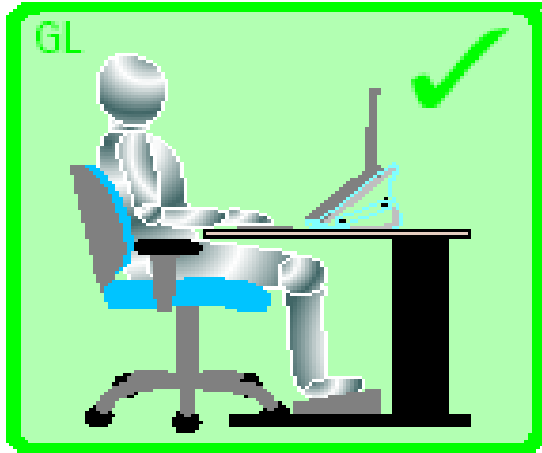
Devices should be suitable for the task and work smoothly at a speed that suits you:

- Check the device is correct i.e. left and right handed differ
- Adjust settings such as speed to suit you
- Clean the device and the surface it is on
- Try alternatives such as a trackball

They should be placed close enough to stop you over reaching but where you can still support your wrist and forearm:

- Use the desk surface or chair arm rest to support your forearm and wrist
- Take your hand off the device when not in use to relax muscles
- Keep your arm relaxed and wrist straight

## Setting up your Workstation – Laptops



Using a laptop on its own for any length of time will inevitably cause poor posture.

The keypad and monitor are smaller than a normal computer with the monitor below the recommended height of eyes level with the top of the screen, with the screen also usually too far away.

This could lead to posture, neck, shoulder and / or back pain.

If you use a laptop for prolonged periods connect them to a:

- Docking station
- And / or a monitor stand
- Separate keyboard and mouse



## Setting up your Workstation – On a Budget

You might find yourself without an adjustable chair, maybe you can create a better standing desk on the kitchen worksurface or use everyday household items to create a better position:

- An old firm pillow or cushion can act as a temporary footrest
- A rolled-up towel can be used as a lumbar support
- Some books could be used to raise your screen
- **The more ‘makeshift’ your set-up, the more important it is for you to move**

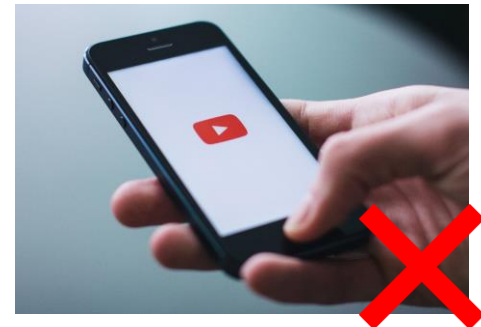


# Setting up your Workstation – Smartphone/Tablets

## Avoid using a single-thumb style

Single-thumb is the most commonly used inputting style on smartphones – it is also the highest risk for your thumb and wrist.

- Hold your phone in one hand and input with the forefinger of the other hand (or alternatively you could use a stylus).
- For longer text entry use an external keyboard (preferable if feasible) or hold your phone/tablet in both hands and type using both thumbs (sharing the load).



## Time Limits

Tablets and phones are only suitable for short term use and no longer than 15 minutes without a rest break.

## Setting up your Workstation – Smartphone/Tablets

### Little finger at the side not base

Your little finger should be at the side

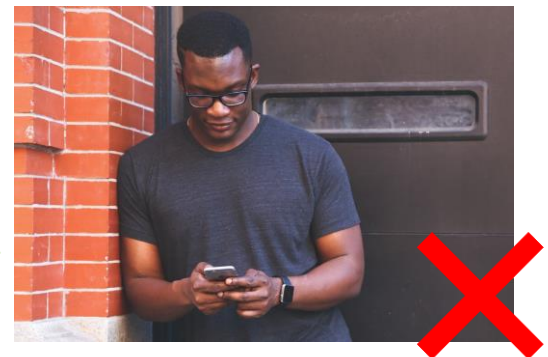
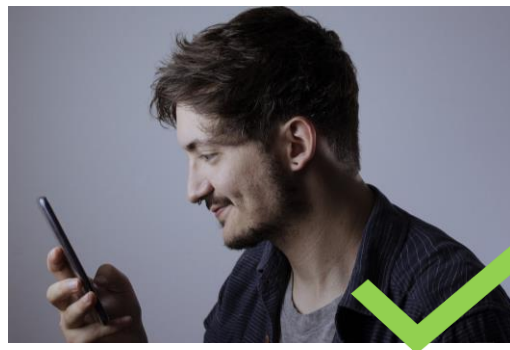
Avoid holding your phone with your little finger at the base.



### Hold it up!!

Your neutral neck posture is the one you would adopt if you were standing or sitting straight and looking at a target which is between eye height and 15° below the horizontal line at your eyes.

- Lift your phone/tablet up to keep your neck close to your neutral posture and reduce strain on your neck muscles.



# Setting up your Workstation – Smartphone/Tablets

## Rest your arms

- If possible find a way to rest your arms while holding your screen higher. This will help to reduce the strain on your shoulder muscles.



- If you are not able to find or use arm support, hold your phone/tablet up but try to minimise the time you spend on task.
- Take frequent breaks to rest your neck and shoulders.
- Alternatively, if it is a sustained text entry activity, consider whether you could either put the task off until later and/or use an external keyboard.

## Speak don't type

Dictate emails and send voice texts to save time and reduce strain on your thumbs, shoulders and neck. This will not always be feasible or appropriate but when you can do this, it is a useful way of reducing musculoskeletal risk.



## Bringing it all together



### Eyesight Tests

Remember the importance of getting your eyes tested every 2 years.

It's easy to neglect your eyes because they often do not hurt when there's a problem.

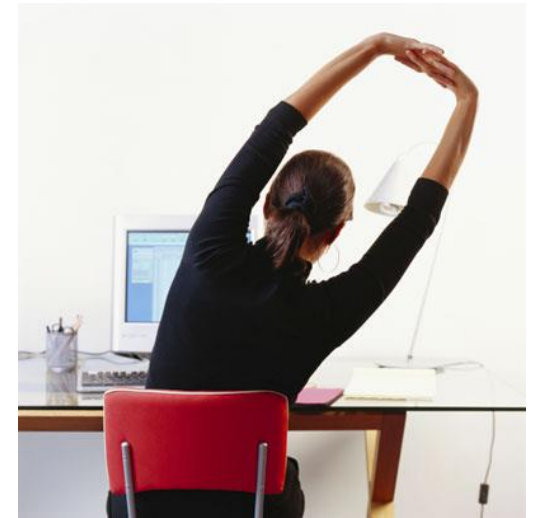
### Why are regular eye tests so important?

Having an eye test will not just tell you if you need new glasses or a change of prescription – it's also an important eye health check.

An optician can spot many general health problems and early signs of eye conditions before you're aware of any symptoms, many of which can be treated if found early enough.

## Top tips to remember

- Comfortable posture and the importance of changing positions
- Remember that even appropriate postures become inappropriate when maintained for too long
- Adjusting furniture and equipment – ergonomics
- Fit the workstation to you, not you to the workstation
- Organising the workplace to avoid difficult or repeated movements
- Position the screen to avoid reflections and glare
- Keep the screen and equipment clean
- Incorporate activity changes or breaks into your work
- Stretch out and walk around
- Install *f.lux* a programme which can reduce eye fatigue by automatically adjusting the brightness of the screen depending on the time of day



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