

# Guide to Office Ergonomics

July 2020

## Introduction

This guide has been prepared to assist the Organisation and users to eliminate or minimise several of the risks related to working in an office environment. The guide provides advice on the correct design and set up of office workstations to help meet ergonomic guidelines and establishing a routine exercise program to help minimise the risk of musculoskeletal injuries resulting from computer-based work.

## Furniture and Fittings

Use the office space to the best of the users' advantage. Ensure users can move without colliding with sharp corners of desks, cabinets etc. Filing cabinets should be placed in positions that allows ample room when a drawer is fully open.

If the drawers of the filing cabinet are not full, spread the load over the drawers or, preferably, put more in the lower drawers. Open one drawer at a time and close it when not in use. The most commonly used items should be placed in the top drawer to improve access and reduce reaching and bending movements.

Be careful with metal furniture, particularly shelves and drawers which may have sharp edges.

## Office Equipment

Office plant and equipment is generally considered to be low risk as most of the equipment used is enclosed.

However, office machines such as a photocopier should nonetheless be treated with respect and used, serviced and maintained in accordance with manufacturer's instructions by trained and competent staff or specialist.

Unless authorised to do so, users must not interfere with office machines that are electrically operated or any electrical apparatus such as broken switches, loose connections, damaged cables etc.

If a break down occurs, users must ensure the matter is duly reported to management.

Such machines should only be repaired by an authorised and competent technician.

A common cause of injury when working in an office can be falls from the use of a safety step.

Therefore, when working with a safety step, users are responsible for ensuring:

- it is in a serviceable condition before it is used
- to never use a safety step on wet, slippery or uneven surfaces
- only ever standing on a single safety step, do not stack them
- their weight is evenly distributed between both feet and do not stand on the edge
- never overreach for items while standing on a safety step
- always stepping down backwards from a safety step and do not bend to pick up items below waist height and
- storing the steps in the designated storage location when not in use.

Care should be taken with smaller items of office equipment such as knives, scissors, stapling machines and guillotines as all are capable of inflicting painful injuries. Avoid the use of razor blades and pins as they are not generally suitable for office use. Staples are preferred wherever possible to secure papers together.

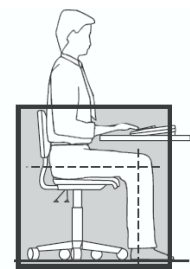
When adjusting a chair please refer to any instructions that are provided with the chair (usually under the base) and follow ergonomic guidelines and related policies.

Users should avoid sitting for long periods of time and take regular breaks from sitting. Getting up for 20 to 30 seconds to go to a printer, getting a drink or standing while talking on the telephone will provide some relief.

## Chair Adjustment

Ensure that the chair height is adjusted so the user's feet are comfortably flat on the floor, thighs are approximately horizontal, and lower legs are approximately vertical.

Low heeled shoes will normally improve comfort of the legs when seated at an appropriately adjusted



workstation or a suitable foot rest should remove any leg pressure at the front of the seat pan.

If the desk or workstation has a tilt table, it should be set horizontal initially, but may be adjusted slightly forward to suit.

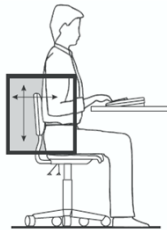
### Back support

If the desk height cannot be adjusted, the chair must be adjusted so elbows are in line with the keyboard. The chair should be at a comfortable distance from the keyboard, approximately the length of a forearm away.

### Height

Start by raising the back rest to its maximum height. Then sit in the chair and check the fit of the back rest to the curve of the lower back. If not comfortable, lower the height by several centimetres and try this position.

Repeat this adjustment until the most comfortable fit is found. Remember to get out of the chair to make this adjustment and ensure that the back rest supports the lower back and lumbar region and is not placed too low.



### Forward/ backward position

Adjust the position of the back rest until a comfortable pressure is exerted on the lower back area while seated in the usual working posture.

The back-rest position should not feel as though it pushes the user out of the seat or that they have to lean back too far to reach it.

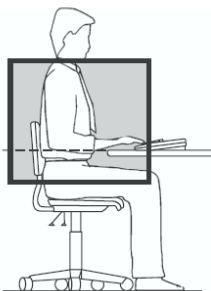
There should be a two-finger clearance between the front of the chair and the back of the knee. Trial a number of different positions until the best fit is achieved.

### Arm rests

Arm rests are usually not recommended during computer work unless they are well out of the way of the desk.

However, if a user's chair has arm rests, make sure that they do not prevent the user from getting as close to the desk as they require to secure the optimal working position.

Ensure that arm rests do not impinge on the elbows while working.



## Desk Height

### If users have a height adjustable desk

Having first adjusted the chair to suit the user's body size, adjust the desk so the top surface is just below elbow height. To determine the user's elbow height, they should relax their shoulders and bend the elbows to about 90 degrees and check the elbow height against the desk height.

### If users do not have a height adjustable desk

If the chair has been adjusted and the desk is higher or lower than the elbow, other forms of adjustment will be required. Start by measuring the height difference between the desk and the user's elbow.

If the desk is too high raise the chair by the measured difference and use a foot rest. Set the foot rest platform so that it is the same or as the measured difference.



If the desk is too low, request from management if the desk to be raised by extending the leg length.

General items such as computer drives, boxes of documents or files, rubbish bins and mobile drawers should not be stored under desks where they will decrease or interfere with the space required for the legs.

This may force the person to adopt a twisted or awkward posture of the spine.

## Computer Equipment

Equipment such as the keyboard and computer screen should be arranged on the desk so that the operator can sit comfortably in the leg-well space.

### Computer screen

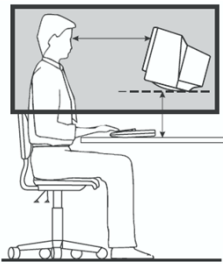
The screen should be positioned once the chair and desk heights have been established.

#### Height

The screen should be positioned so that the top of the screen is level with, or slightly lower than the user's eyes when they are sitting upright. If the screen does not have a raising device such as a monitor stand, request one from management.

### Distance from eyes

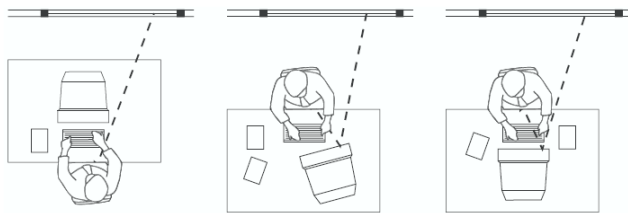
Place the screen so it is approximately an arm's length away from the usual seated position to avoid neck and eye strain.



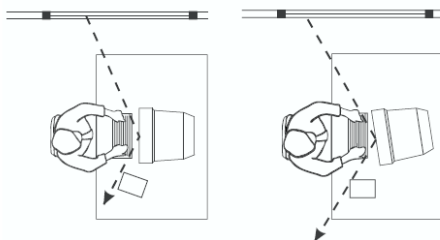
### Position of screen

For single screens, the screen should be placed in front of the user and positioned to avoid glare or reflections from windows as indicated below:

- undesirable screen positions: excessive glare or reflection from adjoining window



- desirable screen positions: minimal glare or reflection from adjoining window



For continuous or frequent data entry where the document is observed more than the screen such as in touch typing, the position of the screen should be slightly to one side so that the document holder is directly in front of the user, or slightly to one side of the computer screen.

For use where screen is observed more than a document, or the document is not observed at all, place the screen directly in front of the user.

## Keyboard

### Keyboard position

The keyboard should be placed as close to the front edge of the desk as is comfortable.

Forearms should be parallel to the floor when using the keyboard and do not place documents between the keyboard and the front edge of the desk while using the keyboard, as this increases the reach distance to the keyboard and may result in excessive bending of the neck to look at the documents.

Ensure that there is room to put the keyboard to one side when it is not in use.

### Keyboard angle

The keyboard can usually be slightly tilted using the feet at the back. However, it is also common to have the feet lowered so the keyboard sits flat on the desk. Either position is acceptable and should suit the user's own comfort level, however, it is important to ensure that the wrists are not bent when typing.

## Mouse

Place the mouse mat directly beside the end of the keyboard on the user's preferred side. Use the mouse in this position and always aim to keep the mouse on the mat during use.

Mouse operation should be as close to the keyboard as possible to avoid continual overreaching.

If the mouse is frequently used for work, users should consider learning to use it with both hands so that they can swap between the right and left sides for improved comfort. Users may wish to set the tracking speed of the mouse to a setting that suits them.

Users should maintain and clean the mouse to ensure that it is good working order. Where possible, try to avoid holding onto the mouse when not in use.

## Document holder

Where utilised as part of data entry or general typing, the position of the document holder is dependent upon the needs of the user in viewing and reaching the documents and the type of document holder that is used.

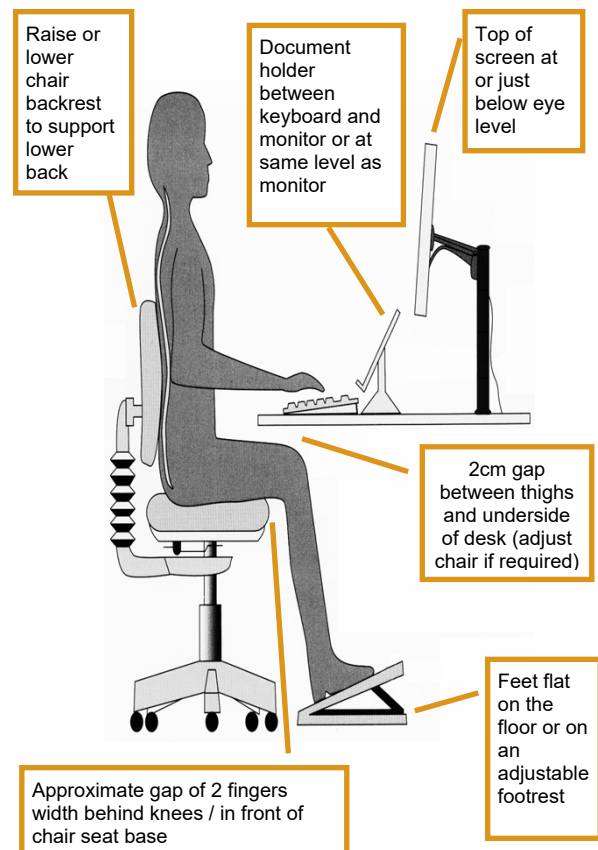
- An A-Frame style book rest that sits on top of the desk is the most practical and can be set at different angles. It is usually best placed so that it supports documents on an inclined angle between the keyboard and the screen.
- A lever or swivel arm document holder suspends the document above the desk at eye level. It is usually anchored to the desk on either the left or right of the screen, according to the user's preference and should be placed directly beside the screen.

## General

- Document trays should be placed at the outer reach sector of the table so as not to interfere with the ergonomics of the computer/chair/desk/interface and they should not be located above shoulder level.

- Stationery containers should also be placed at the outer reach sector or in the top desk drawers.
- Reference books and folders, such as manuals should either be stored within close reach of the seated user or in a nearby position where the user must stand to access them. Handling of these items should not be conducted at the limit of the person's reach capacity while sitting as this can result in undue strain on the back, shoulder and arm muscles.
- The telephone should be placed either within or at the limit of the optimum reach, depending on the amount of use. The placement should enable the user to operate the telephone without the need to move their trunk to grasp the handset or to operate the numeric and function buttons. Place the telephone on either side according to users' preference, comfort and other equipment that is used.
- When making a lot of calls, it may be best to place the telephone on the same side as the dominant hand so that this hand can comfortably operate the numeric and function buttons. When mostly receiving calls, it may be more comfortable to place it on the non-dominant side. Learn to utilise the functions of the phone, such as redial and the storage of commonly used phone numbers to improve the efficiency of its use. Also, when the phone is used very often or for prolonged periods, consider the use of a handset.
- If users are frequently on the phone and type or write at the same time, a headset is more practical rather than cradling the phone between their head and neck
- Desk should be clear of clutter and the items regularly used should be within easy reach to prevent overreaching.
- Lighting, ventilation and room temperature is adequate for the work undertaken.
- Excessive noise should be minimised to prevent distractions from the duties in the office.

## Ergonomic Workstations



## Standing Desks

Standing desks are becoming increasingly popular in the workplace. Whilst they offer numerous health benefits there may also be some adverse health effects if not correctly used.

The hazards are not always obvious and may change from one person to the next based on physical makeup and degree of physical fitness as well as the period of time standing.

The risks of regularly using standing desks may include:

- development of varicose veins or deep vein thrombosis
- cardiovascular diseases and
- lower back ache and musculoskeletal disorders.

Standing for excessive periods of time puts strain on the bottom half of the body i.e. the back and knees. Frequent transition between sitting and standing are likely to be more sustainable than trying to stand for extended periods.

When using standing desks, users should consider the following posture and positions:

- feet should be shoulder width apart
- rib cage is above hips so users are not leaning forwards or backwards
- knees should be straight but not locked
- shoulders should not be hunched forward or backwards. Slightly pull shoulders back using the lower shoulder blade muscles
- upper arms should be by the side with the elbows slightly bent and
- wrists should be straight with the hands at or below elbow height.

Users should check the above positions regularly to maintain a healthy and comfortable posture throughout the day. Users should also consider the following items to assist them when using standing desks:

- wear flat comfortable shoes - do not stand for prolonged periods in high heels as it has the potential to cause knee, hip and back injuries
- a small platform or footstool under the desk to rest legs at alternating intervals and
- standing on an anti-fatigue mat to absorb some pressure.

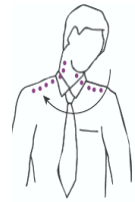
## Stretches and Exercises

It is recommended that a series of low intensity stretching exercises be undertaken throughout the working period. However, ensure that the following is considered:

- relax and perform them gently
- hold the stretch or repeat as indicated in the diagram
- do not over stretch
- stop there is discomfort when performing an action and
- remember to do each side.

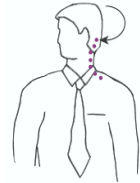
### Head rolls

Gently lower ear to shoulder and hold for 10 seconds. Slowly roll chin to chest and up to other shoulder and hold for 10 seconds. Repeat several times and be careful not to extend the neck back too far.



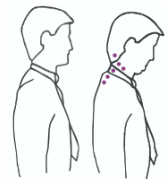
### Head turns

Turn head slowly to look over left shoulder and hold for 10 seconds. Turn head the other way and hold for 10 seconds. Repeat several times.



### Chin tucks

Raise the head to straighten the neck. Tuck the chin in and upwards creating a double chin. This also results in a forward tilt of the head. Hold for 10 seconds and repeat if necessary.

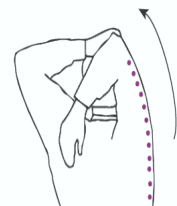


### Shoulder rolls

Circle shoulders forward several times, then backward. Repeat 3 to 5 times.

### Shoulder stretch

Stretch arm above head, cradle elbow with hand and gently pull elbow behind the head. Hold for 10 seconds and repeat several times. Check shoulder posture by relaxing the shoulders and rest hands on lap.



Do shoulder rolls to release tension.

Bend the elbows to 90 degrees and check the height of the fingertips against the current work height.

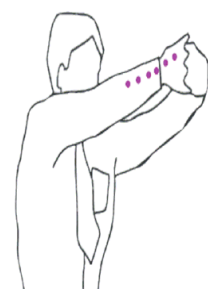
If the keyboard or desk is higher than the user's hands they may be hunching their shoulders unnecessarily.

If so, try and raise the chair height or lower the desk height and try and relax the shoulders while working.

### Wrist stretches

Interlace fingers, palms outwards, and straighten arms in front. Hold for 10 seconds and repeat several times.

- check hand and wrist posture:
- whilst keying, keep wrist straight while fingers are suspended over the keyboard



- keep elbows at keyboard level - this may mean adjusting the desk or chair height
- do not rest wrists on the desk or keyboard while keying - keep hands suspended and
- rest on the desk between periods of keying.

### Upper and lower back strength

Interlace fingers and turn palms upward above head height. Straighten arms then slowly lean slightly from side to side. Repeat movement several times.

### Back arching

Stand up and support the lower back with hands and gently arch back. Gently arch back and hold for 5 to 10 seconds. Repeat as often as is needed.

To check and confirm back support, sit well back in the chair. If the feet need support, see management for a foot rest. Adjust the back rest on the chair to support the lower back.



### Foot rotation

Hold onto the chair with hands either side. Straighten leg and lift foot a few centimetres off the floor.

Rotate foot and ankle both ways (point toes up) and extend (point toes down). Repeat several times per foot.



To check for leg comfort:

- ensure the seat of the chair is not digging into the back of the thighs and check that it is not too high
- if the seat is too high, lower the chair and desk or use a foot rest to support the feet
- also check the tilt of the seat and if necessary, adjust it to a horizontal position and
- rise up and down on the toes six to eight times at regular intervals.

### Visual rest

Regularly look up and away from the screen and focus on a distant object of at least three metres away. For example, look out the window or at a picture on a far wall.

This changes the focal length of users and helps to relax the eye muscles. However, they will need to shift vision back to the screen and refocus after such exercises.

### Eye exercise

Sit up straight, face forward and repeat this sequence several times without moving head:

- look up, then down and
- look left, then right.

To check for eye comfort:

- ensure there enough light falling on the documents and
- check for screen glare and reflection from light sources, including windows and light fittings and adjust screen position if necessary.

Use a screen with a light background if possible when working with text. Software with a light background for text is more comfortable for the eyes.