

Ergonomics and Manual Handling

06.01.01

– Ergonomics

A guide to good seating >

This information bulletin provides some guidance on the selection of appropriate seating in the workplace. It focuses predominantly on clerical seating, but many points will be relevant to other workplace seating requirements. Employers have a legal responsibility to ensure that the standard of seating provided does not pose any risk to the health and safety of the worker. This is in accordance with the [Workplace Health and Safety Regulations](#).

Ergonomics

There is a wide range of seating types and designs on the market which is promoted as being 'ergonomic': The philosophy of ergonomics is to design the work environment to suit the worker. Seating is only one aspect to consider.

Choosing the most suitable chair for the worker and the job?

The following needs to be considered:

- the physical requirements of the use/s ie. height/s, size/s and any special needs;
- the design, type and features of the chair;
- the purpose/s for which the chair is being used, ie. the task/s being undertaken;
- the workstation/s dimensions (particularly the working height) at which the chair is to be used; and
- the end user should be involved in the selection process and will need to be adequately instructed and trained in the use of the chair to ensure its ergonomic features are fully utilised

Your health and safety

The lower back is placed under far greater stress in the seated position than it is in standing. This is because the tendency for the natural inward curve of the back to flatten when poorly seated (*fig 1*). Not only does this contribute to back pain and early degeneration of the intervertebral discs, it also affects other parts of the body, eg. when the lumbar curve flattens, the shoulders tend to round and the chin pokes forward. This can contribute to neck and pain and headaches as well.

putting safety first >



A good chair combined with an appropriate posture can significantly reduce these and other problems that often occur as a result of prolonged sitting (*fig 2*).

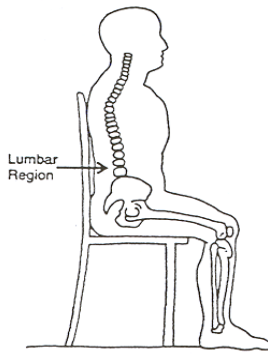


Fig 1: A flattened lumbar spine

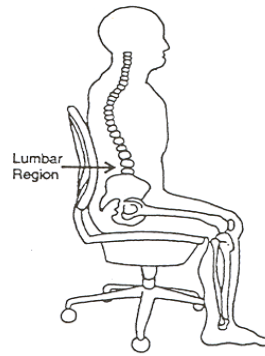


Fig 2: A supported lumbar spine

What to look for when choosing a chair

The chair needs to:

- promote and support a natural and relaxed curvature of the back and a good working posture (ie. it needs some form of adjustable lumbar support);
- minimise muscle fatigue and impedance to circulation (ie. the seat itself should not be so long that it presses on the back of the legs. The front edge should be adequately padded);
- be able to be adjusted easily from the seated position; and
- be stable.

Check the features

- Check with the salesperson to see if it carries a WorkSafe Australia approval.
- Check its features using this document.
- Negotiate with sales people, so that the potential user can trial the chair for at least a week where practicable as some features may prove unsuitable.
- If you require more detail consult:

Which design

There are three predominant designs of office seating (*see diagrams overleaf*). The unconventional designs do promote a more upright posture when used correctly, consequently they promote a more natural curvature of the spine as if in standing. People with pre-existing back problems often find these chairs less stressful. The sit-kneel chair, whilst aiding good posture, can cause problems for people with knee complaints, larger people and those using it continuously for prolonged periods. If you are considering the purchase on an unconventional design, insist on a trial period.

Conventional chair – recommended features

Backrest

- The backrest height should be adjustable enough to allow the lumbar support to rest in the small of the back for the shortest and the tallest users.

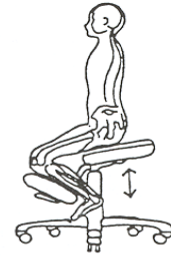
- The lumbar support should be easily identifiable and be the firmest part of the backrest.
- The recommended angle of the backrest is between 90 and 110 degrees, therefore the angle of the backrest should be adjustable at the very least between these angles.



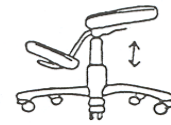
A conventional chair



A saddle seat



A sit – kneel chair



unconventional designs

Seat

- Padding should be thick and firm enough to prevent large people from ‘bottoming out’.
- The width of the chair should also accommodate the larger person whereas the depth of the chair should accommodate the shortest user (to provide clearance to the calf and reduce thigh pressure).
- Seats should slope forward a minimum of 15 degrees and tilt to a maximum of 5 degrees backwards. A slight degree of forward tilt is the best compromise in a chair with no tilt adjustment.
- The upholstery should breathe eg. cloth covering is superior to vinyl.

Base

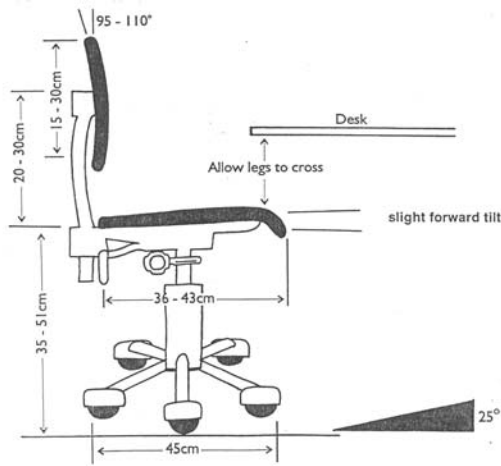
- A 5 star base support with castors or glides depending on the surface on which it is used eg. castors for carpet.

Armrests

- For clerical tasks, armrests should be height adjustable or not be used at all as they can impede the movements of the arms and compromise good working postures.
- Armrests on desk chairs should not impede the user’s movement or positioning under the desk.

Adjustment Controls

- The height, seat and backrest adjusters need to be easy to reach and to use from the seated position.
- The chair needs to have sufficient adjustment to suit the required number of working heights.



Features of a conventional ergonomic office chair in relation to a workstation

Additional equipment

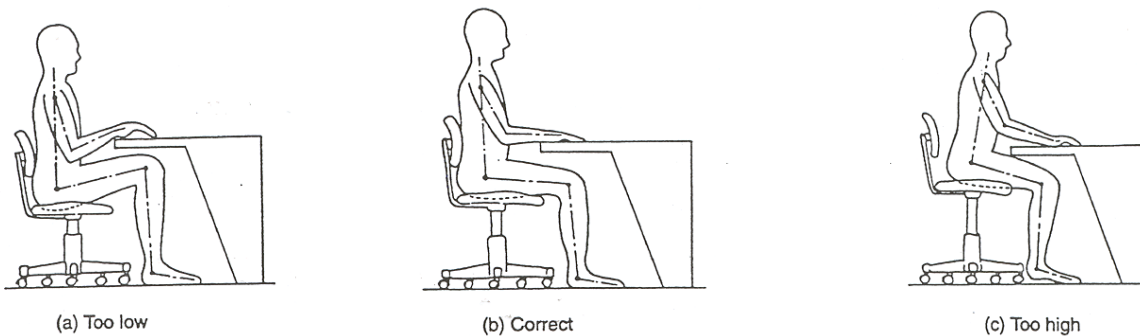
There is a variety of commercially available accessories that can improve the posture of the seated worker.

Footrests

A footrest may be required by shorter employees or when the work surface is higher than normal and can not be adjusted. It should be big enough to comfortably fit both feet and feature a non-slip surface. Using a footrest should never increase the bending at the hips past 90 degrees as this can flatten lumbar spine. To test whether you require a footrest use a phone book as a substitute for a trial period. An angle of 25 degrees is recommended for footrests but most that are currently available are adjustable.

Sloping desktops

Sloping desktops are recommended for use when working for prolonged periods. They reduce strain on the shoulders, neck and back by reinforcing correct posture and allowing the backrest to be used effectively.



Recommended seated posture in relation to working height

A good office chair can make a real difference not only to the comfort and well-being of the desk worker but can also increase their productivity. How effective the chair will be is dependent on its correct usage. NT WorkSafe has an information bulletin on back care (06.02.03) and a workstation assessment checklist (06.01.08) that provides additional information on these matters.

NT WorkSafe >

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