

Choosing seats for use at your computer

Prepared for  
Thalidomide Trust

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## 1 Choosing seats

If you use a computer at work you are entitled to a properly designed seat to protect you against potential musculo-skeletal risks of a poor working posture. And you should take the same care to use appropriate seating if you use a computer at home. Typical domestic chairs are very unlikely to provide the important features of a properly designed office chair.

In essence, a good seat for computer use should be easy to access, be secure, encourage good posture and be easy to adjust to your needs.

For more information on seated posture see the Trust's document 'The importance of good workstation ergonomics'.

## 2 Types of seat

### 2.1 Pedestal office chair



Unless you have very short legs and arms this type of seat is likely to be the best option. In general they tend to comply with all ergonomics requirements, but use the checklist provided later to check which one best suits you.

If you need a lot of support from the seat while climbing in or out it is important to check that the wheeled chair is sufficiently stable and secure.

If despite using a properly adjusted pedestal chair and ergonomics workstation, you still suffer problems, then you may need to consider alternative types of seating.

## 2.2 Kneeling chairs

Research has shown that the more upright position when sitting in a typical office chair (in which the upper body is at 90° to the thighs) can lead to lower back problems because it is not possible to maintain the natural inward curve of the lower back (lumbar lordosis).

The original 'Balans' chair was a new seating concept, developed to enable a more open hip angle while sitting so that lumbar lordosis is maintained.

In this design the seat base is lower at the front than at the back and a knee pad is provided to prevent the sitter from sliding off the seat



**The Hag-Balans chair**

Users of this seat have reported several problems however.

One is that, as the back is unsupported, muscular effort is required to maintain posture and there is no opportunity to rest the back muscles.

Another complaint has been discomfort in the knees as a proportion of the body weight is on these.

The seat is also somewhat more difficult to get on and off than a conventional seat as one has to manoeuvre ones legs into position.

### 2.2.1 Kneeling chairs with backrests

In recognition of the problems with the original Balans design a number of companies now offer a version with a backrest. The 'Backsaver' shown below is one example: -



**'Backsaver' Kneeling Chair with Backrest**

The 'Kneelsit', product provides the facility for the user to adjust the seat and backrest angles to suit them.

The manufacturers claim that access/egress is easier because the kneepad swivels down into the vertical position until you kneel on it.



Whilst many claims are made for the effectiveness of the kneeling chair concept, it is not easy to find objective data to support these. One cannot infer anything about their effectiveness from their lack of common usage as they also tend to be more expensive than standard chairs.

One disadvantage is that, in order to allow access, they do not have armrests.

It will also be vitally important that you can get this type of seat close enough to your desk otherwise you will be tempted to slump forward, completely eliminating all the claimed benefits of this type of seat.

### **2.3 Saddle seats**

Saddle seats offer the potential benefits of ensuring the majority of the body weight is on the seat bones and an open hip angle, so helping to preserve the natural S shape of the spine (lumbar lordosis).

The saddle seat has been claimed to be of special benefit to people who have to do a lot of bending as part of their work e.g. dentists because they can still maintain an open hip posture while bending. (The author's dentist uses one of these seats)



The example shown above includes a backrest making it potentially more suitable for deskwork.

## 2.4 The wedge cushion

The wedge cushion changes the effective angle of the seat base thereby increasing the angle of the hips and in theory helps to maintain good back posture in a conventional chair.

The cushions can be obtained in a range of angles and foam types, including memory foam ('tempur foam'). An inflatable version is also available which is more compact for carrying with you.



**Wedge seat cushion**

## **2.5 A note on Memory foam**

This is the type of foam that gradually moulds to the shape of the sitter over a period of a few seconds and maintains that shape. If you change position it gradually reshapes itself. Its trade name is 'Confor Foam' and it is found in 'Tempur' cushions and mattresses.

The foam comes in a range of 'stiffnesses', which affect how quickly it responds when you sit on it.

Because it moulds to your shape, it can help hold you in position. This may have some security benefits but it does resist changes in posture, which are generally beneficial when sitting for periods of time.

## **2.6 Bespoke solutions?**

There is another type of seat specifically designed for long periods of sitting while operating controls and viewing displays and that is the car seat. It is



designed for the ergonomically recommended 'open' hip angle and has been subject to extensive research to optimise its comfort. It also encourages the occupant to lean back and so the back is fully supported, reducing the load on the spine and providing good lumbar support. They all have excellent adjustment and electric adjustment is available.

If a car seat is going to be used then the rest of the computer workstation will need to be adapted to it, although this need not be too difficult.

The car seat concept may be particularly useful to users with very short legs due to its low height.

The illustration below is of a car seat-based computer workstation built by a non-disabled individual for his own use. The electric car seat was obtained from a vehicle breaker and a standard power supply from an electronics retailer enabled easy adjustment using the standard seat controllers. The owner built the framework and desk arrangements himself and the desk and armrests are on sliders for ease of access. The cost was about the same as an average office chair.



### 3 Seat selection checklist (pedestal office seats)

	✓
Is the chair easily adjustable?	
Does it have a sturdy five-legged base with good chair casters that roll easily over the floor or carpet.?	
Does the chair swivel 360° so it is easier to access items around your workstation without twisting?	
Does it have height adjustment?	
Is the seat base short enough not to dig into the back of your lower legs when your feet are flat on the floor?.	
Is the seat base width at least as wide as your thighs?	
Are the seat edges padded and contoured for support?	
Check the seat is not severely contoured as this can limit seated postures and also produce pressure points.	
Does seat pan tilt have a minimum adjustable range of about 5 degrees forward and backward?	
Is the front edge of the seat pan rounded in a waterfall fashion?	
Is the material in the seat base and back firm, breathable, and resilient?	
Is the backrest at least 15 inches high and 12 inches wide?	
Does the backrest provide lumbar support that matches the curve of your lower back?	
Does the backrest widen at its base and curve in from the sides to conform to your body and minimize interference with your arms?	
Does the backrest allow you to recline at least 15 degrees and lock into place for firm support?	
If the backrest reclines more than about 30 degrees from vertical, is a headrest provided?	
Do not opt for a chair with arm rests if you will not be able to use them.	

If armrests are provided, check there is sufficient clearance between them for ease of access and a comfortable arm position.	
Is armrest height just below your elbow height?	
Are the armrests large enough (in length and width) to support your forearm and padded and soft?	
Check that the armrests will not interfere with the desk. Check both when you are in and out of the seat if the seat has suspension.	

## 4 Reference

BS 5459-2:2000 Specification for performance requirements and tests for office furniture. Office pedestal seating for use by persons weighing up to 150 kg and for use up to 24 hours a day, including type-approval tests for individual components

## 5 Suppliers

Some suppliers are listed below as a guide and as examples. Please note that this should not be taken as an endorsement of any particular company or its products and that there are other suppliers.

### 5.1 Pedestal seating

Available from many office suppliers e.g. Staples

Advance Seating Designs

specialise in office seating for people with special needs.

Contact details:

Advance Seating Designs,

Unit H Field Way, Metropolitan Park,

Greenford,  
Middlesex UB6 8UN.  
Tel: 0208 747 7529.  
Email: sarah@asd.co.uk.  
Website: www.asd.co.uk

## 5.2 Kneeling chairs

Backchairs Direct  
P.O. Box 370  
Sevenoaks,  
Kent TN13 2GT  
www.backchairs-direct.co.uk  
Email: info@backchairs-direct.co.uk  
Telephone: 01732 459190

Putnams  
Eastern Wood Road  
Langage Industrial Estate  
Plympton  
Devon PL7 5ET  
Tel :0175 234 5678  
email : info@putnams.co.uk

Kneelsit  
15 Eddy St.  
KIAMA N.S.W. 2533  
AUSTRALIA  
Tel:+612 4232 4455  
www.kneelsit.com

### 5.3 Wedge Cushions

Putnams  
Eastern Wood Road  
Langage Industrial Estate  
Plympton  
Devon PL7 5ET  
Tel :0175 234 5678  
email : info@putnams.co.uk

Physiosupplies  
Tel : 08700 545 050  
Web; www.physiosupplies.com

### 5.4 Saddle seats

The Bambach Saddle Seat  
Unit A2  
The Seedbed Centre  
Langston Road  
Loughton  
Essex IG10 3TQ  
Tel: 0208 532 5100  
Email: info@bambach.co.uk

Backchairs Direct  
P.O. Box 370  
Sevenoaks,  
Kent TN13 2GT  
www.backchairs-direct.co.uk  
Email: info@backchairs-direct.co.uk  
Telephone: 01732 459190

