



Choosing children's mobility equipment

DLF Factsheet

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INTRODUCTION

This equipment can either be used as a permanent means of getting around, or can be used in the process of establishing a particular skill, as a precursor to developing other mobility skills. For example during normal development, a child will learn to lift his upper body off the floor before he learns to crawl, and he will learn to stand before he can walk. In a similar way, although disabled children may do things at a different time, the same basic muscles or skills need to be developed.

The aim of this factsheet is to provide first stop information on what type of equipment is available to help with specific difficulties, and details about the useful features of some of the more popular items of mobility equipment.

For up-to-date product and supplier information, please contact our equipment helpline, open Monday to Friday, 10am - 4pm, Tel: 0845 130 9177 (calls charged at local rate) or Textphone: 020 7432 8009 (calls charged at standard rate minute).

PROVISION OF MOBILITY EQUIPMENT

Walking equipment is regarded as mobility equipment, and is therefore provided by physiotherapists. They are usually employed by the health service; the district health authorities in England and Wales, the health boards in Scotland, and health and social services boards in Northern Ireland. They are usually based in hospitals, health centres and sometimes GP practices. Standard walking equipment for children is usually a smaller version of adult equipment. Some models are available in a range of colours.

FOR CHILDREN WHO ARE UNABLE TO WEIGHT BEAR THROUGH THEIR LEGS

Scooter boards

These are used by children whilst lying on their fronts. They support the whole of the body and sometimes the legs, leaving the hands free to allow the child to propel him/herself across the floor. They are mainly used for treatment activities in sensory integrative therapy and physiotherapy.

The length of the scooter board required will vary depending upon the size of the child and his ability to support his legs whilst lying on his front, i.e. a short board for a more physically able child or a small child; long board to provide more support or for larger child.

Scooter boards with large free moving castors used on a hard floor move with greater speed and are more manoeuvrable when used independently by the child; they also move more easily if an adult is pushing, spinning or pulling the child on the board, who is holding onto a rope.

Chest straps may prevent a child from falling off and protective helmets may need to be worn for safety. Pommels can also be fitted to some scooter boards to keep the legs from pushing together.

Ensure that the floor surfaces are smooth, clean and free from splinters and children need to be warned to keep their hands and fingers away from the castors!

The height of the scooter board needs to be sufficient to keep the toes from dragging on the floor.

A scooter board can also be used by a child lying on his back if the board is long enough to support his head and hips. It can be propelled by an adult or the child pushing with his feet.

FOR CHILDREN WHO NEED SUPPORT WHILST WALKING

Standard walking equipment

A range of standard walking equipment similar to the adult range, but available in a range of smaller sizes with height adjustments is available.

The range includes static and mobile walking frames, rollators, walking sticks, tripods, quadrapods and crutches.

Most walking frames and rollators encourage the child to lean forwards slightly when walking. Some more specialised rollators are used reversed so that the child stands within the wheelbase of the frame. This encourages a more upright posture and is especially useful for children with a residual startle reflex who may fall backwards. The wheels have a ratchet mechanism which prevents the walker from rolling backwards. Models are available with two wheels and two ferrules, or with four wheels.

Trainer walkers

These provide additional supports which, in some cases, can be adjusted and removed as the child progresses towards independent walking.

They vary in design from large versions of baby walkers for children with delayed walking ability, to models that provide positioning and postural support with a seat andommel, forearm supports, and a range of supportive pads and straps.

Unfortunately, some models encourage the child to scoot along with his feet whilst suspended from the walker. This uses abnormal walking patterns which defeats the training objective. However, they do allow the child to move around independently with relative safety, unless

the castors or frame become entangled with an object or the furniture, or the child uses it on an uneven or sloped surface causing the walker to tip over. Risk should be minimised as much as possible, but protective headgear may be advisable if a fall onto a hard surface is a possibility.

The height of the frame and position of the support pads and straps need to be individually adjusted for each child by a physiotherapist to encourage the appropriate posture and walking pattern. These should be reviewed on a regular basis to ensure positioning and size are still appropriate.

The David Hart Orthotic Walking Trainer by Genesis Orthotics Ltd is an individually made device which provides children with cerebral palsy with vertical support, so that they can walk independently. It is an expensive piece of equipment and there is often a long waiting list for an assessment. Many parents have to fundraise for the money to purchase one.

Swivel walkers

These comprise a lightweight frame which fits around the lower body, forming an external skeleton. This enables a child who is unable to take weight through his legs to propel the walker forward using upper body movement. The pattern of walking is abnormal, as each side of the body moves forward in turn in a stiff legged walk. It is very slow and cumbersome and not easy to change direction. (The normal walking pattern is opposite arm and leg moving forwards together.)

Swivel walkers require individual assessment and fitting by an orthotist and are usually used by children with spina-bifida, muscular dystrophy and paraplegia.

The device is strapped onto the child over his clothes whilst in a lying position. It takes time to adjust all the straps and pads. Toileting can be difficult, if not impossible, depending on the design of the swivel walker, as some do not allow a sitting position or knee flexion and clothing is underneath all the pads, straps and metalwork.

Standing the child up in the walker can be difficult and may need help of two or three people.

Most models are available from specialist centres and require private charity funding, although some are available

through the NHS.

PUSHCHAIRS AND WHEELCHAIRS FOR CHILDREN

A pushchair or wheelchair should provide the child with a stable and comfortable seated position for going out and about. Depending on the abilities of the child and the type chosen, it may also provide some independent mobility. Remember that one wheelchair may not provide all the answers. Compromises may have to be made once the needs of the child have been prioritised. Some children may require two different types of wheelchair, each for a different range of activities - e.g. one user-propelled wheelchair for everyday use and another for sports purposes; or a user-propelled wheelchair for use indoors for short distances, and a powered wheelchair for long distance outdoor use.

It is important that the occupational and physiotherapist working with the child are involved in the choice of pushchair or wheelchair so that he/she can advise on positioning of the child to encourage the development of head control and sitting balance, and minimise the effects of an asymmetrical sitting posture on the hips and spine if the child has abnormal muscle tone.

PROVISION OF WHEELCHAIRS AND PUSHCHAIRS

Wheelchairs and related equipment are provided through a number of different channels depending upon their primary purpose.

Health and local authority provision

Most statutory provision of pushchairs and wheelchairs is carried out by the NHS wheelchair service. This is part of the health authority or hospital trust and is organised on a district-wide basis. Often based at the local district hospital, it is able to provide a wide range of wheelchairs and cushions

Referral to the wheelchair service is usually by a healthcare professional e.g. a therapist, nurse or doctor. The assessment and prescription for the wheelchair itself is usually undertaken by an accredited or recognised therapist.

Mobility equipment commonly available through the NHS wheelchair service includes:

- attendant-propelled wheelchairs;
- user-propelled wheelchairs;
- a pushchair or buggy for a child over three years of age who has significant mobility difficulties or who is unable to manage distances because, for example, he/she has a heart defect or Downs syndrome.

In addition, the service might also provide:

- an indoor powered wheelchair (EPIC) if the wheelchair user is unable to manually propel themselves indoors;
- an attendant controlled powered wheelchair if the carer has difficulty propelling a manual wheelchair outside;
- an indoor/outdoor powered wheelchair (EPIOC) to severely disabled people who want independent outdoor mobility;
- specialist seating systems to give postural support within a wheelchair or buggy (provided by specialist seating clinics that are part of the NHS wheelchair service);
- a wheelchair cushion or a pressure reducing cushion if the wheelchair user is vulnerable to pressure sores;
- a tricycle as an alternative to a wheelchair.

This is only a general guide. Each district wheelchair service sets its own criteria within broad national guidelines. Contact your local centre for more information. Addresses of local centres can be obtained by calling NHS Direct on 0845 4647.

If you are unhappy with the wheelchair the NHS wheelchair service intends to supply you with, your local centre may be able to offer you a voucher - equivalent in value to the cost of the wheelchair it would have provided - that you can use to help cover

the costs of a higher specification wheelchair. This option may not be available in all areas.

The NHS Wheelchair Service does not provide accessories such as rain hoods and covers, shopping baskets and leg muffs for the buggies or wheelchairs they issue.

Education service

Equipment that can be funded through the education service should be needed primarily for education and includes wheelchairs for mobility at school. To make procurement of specialist equipment easier, it may be necessary to refer to it in the Statement of Educational Need for the child.

Other sources of funding

Children over three years with mobility problems may be eligible for the mobility component of the Disability Living Allowance (DLA). This payment can be used under the Motability Scheme towards the cost of a battery powered vehicle, or an adapted car/van to enable the child to be transported in his/her wheelchair, but will not cover the costs of both.

Whizz Kids is a national charity that raises funds to buy mobility equipment for children, under the direction of the occupational or physiotherapist working with the child. Remember to take the additional costs of repairs, replacement

tyres and batteries into account when fund-raising.

TYPES OF PUSHCHAIR AND WHEELCHAIR AVAILABLE

Pushchairs and buggies

Parents of children who require supportive seating with an adjustable seat and a backrest with head support may prefer a buggy to an attendant-propelled wheelchair, as they feel that the disability may be less obvious to others. To cater for this, some models of pushchair come in a range of seat sizes up to small adult, whilst others have interchangeable seats in different sizes which fit onto the same wheeled base, to minimise costs as the child grows. However, this needs to be considered against the fact that many of the modern wheelchairs provide a more practical stable seating position for carrying out activities; tend to look more sporty; and may be able to provide the child with some independent mobility.

When choosing a pushchair or buggy, consider the following features:

- Some have either a front or a rear facing seat; others are interchangeable depending on whether the parent wants to see the child or needs to monitor his condition more easily, or whether the child wants to see around him.
- The height of the push handle is adjustable on some models to cater for

different height parents. This may lessen their back strain when pushing a heavy child over long distances.

- Front wheels can be fixed or swivel - the choice is usually down to personal preference. Swivel wheels tend to be more manoeuvrable, eliminating the need to lift the front wheels off the ground to turn a corner. Fixed wheels make it easier to push the buggy in a straight line, especially outdoors with a heavy child in it.
- Large wheels with pneumatic tyres are easier to push over rough ground or grass.
- Brakes can be foot- or hand-operated.
- The method of folding the buggy and its size and weight when folded, may be critical for transporting it in a car or on public transport.
- All supportive buggies are difficult to fold up. Remember that the parent will have to hold or support the child whilst doing so, or sit or lay the child down somewhere.
- Most models have accessories which will provide additional support and positioning, e.g. head, trunk and pelvic pads,ommel, harness/waistcoat, footstraps and abduction straps.
- Adjustable seat width and depth and the position of support pads allow for growth and changes in condition and posture.
- Some models have detachable seats

which can be used as car seats or fitted onto a free standing base and/or wheels to use as a static seat.

- Most children with postural needs will require a harness with shoulder, chest, and crotch straps for support and safety.
- Some pushchairs have been crash tested for carrying in a minibus or a van.

Attendant-propelled wheelchairs



Wheelchairs that are officially known as attendant-propelled wheelchairs are those with small back wheels. However, although they are slightly lighter, they require more energy to push than user-propelled wheelchairs which have the large rear wheels. Although some parents feel their child looks more disabled in an attendant propelled wheelchair, the NHS Wheelchair service may prefer to provide one rather than a buggy for larger children, as moulded and customised seating systems can be more easily fitted to them and they are less expensive than supportive buggies. The child can usually achieve a better seating position in a

wheelchair and seating system than in a buggy, which will have both short and long term beneficial effects.

Attendant-propelled wheelchairs can be supplied with a pommel, a range of backrest angles, elevating legrests and head supports, as well as removable footrests and armrests of various types.

Parents of children who spend most of the time in their chairs (full-time users) may wish to consider a large rear wheeled chair (user propelled) as they are more versatile, comfortable and manoeuvrable, especially over rough ground and kerbs. The small front castors of attendant-propelled wheelchairs make pushing over rough ground difficult and it is often easier to either tip the chair back onto the rear wheels to push or pull it backwards, but only for short distances.

High performance chairs, the lightest wheelchairs on the market, are increasingly being used as attendant-propelled chairs. These wheelchairs have an adjustable rear axle so the centre of gravity can be changed to make pushing and manoeuvring the wheelchair easier. Wheelchairs can also be clamped into a minibus/van for transportation, with the child seated in the wheelchair and with a three-point seat belt to secure the child.

High performance wheelchairs This is a type of user-propelled wheelchair which is more flexible than the standard manual wheelchair and can be adjusted to meet individual requirements so that the child can achieve the maximum amount of mobility. They are usually used by children who are active, full-time wheelchair users.

Although many of the components, e.g. seat and backrest size and angle, legrests and footplates etc. can be adjusted to provide a child with mild to moderate seating difficulties with a stable seated position, high performance chairs are very seldom fitted with seating systems or postural supports.

They are made of lighter weight materials and designed to be more easily manoeuvrable with cambered, large propelling wheels which can be brought forward to alter the weight distribution so that the child or the parent needs much less energy to propel the chair.

Some children can learn to do back wheel balancing (wheelies) which enables them to negotiate kerbs etc. independently. Anti-tip stabilisers may need to be fitted initially, while the child is learning back wheel balancing, to prevent the chair from tipping over backwards.

Some models are growing wheelchairs with an adjustable frame which can allow for seat width and depth changes as the child grows.

Rigid frame chairs are slightly lighter than those with a folding frame, and are more energy efficient to propel. However, many only have a one-piece footrest, which requires a sideways transfer onto the chair and is not suitable for weight bearing children who can do a standing transfer.

A limited range of models may be available through the NHS Wheelchair Service and are useful for children who find the heavier models too tiring to push, especially if they have a deteriorating condition, e.g. muscular dystrophy. Otherwise parents will need to fundraise or approach a suitable charity.

Standard user propelled wheelchairs

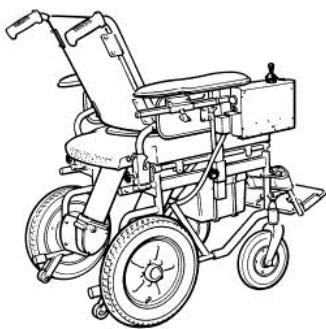
User-propelled chairs, as their name implies, are designed to be propelled by the child and used primarily for daily living activities.

Although similar in appearance to high performance wheelchairs, these chairs are not as light or adjustable, and are therefore not as easy to propel, especially over any great distance. Most do not have adjustable position or quick release wheels. A limited range is available from the NHS Wheelchair Service.

However, various additional support pads and seating inserts can be fitted by a technical officer from the Wheelchair Service if the child needs some postural support.

- A lap strap and spoke guards are useful safety features especially for very active children!
- Height adjustable pushing handles and tipping levers are necessary if the parent will be pushing the child over longer distances or when tired.

Powered wheelchairs



These are powered by rechargeable batteries, usually gel batteries, and tend to be used by children who spend most of their day in a wheelchair. They provide the child with independent mobility and the freedom to explore his/her environment.

A child must have adequate vision and hearing, and needs to be able to understand how to operate a powered wheelchair safely, especially outdoors and in crowded places.

The control systems can be varied to suit the needs and physical abilities of the child.

- Joysticks with different shapes of control knob can be fitted for left or right handed use, or can be fixed centrally onto a horizontal bar or tray.

Chin, head, foot or suck-blow controls can also be fitted, as well as dual controls, which enable the parent to control the speed and direction of the chair and switch it on/off.

- The controls on some models can be programmed either to reduce the effects of jerky movements and/or to limit the overall speed of the wheelchair. This enables a child to learn to drive safely or the performance to be varied as his/her skills and physical abilities improve or decline.

BEWARE - Many children when they first get a powered vehicle test out the limits and may be tempted to drive into people or objects and to drive too fast and show off. Do not worry - this is usually a transitory phase; they are adapting to their new freedom of mobility and independence. It may also result in increased confidence, self-esteem and socialising with their peers, as they can keep up and have access to different places and situations.

However, it is advisable for parents to take out public liability insurance to cover accidental damage to other people, animals or property.

As their name suggests, this type of wheelchair is designed for indoor use - models generally have limited speed, small wheels and smooth tyres which do not grip well on slopes.

This type of wheelchair may be provided

by the NHS Wheelchair Service for children unable to user propel, and by the Education Service for a child in a large school who is unable to user propel at speed to get around between lessons in the same time as their peers. - However, the slow maximum speed can be very frustrating for a child trying to keep up with ambulant peers.

Remember that if the wheelchair is only used at school and the child arrives and goes home in his manual wheelchair, arrangements will need to be made for the batteries to be charged regularly.

Often families need to fundraise or privately purchase these more powerful and faster outdoor powered wheelchairs.

The child will need to have good co-ordination, speed and safety awareness, and a responsible attitude, as this type of wheelchair is generally faster than the indoor powered wheelchairs.

As they are expensive, careful selection is essential to ensure the child will not rapidly grow out of it and that it will meet his/her essential requirements. Some have the option of several different sized seats that can be fitted in turn to the powered wheelbase as the child gets older.

Although Class 3 vehicles (which have a maximum speed of 8 mph and are designed to be driven on the road) are available, children under 14 years old are not allowed to use them.

Scooters

Battery powered scooters tend to be used mostly by physically able children, who are able to walk but who have difficulty covering distances, and who can get on/off the seat by themselves. Most seats swivel and have lift-up armrests to make transfers easier.

To be able to use the scooter successfully, the child will need good sitting balance and strong shoulders and arms so that they can hold the handlebars and steer the vehicle.

Scooters are usually operated by squeeze-grip levers - using the fingers or sometimes the thumbs - which need to be pressed or gripped continuously to maintain movement. If they are released the brakes will automatically engage.

There is a very limited range of scooters available for children. Older children/young adults may be able to use the more compact, adult models.

Similar to powered wheelchairs, it is recommended that you obtain public liability insurance to cover accidental damage to other people, animals or property.

FOR CHILDREN WHO NEED A LOT OF COMFORT AND/OR SUPPORT

The wheelchair or pushchair should have the correct sized seat and backrest, and a supportive seating system or cushion to ensure the comfort and security of the child both when sitting and moving around.

Providing a stable seating base In order to be comfortable, it is important that the child should be able to sit upright in a firm and stable position. Some people find this difficult and waste a lot of energy trying to stop themselves from sliding forwards or continually moving themselves back up in the wheelchair. It is important that the child is able to save as much energy as possible so that, having propelled from A to B, he/she still has enough energy to carry out whatever activity is necessary.

Children who have mild to moderate seating difficulties can achieve a stable upright, seated position with the right size and shaped seat, backrest and cushion.

Supportive pushchairs/buggies

Several different models of pushchairs can be fitted with relevant head, upper body, leg or foot supports that will help to keep the child in an upright stable position.

Many of these are available in sizes that will fit a large child or small adult, but the age appropriateness of a pushchair should be considered.

Wheelchairs/seating systems with positioning supports

Children with limited physical abilities may find sitting up straight so difficult that a specialised seating system or a wheelchair that has adjustable position supports for the upper body, may be needed.

Some wheelchairs are available with a mix and match range of accessories which can be positioned around the child to provide support for the whole body, maximising the support, comfort and ability for the child. These can be adjusted for growth or changes in posture.

Although this type of chair provides a stable functional seating position, it can be difficult to transfer the child in and out of the wheelchair.

Wheelchair and buggy seating systems

The NHS Wheelchair Service can provide custom made seating systems which fit on the top of a buggy or wheelchair chassis (usually self-propelled). The seating system fits onto the base frame and has to be removed before folding the frame for transportation.

These seating systems are more conspicuous and less aesthetically pleasing than standard pushchairs or wheelchairs. However, parents need to weigh this against the good supportive, functional seating position that the child is achieving. The short and long term health benefits are numerous.

Some systems can have the seat removed from the wheeled base and fitted to a static base for indoor use.

Some systems are made up of interlinking components that can be re-shaped when necessary; others are permanently moulded into a particular shape.

The modular type of system has the advantage over the moulded systems in that it can be adjusted for growth, if the condition changes or if it is uncomfortable. Some modular systems can only be adjusted by a company representative or therapist who has had special training. This may prove to be a problem if an adjustment needs to be made urgently, but it does at least prevent an

inexperienced person fiddling with or moving components.

These systems may be less protective in cold weather as there are gaps between the systems made from interconnecting links, and the seat is only covered with very thin foam and a stretch towelling cover.

A permanently moulded seating system is maintenance free and cannot be accidentally altered. It is made of a substance which has a fluid-like property which can mould uniquely to the contours of the body. Once the position is correct, it can be made to solidify so that a permanent shape is formed. This is then usually covered with sheepskin or padded towelling. A well fitting mould will support the weight of the child evenly and reduce the risk of pressure sores developing. If the system is to be used both indoors and outdoors, care must be taken to try to accommodate indoor/outdoor and winter/summer clothing whilst maintaining the evenly contoured support.

Wheelchair cushions

A wheelchair is only useful to a child if it provides him/her with a comfortable, supportive seating base. Wheelchair cushions should always be obtained at the same time as the wheelchair itself to ensure that it fits properly in the seat.

A stable comfortable base is difficult to achieve if the child sits directly on the

wheelchair canvas - it is the combination of a wheelchair cushion and the canvas seat that provides the child with the comfort and stability that he/she requires.

Cushions can be divided into three main types, although the categories overlap:

- cushions for pressure relief. The greatest cause of discomfort will be caused by the development of a pressure sore. Although young children are not as prone to developing pressure sores as older people, it is still advisable to check periodically for signs of redness or soreness;
- cushions with postural support. These usually have pressure relieving properties together with additional mouldings or add-on supports that provide support and stability particularly for children who find it difficult to sit unaided;
- cushions for comfort. These are suitable for children who need a bit of padding purely to enhance comfort.

FOR CHILDREN WHO SPEND A LARGE PROPORTION OF THE DAY IN A WHEELCHAIR AND NEED TO BE PUSHED BY SOMEONE ELSE

Standard attendant-propelled wheelchairs

Although this type of wheelchair with the small back wheels are lighter than standard user-propelled wheelchairs, they actually require more energy to push and are more likely to get caught in gratings, ruts etc. Chairs with pneumatic tyres and with the wheels set as far forwards as possible under the user are important features to look for.

Powered attendant propelled chairs

Some electric wheelchairs can be fitted with controls that are operated by the parent from a joystick mounted on the pushing handles. This will take the effort out of pushing, especially over long distances, but remember that electric wheelchairs are difficult to transport from place to place - a specially designed hoist to lift and stow the wheelchair can be used; or a powered wheelchair can be transported in a trailer. Sometimes, it is better for the child to remain in the wheelchair and taken as a passenger in an adapted car or van.

The wheelchair can also be fitted with two sets of controls, for the child or the parent,

and a switch needs to be flicked to determine who is doing the driving.

User propelled (large, rear wheeled) wheelchairs

These wheelchairs are used as an attendant-propelled chair because they tend to provide more comfort, and the larger wheels make it easier for a parent to push. Many of the high performance wheelchairs can have the large rear wheels brought forward to alter the weight distribution so that much less energy is needed to push the chair. Also the wheels can be slightly cambered, i.e. the top of the wheels angled inwards, which makes it easier to push in a straight line.

FOR CHILDREN WHO NEED TO PROPEL OUTSIDE

Manual user-propelled wheelchairs

High performance wheelchairs are easier to propel outside than standard manual chairs because:

- the large rear wheels can be brought forward to alter the weight distribution so that much less energy is needed to push the chair;
- the wheels can be slightly cambered, i.e. the top of the wheels angled inwards, which makes it easier to push in a straight line;
- the overall weight is usually lighter;

- because the rear wheels are taller, they are in a better position to be propelled;
- the wheelchair backrest is usually lower, allowing more arm movement for propulsion.

Powered wheelchairs

Most powered wheelchairs can be used outside on the pavement to travel quite long distances. Some have kerb climbing devices although, as kerb climbing can be frightening and insecure, the use of dropped kerbs is safer and more comfortable.

Head support and a supportive harness may be necessary if they are to be used on rough ground.

Scooters

The limited range of scooters designed for children are used mainly by children who are able to walk but who have difficulty covering distances and who can get on/off the seat by themselves.

Most outdoor scooters have the ability to kerb climb although, like powered wheelchairs, many children prefer to avoid it where possible. Four wheeled scooters are more stable for kerb climbing than the three wheeled versions.

FOR CHILDREN WHO SLIDE FORWARD IN THEIR WHEELCHAIR

Providing a stable seating base

It is important that the child should be able to sit upright in a firm and stable position.

A seat that slopes slightly backwards will help as it means that the child will be sitting with his knees higher than his hips, which will help to stop him from going into spasm and from sliding forwards.

Positioning the child to inhibit spasm is important, so placing the legs apart (perhaps using a pommel) and/or using a seat that slopes slightly backwards will increase hip flexion and should help.

Complex seating needs should be resolved through consultation with a specialist therapist.

Wedge/sloping cushions

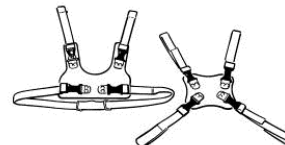
These cushions, if used with the thick edge at the front, can be used on the wheelchair seat to help prevent a child from sliding forwards. Care must be taken that the cushion will not drastically alter the overall height of the seat and reduce the effectiveness of the armrests as a support. Different angled wedges are available (e.g. 2.5 cm, 5 cm etc.).

Tilt in space wheelchairs

A tilt-in-space seat unit in a wheelchair enables the seat and backrest angles to remain fixed while both are tilted backwards. This type of unit is useful for children who have severe muscle spasms which may cause them to slide out of a standard 90°/90° seat unit.

Tilting back the chair alters the field of vision and is a less functional position. Check the mechanism, and find out if the chair can be tilted with the child in it. Both manual and electric wheelchairs are available with this mechanism.

Harnesses and securing straps



Supports and harnesses are available which provide support and encourage a child to sit in a firm, stable position. Waistcoat, bib and butterfly harnesses are more supportive and comfortable than shoulder and chest straps for children with poor trunk control.

FOR CHILDREN WHO NEED TO RECLINE IN THEIR WHEELCHAIRS

Both manual and powered wheelchairs with a reclining backrest are available. This feature would be needed by a child who:

- is unable to sit up because of weak muscles in the upper body, or a stiff spine or hip;
- needs to change position during the time spent in the wheelchair;
- has difficulty breathing;
- is receiving treatment that requires him/her to be in a reclining or semi-reclining position;
- needs time during the day to relax/sleep.

If the child needs to recline fully, check that the backrest can be so adjusted. Some are only semi-reclining.

When contemplating a wheelchair with a reclining backrest, the following need to be considered:

- space - check that there is enough room in the home/school to manoeuvre the wheelchair. Once the backrest is reclined and the legrests elevated, the chair is very long;
- propulsion - although some recliners have user-propelled wheels, their purpose is primarily to improve stability of the wheelchair when the backrest is

reclined, rather than for self propulsion in the reclined position;

- reclining mechanism - check whether the mechanism can be operated by the child or the carer. Children will need to have good upper body strength or have assistance as they may need to sit up before the backrest can be moved. If the chair is attendant operated, can the mechanism be operated with the person in it?
- legrests - check whether the legrests can be operated by the child, who may wish to sit in an upright position with legs outstretched. Most have to be adjusted by someone else;
- transporting in a car - it is virtually impossible to get most reclining wheelchairs into a car because the high backrest does not fold and the chairs are very heavy to lift.

FOR CHILDREN WHO NEED A WHEELCHAIR WITH AN ELEVATING SEAT

This feature is more commonly available on powered wheelchairs and usually only available through private purchase or charitable funding.

On some models, the seat height alone can be adjusted to enable the child to sit on the floor to play with his/her friends or to be raised up to be at eye level with his/her peers and to reach things and explore his environment. Consider the following when choosing:

- some powered models have a large rear platform over the motor and rear wheels which can be used as a parcel shelf;
- powered wheelchairs are available as front or rear wheel drive models;
- seat-lifting mechanisms add weight to a wheelchair;
- the high level footrests do not allow the child to get close to cupboards. Care must also be taken to ensure that feet/footrests do not get caught while elevating;
- it is not advisable to drive with the seat in the elevated position, especially on slopes where the wheelchair is likely to be unstable;
- many models are quite difficult or impossible to dismantle for transporting or storage;
- standing frames can be attached to replace the seat on some models;
- batteries must be regularly charged.

FOR CHILDREN WHO NEED TO CARRY OUT ACTIVITIES FROM THEIR WHEELCHAIR

Trays

Trays for use in school for feeding or working can be supplied in standard and customised sizes by the Wheelchair Service.

Clamping systems

Clamping systems enable a cup/camera/communication aid etc. to be attached to the wheelchair to increase independence.

Mobile arm supports

These are useful for children with progressive neuromuscular conditions, e.g. muscular dystrophy to enable them to eat, drink, write or play when sitting in their wheelchair etc. They can be provided by the NHS Wheelchair Service.

FOR PARENTS WHO NEED TO PUSH MORE THAN ONE CHILD AT THE SAME TIME

Multi occupancy buggies

The NHS Wheelchair service in some areas may provide a double buggy under certain circumstances if one child, usually the older one, has mobility and postural seating needs.

The buggy cannot be provided until the younger child is six months old, although it can be ordered before, to be delivered at the age when the babies can sit upright independently.



The choice of double buggies is limited and the following should be considered:

- the two buggy seats can be arranged either side by side or one behind the other (tandem);
- side by side seat buggies are often too wide for doorways and pavements and can be awkward to manoeuvre and steer;
- double buggies are larger, heavier and more awkward to fold and lift into a car or onto public transport than single buggies;
- there are single seater buggies available with a baby seat attached on the front;
- REMAP engineers have adapted a single supportive buggy and attached a baby seat to it if the buggy is not available in a double seat model. The NHS Wheelchair Service will have to give its permission if buggies loaned by them are to be adapted in any way.

SUPPORT AND STANDING EQUIPMENT FOR CHILDREN

It is rarely practical to use support and standing equipment in the home because of the amount of space it occupies. It is designed more for a therapy or educational environment as adaptive positioning equipment, i.e. getting a child used to a standing position, as a precursor to developing mobility skills; or to place a child in a functional position for play and learning. During normal development a child will learn to lift their upper body off the floor before they learn to crawl, and they will learn to stand before they can walk. In a similar way, although disabled children may do things at a different time, the same basic muscles or skills need to be developed. This type of equipment should only be used under guidance from a physiotherapist.

PROVISION OF SUPPORT AND STANDING EQUIPMENT

As most of this equipment is for therapy use, it is unusual for it to be funded by the occupational therapist based at the local social services. However, standing equipment and floor wedges may be funded by the NHS physiotherapists for home use if they are to be used for postural drainage for example. If the equipment is used in school, it may be funded by the education authority.

FOR CHILDREN WHO ARE UNABLE TO SUPPORT THEIR WEIGHT THROUGH THEIR LEGS

Floor wedges



These are foam or canvas wedge shaped supports which provide support for a child who is lying on his/her back or front. Some are adjustable which allow a variation in tilt angle. They can be used for:

- postural drainage, i.e. with the child lying with the head lower than the feet, so that fluids and secretions can drain away from the lungs;
- positioning a child on his/her front whilst playing on the floor, to keep the hips and legs stretched out straight which will help to prevent the muscles from shortening, which could lead to permanent contractures;
- developing head control and the ability to weight bear through the arms, whilst the child is lying on his/her front during play;
- encouraging a child to keep his/her head up straight in line with the body whilst lying on his/her back or front.

Prone or side lying boards

Some children, particularly those with cerebral palsy may need help with positioning for 24 hours a day to prevent muscle shortening and contractures. During sleep, therefore, they will need to be positioned symmetrically in a side lying, prone (on front) or supine (on back) board. However, research into cot death syndrome has shown that it is not advisable to lay young babies on their tummies (prone) to sleep.

Most boards have adjustable support pads to give the correct positioning and some are made to measure.

The legs are kept apart with a wedge, and the rest of the body is kept in a symmetrical position with the help of pads, cushions and straps.

They can also be used for positioning during play; however, it is not always easy for the child to use both hands whilst lying on his/her side or front.

Prone standing boards

During normal development, most children stand before they can walk and this helps to develop the muscles and joints in the legs and hips. Many children with physical disabilities are unable to support their own weight through their legs independently, and physiotherapists use supportive standers to put disabled children of a similar age into weight bearing positions.

Prone standers provide a lot of support for the upper body with the legs resting against a padded board usually held apart by a wedge or pommel. The angle of most standers can be adjusted so that as the abilities of the child increase, the board can steadily be moved to a more vertical position, and very slowly more weight can be taken through the legs.

FOR CHILDREN WHO ARE ABLE TO TAKE SOME WEIGHT THROUGH THEIR LEGS

Vertical standing frames

A vertical stander will support the child at his/her feet, knees, hips and trunk using pads and straps, and enable him/her to take some weight through the legs and to stand upright. Standing frames have several uses:

- to maintain hip and knee extension;
- to enable kidney drainage;

to help maintain bone density;

- to enable the child to be at the same level as other children for activities;
- to develop stable hip joints.

Getting children in and out of a standing frame may be difficult, especially if the base platform is on castors or the child is in a wheelchair and requires assistance to stand up.

Some frames have a gas spring mechanism which allows the child to be

fitted into it whilst lying flat on the floor or whilst sitting. The child and the frame can then be lifted, with assistance from the gas mechanism, into a standing position.

The legs can be kept apart using a pommel, knee blocks and foot sandals. Some standers have a tray on which activities can be carried out. However, children may feel less isolated during activities if they can be stood at a desk or table with their friends. If the chest supports and tray can be removed during some activities, the child may be able to perform a wider range of movements.

Some children have greater head and arm control whilst standing upright and therefore may find it easier to eat/be fed in an upright position.

Most standing frames fitted with castors are not designed for pushing the child around whilst in the stander. Check with the manufacturer whether the stander has been stress tested for such use.

Wheeled standing frames

These provide similar support to vertical standing frames but have large user-propelled wheels which allow the child to move around in a standing position and to be at the same eye level as their friends.

However these user propelled wheels make the standers large and difficult to manoeuvre in confined areas and may be more useful for outdoor play and to move around in school, between rooms.

Standing tables and boxes

These are used mainly by children who are able to stand independently. They provide minimal support, providing stability to a child with balance problems, or they could also be used by a child in a swivel walker or callipers who needs support whilst working in a standing position.

CAR SEATS AND HARNESSSES FOR CHILDREN

The majority of families rely on cars for getting out and about, and it is important to find safe, effective ways of transporting children with additional needs.

SPECIFIC FACTORS TO CONSIDER

The law/guidelines on carrying children in cars.

- Babies up to the age of about nine months must be carried in a rear facing infant seat. As this is one of the safest ways to carry a child, some rear facing seats will take an average sized child up to about 15 months old.
- Children up to the age of about six years should be placed in a forward facing child seat or on a booster cushion used in conjunction with an adult three-point seat belt. The latter

will raise the sitting position, so that the seat belt lies correctly across the body, providing adequate protection in case of accident.

- Older children may be placed in a large, forward facing seat which has been specially designed to provide additional support for children with disabilities. However, there are a limited number of makes and models, and few cater for teenage children. Alternatively, the adult seat belt can be used in conjunction with a booster seat and/or a support harness.

Safety testing of seats and belts

- New car seats and booster seats should conform to the United Nations Regulations R44.03, although it is still legal to use a child restraint that conforms to a British Standard or an earlier version of R44.
- All seat belts and child harnesses must conform to a British or European standard. Restraint harnesses can still be used to provide support and positioning, but should be used with a seat belt that conforms to a recognised standard.

Parents have been known to use a supportive static chair, which has not been designed as a car seat, in a desperate attempt to keep the child supported and sitting upright in the car. This is not recommended.

Fixing car seats in vehicles

The mechanism used to fix the car seat into the car will vary from model to model:

- Most standard seats for carrying smaller children are fitted into the car using the front or rear lap and diagonal seat belt.
- The fittings for the specialised seats vary from model to model. Some require permanent fixings which prevent the seat from being used in more than one vehicle; others have transferable fixings which allow the seat to be moved from vehicle to vehicle as long as each is fitted with the relevant fittings.
- A recent development is the ISOFIX system to secure child car seats. New cars are now being manufactured with ISOFIX points to attach car seats fitted with corresponding fittings more securely.

General safety advice

- NEVER carry children in a rearward facing car seat in the front of your car if there is a passenger airbag fitted.
- It is always safer to use a forward facing child car seat in the back of a vehicle, but where it must be used in the front and a front passenger air bag is fitted, the main car seat should be slid back on its runners as far as possible.
- NEVER carry a child on a your knee,

however short the journey. In a crash situation, it would be impossible for you to maintain a hold on the child.

- NEVER share a seat belt with a child as you risk squashing the child between your body and the seat belt in a crash situation.
- Always use and fit a car seat in accordance with the instructions provided by the manufacturer; and routinely check that fixings are secure.
- Lap straps on seat belts should be positioned as low as possible so that they rest across the hips and not over the stomach.
- Any seat or harness in a car that has been involved in an accident should be checked by the manufacturer before it is used again.

Trying out specialist car seats

It is very important to try out a car seat before purchase to check that it meets the needs of the child, and that it can be fitted safely into the family car. However, very few places have a good range on display. It is worth contacting:

- your nearest Mobility Centre which may have car seats available to see and try out. The Disabled Living Foundation's helpline holds addresses, or contact the Mobility Advice and Vehicle Information Service. Always ring to check what equipment is available before making the journey to visit;

- the In-Car Safety Centre in Milton Keynes, Buckinghamshire which has a wide range of UK and imported car seats of all sizes and types;
- local retailers may offer a service for children with disabilities and carry out adaptations/fit extra straps etc. Look in Yellow Pages under Disability or Mobility equipment.

Alternatively, many of the companies will bring equipment to the home for you to try it out in situ.

General features to consider

- Check the weight of the seat, and how easy it is to lift in and out of the car and carry where necessary.
- Are the covers removable for washing or can they be sponged?
- Some seats have a swivel mechanism to make transferring the child in and out easier.

PROVISION OF CAR SEATS FOR CHILDREN

The occupational therapist at your local social services department or child development centre may be able to advise or assist with the provision of a car seat for an older child (over three years of age) with special needs.

In some areas there is a loan scheme for car seats. Direct enquiries to the Childrens Information Service at your local council offices.

FOR PARENTS WHO WISH TO PROTECT THEIR BACKS WHEN GETTING A CHILD IN AND OUT OF A CAR

Transferring a large child into a car is not only difficult but can also cause back strain. Ways need to be found to reduce the risk of injury.

- A few child car seats have a swivel mechanism to make transfers easier.
- A child who can travel in the front passenger seat may benefit from a replacement seat that rotates and slides forwards over the car sill.
- Some restraint harnesses can be attached to the child whilst outside the car, then locked onto fixings when the child is seated in the car.

Specially adapted cars or vans

Several makes and models of cars and small vans have been adapted to enable a child in a pushchair or wheelchair to be wheeled into the back of the vehicle and the chair clamped to the floor, eliminating the need for transfers. From the age of three years old, children may be eligible to receive the mobility component of the Disability Living Allowance. This can be used to purchase vehicles through the Motability scheme.

Some buggies have been crash tested and are suitable for clamping in a vehicle. Check with the suppliers. These must be purchased with special fixing points fitted.

Travelling in a vehicle in a pushchair or wheelchair presents greater risks than travelling in a car seat. The following should be considered:

- pushchairs and wheelchairs should be secured facing forwards as most have very little lateral strength;
- both the pushchair and the child should be restrained using separate devices;
- restraint systems are only as strong as the material to which they are attached. Both the pushchair and the child restraint should be fixed to a part of the vehicle that is capable of withstanding the forces that would be exerted in a crash;
- permanent floor attachment fittings should be recessed into the floor to prevent other family members from tripping over them.

FOR LARGE CHILDREN WHO NEED UPPER BODY AND HEAD SUPPORT

Specialised car seats

There are a limited number of large car seats which provide additional support for older children who find it difficult to sit up unaided whilst travelling in a car. The following features may be useful:

- a seat with a five-point harness will provide more support than one with a three-point harness. This has two shoulder straps, two waist straps and

a crutch strap which all attach at the same point. Harnesses which have padding around the straps will be much more comfortable. Local retailers can fit additional shoulder straps, which will help to support the child, onto some of the larger ordinary rigid polystyrene car seats;

- many seats have additional supports such as head supports and a pommel to help keep the child sitting in a stable position;
- children with very low muscle tone may also need additional neck/head support to prevent whiplash injuries. Inflatable or rigid foam neck collars may be used;
- a tray is useful for floppy children who can support themselves on their arms;
- some models have foot supports to help the child to sit up straight, to inhibit extensor spasm and forward movement in the seat;
- some car seats have a seat and backrest unit which can be tilted backwards which is useful for children with poor head control, especially when used in conjunction with head supports. However, care must be taken not to position the child so that he spends the whole journey staring at the ceiling;
- the depth of some seats is short compared with the height of the backrest. This is to make taking the child in and out easier, but may not be so comfortable to sit on as the legs are less adequately supported

Children can be carried in seats in the front of a car as long as the car seat can be restrained using a three-point seat belt and the child is secured using a safety belt or harness that complies with the relevant British Standard. This may make it easier to get the child in and out of the seat, and many parents feel that it is easier to keep an eye on the child whilst driving, rather than having to continually check in the rear view mirror.

Some large car seats require a special fitting or lap belt and can therefore only be used in the rear of the car. In the majority of cars, the lap strap is fitted in the centre of the back seat, which makes transferring in and out very difficult. This can be overcome by fitting a lap belt to the same fitting as the three-point belt on one side of the car, thus allowing the safety seat to be fitted in a more accessible position. The three-point belt is left in position for other passengers to use when appropriate.

Car seat harnesses

These can be used to support a large child to prevent slumping forwards or sideways by providing support across both shoulders and across the lap. The harness will attach around the back of the car seat and should be used in conjunction with a three-point inertia belt.

FOR CHILDREN WHO HAVE TO WEAR A FROG-LEG PLASTER

A child who is being treated for a congenital hip displacement (CDH) and has his legs in a frog-leg plaster will find it impossible to use a standard car seat because the plaster fixes the legs out straight and wide apart. As this type of seat will probably be needed only for a relatively short time, it may be possible to hire one of these seats from STEPS - the National Association for Children with Lower Limb Abnormalities - although availability varies from area to area.

FOR CHILDREN WHO UNDO SEAT BELTS AND HARNESSSES

Some children may be prone to constantly undoing their seat belt or harness. There is no easy solution. Crelling Harnesses for the Disabled make a harness for a hyperactive child, but not all restraint harnesses meet the relevant safety standards, so a lap and diagonal seat belt is also required. Other tactics that might be worth trying include:

- obscuring the seat belt buckle from the field of vision by using a car seat that can be fitted with a tray;
- diverting the attention of the child by playing games such as I Spy or playing nursery rhyme and story tapes;
- putting the child in the front passenger seat where you can keep a better eye on him/her. Slide the seat back as far

as it can go on its runners to distance the child from the dash board and car controls.

USEFUL ORGANISATIONS

Crelling Harnesses for the Disabled Ltd 12 Crescent East Thornton Cleveleys Lancs FY5 3LJ Tel: 01253 852298 Fax: 01253 821780 Email: jenny@crelling.com Website: www.crelling.com

ASSIST UK (DLCC) Redbank House 4 St Chads Street Cheetham Manchester M8 8QA Tel: 0161 834 1044 Fax: 0161 839 0802 Email: dlcc@dlcc.org.uk Website: www.dlcc.org.uk

Genesis Orthotics Ltd 100 Unett Street Hockley Birmingham B19 3BZ Tel: 0121 742 3000 Fax: 0121 551 1919 Email: enquiries@genesisorthotics.co.uk Website: www.genesisorthotics.co.uk

In-Car Safety Centre Unit 5 The Auto Centre 37 Erica Road Stacey Bushes Milton Keynes MK12 6HS Tel: 01908 220909 Fax: 01908 317536

Mobility Advice and Vehicle Information Service (MAVIS) O Wing Macadam Avenue Old Wokingham Road Crowthorne Berkshire RG45 6XD Tel: 01344 661000 Fax: 01344 661066 Textphone: 01344 661000 Email: mavis@dft.gsi.gov.uk Website: www.dft.gov.uk

Motability Goodman House Station Approach Harlow Essex CM20 2ET Tel: 01279 635999 Fax: 01279 632213 Textphone: 01279 632273 Website: www.motability.co.uk

National Association for Children with Lower Limb Abnormalities (STEPS) Lower Ground Floor Lymm Court 11 Eagle Brow Lymm Cheshire WA13 0LP Tel: 0871 717 0044 Fax: 01925 757797 Helpline: 0871 717 0045 Email: info@steps-charity.org.uk Website: www.steps-charity.org.uk

REMAP Hazeldene Ightham Sevenoaks Kent TN15 9AD Tel: 0845 130 0456 Fax: 0845 130 0789 Email: info@remap.org.uk Website: www.remap.org.uk

Whizz-Kidz Elliot House 10-12 Allington Street London SW1E 5EH Tel: 020 7233 6600 Fax: 020 7233 6611 Email: info@whizz-kids.org.uk Website: www.whizzit.co.uk

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