Choosing an active user wheelchair

DLF Factsheet

Sponsored by

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INTRODUCTION

For people who spend most of their day in a wheelchair an active user chair is one which offers adjustability and manoeuvrability and can be set up to meet the specific needs of the user. These chairs provide the user with independence and mobility and have helped to dispel negative attitudes towards wheelchairs.

This type of chair is often regarded as sporty and suitable only for young, fit wheelchair users who play sport and can push for miles. Active user chairs meet these needs very well but in many ways they are as suitable for the older or possibly frailer user who is finding it increasingly difficult to propel a standard manual wheelchair.

Active user chairs are more flexible than the standard chairs and can be adjusted to meet the individual requirements of users so that he/she can achieve the maximum amount of mobility. They have quick release wheels, multiple axle positions and frames that are available in a wide variety of sizes.

Originally designed for sport, they are lighter than standard chairs and are therefore easier to propel and transport. Also, the large rear wheels can be brought forward to alter the weight distribution so that the user needs much less energy to propel the chair.

In addition, the above features make it much easier for someone else to push these chairs, so that they are being used increasingly as attendant-propelled chairs.

Remember that one wheelchair may not provide all the answers. Compromises may have to be made once the priorities of each need have been weighed up. Some users may require two different types of wheelchair, each for a different range of activities - one self-propelled wheelchair for everyday use and another for sports purposes; or a self-propelled wheelchair for use indoors for short distances, and a powered electric wheelchair for long distance outdoor use.

SOURCES OF SUPPLY - WHO CAN HELP?

This first section of this factsheet deals with the various ways in which wheelchairs and their accessories can be provided, funded or borrowed, depending on the circumstances.

For many years now, wheelchairs and related equipment have been provided through a number of different channels depending upon its primary purpose and whether it is for permanent loan or temporary use. This system is currently under review and a move is being made to provide a ‘whole systems approach to provision’ where the assessment would take account of ‘whole-life needs’ rather than providing different equipment for different situations such as home and workplace. However, at present, provision is still through the following sources.

PERMANENT LOAN
Health and local authority provision

Most statutory provision of wheelchairs is carried out by, or through, the 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 range of wheelchairs and cushions.

Referral

Referral to the wheelchair service varies from area to area. In many areas, the user needs to be referred by a healthcare professional such as a therapist, nurse, or doctor. Other areas allow self referral. The assessment, however, needs to be undertaken by an 'expert prescriber'. Due to insufficient budgets, it is not unusual to have to wait many weeks or months for an assessment, and then often another substantial period of time for the equipment to be provided.

Eligibility criteria

Apart from the basic criterion of limited walking ability, a number of other criteria are employed for obtaining a wheelchair. These, however, may vary between centres and at different times of the year. Many people who are assessed by the wheelchair service do not meet the strict criteria and have to look for alternative methods of funding a wheelchair.

Range of equipment available

A range of standard manual wheelchairs, active user chairs and bespoke models may be available through the wheelchair services. These are provided to meet the needs of individuals following selected criteria. However, their availability may be affected by the state of the budget. In practice, most wheelchairs that are prescribed are steel-framed general purpose models, which users may feel do not provide them with the mobility and independence that they desire. Private purchase may then be necessary.

A voucher scheme is now used in many areas which allow users to purchase a wheelchair, such as a lightweight manual chair, which would not be provided by the wheelchair service. This is a cash equivalent, based on the level of need of the user, and usually has to be topped up with the user's own money in order to purchase a more expensive chair.

Standard cushions, special cushions and special seating are also available. These require varying levels of assessment and authorisation. Seating systems may be provided by special seating clinics.

Education service

Equipment that is funded through the education service should be needed primarily for education. It includes access devices such as ramps; adaptations to school premises; wheelchairs for mobility at school; as well as other writing, speech and computer equipment.

The equipment can be provided either for an individual for example a wheelchair or cushion, or as equipment for common use around a school, e.g. ramps, platform lifts or a stairlift. As theoretically the equipment should be used for educational purposes only, it is not uncommon at present for a child to have two wheelchairs; one for home activities and another for school.

EMPLOYMENT SERVICE

Employment equipment and adaptations are defined as any equipment which is primarily for the purposes of meeting an employment need. This could include wheelchairs and cushions, ramps, short rise lifts, stairlifts etc.

Employment equipment and adaptations are provided through:

- The Disability Services Teams (DSTs) which operate within the Employment Services (ES) in England, Wales and Scotland

- Disability Employment Advisors (DEAs) who work from Jobcentre Plus offices. As well as providing a wide range of advice and help to people who have particular difficulties in finding or keeping work because of a disability, they can also advise on how to obtain equipment for employment

- Access to Work (AtW) Advisors who have specialist knowledge of the AtW programme and help disabled people and their employers to overcome work related obstacles resulting form disability

Help given will depend on the needs of the individual, and may take the form of special equipment, adaptations to premises, communication support at interviews, assistance for fares to work, vehicle adaptations, personal reader service, support workers or any other help that may be relevant. The amount available is dependent on the help required.

Contact your Jobcentre or Jobcentre Plus to make an appointment with the DEA. The Jobcentre Plus disability service team can put you in contact with the AtW adviser. You can find the number of your local office by contacting 0845 8500363

Similar to education service funded equipment, employment service equipment must be used for employment purposes only. Therefore, it is not uncommon at present for a user to have two wheelchairs; one for home activities and another for the workplace. Hopefully, the proposed 'whole-life needs' assessment would put an end to this practice.

PRIVATE PURCHASE OF EQUIPMENT

Private purchase might be preferred either because a person wishes to buy privately, or because the statutory services are unable to provide the item required.

Selecting the appropriate equipment

Before buying, it is a good idea to see and try out a range of potentially suitable wheelchairs: attendant propelled, standard and high performance self propelled wheelchairs and attendant operated powered chairs.

There are about 50 Disabled Living Centres around the country which have a wide range of equipment on display. All can give advice and information on wheelchairs and related equipment. For details of your nearest

centre, contact Assist UK (see Useful Organisations).

Wheelchairs can be bought through major manufacturers or local suppliers. The DLF can provide details of available makes and models of wheelchairs and their suppliers. Details of local suppliers may be found through Yellow Pages, newspaper advertisements etc.

Check whether the supplier belongs to the British Healthcare Trades Association - Wheelchair Distributors section. The association produces a code of good practice to which its members are expected to conform. (See Useful Organisations, and Further Reading for details of some of their leaflets.)

Before purchase, the following should be checked:

- what is the delivery time?
- will the wheelchair arrive readily assembled?
- what guarantee is available?
- what after-care service is offered?
- how much is the call-out charge?
- will spare parts be brought to the home?
- if the chair has to be taken away for repairs will a ‘loan chair’ be offered?
- does the manufacturer offer insurance schemes?

It is best to try the wheelchair out in your home setting to ensure that there are no hidden problems.

Funding from charitable sources

There is no easier answer to funding for wheelchairs. It is worth trying local sources: pubs, clubs, local charities, Rotary Clubs, former places of employment etc. Alternatively, the most complete list of the charities and organisations that will give grants and funding can be found in a directory entitled ‘A guide to grants for individuals in need’ published by the Directory for Social Change. (See Further Reading.)

A specific charity that provides funding for children's wheelchairs is called 'Whizzkidz'. (See Useful Organisations).

Second-hand equipment

Some second-hand equipment, especially wheelchairs, scooters and buggies, can be bought through commercial suppliers. Although the equipment tends to be more expensive than it would be if bought from a private individual, usually it has been overhauled and may carry a guarantee of up to 12 months.

If you wish to buy privately, there are many sources of private vendors including journals and websites of disability organisations who co-ordinate advertisements for second-hand equipment. For comprehensive and up to date information on these sources see DLF Factsheet: Sources of Second Hand Equipment.

Motability Scheme

This Scheme enables anyone who receives one of the following benefits, and has at least 12 months' award length remaining when they apply:

- Higher Rate Mobility Component of Disability Living Allowance

- War Pensioners' Mobility Supplement

to use their benefit to obtain a powered wheelchair, which could be an attendant propelled wheelchair. There are two plans: Contract Hire or Hire Purchase. For further details contact Route2mobility Ltd (see Useful Organisations).

SHORT TERM LOAN/HIRE OF WHEELCHAIRS

Statutory provision

If the wheelchair is needed only temporarily, a standard issue chair may be supplied through a number of channels. Three months is probably the average maximum loan period and the chairs are usually loaned free of charge. They may be obtained through the following sources:

- hospital loan via: hospital in-patient loan; hospital discharge wheelchair loan; hospital wheelchair pools
- Community Nursing Services
- District Wheelchair Service

Voluntary organisation provision

Organisation such as the Red Cross sometimes loan standard manual wheelchairs on a temporary basis from local branches. Contact British Red Cross National Headquarters for details of your local centre.
British Red Cross - National Headquarters
See Useful Organisations for details.
Price guide: £30 deposit; hire of wheelchair is free; however, a donation is appreciated.

Private hire

Local private hire firms make daily/weekly/monthly hire charges which may vary in amount and in the conditions attached. Useful DLF Factsheet: Wheelchair hire services in the London area.

WHAT DOES THE USER NEED?

This section considers the user's basic needs and how they relate to the features of wheelchairs currently available on the market.

A STABLE SEATING BASE

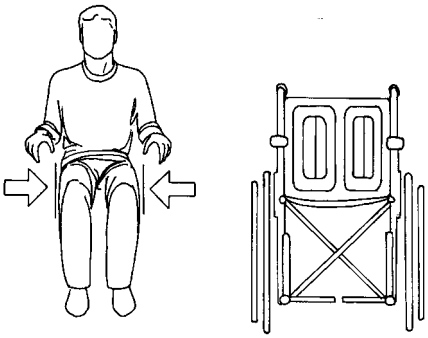
All wheelchair users who propel themselves need a comfortable, stable seating base. They cannot be expected to propel efficiently if part, or all of their energy is being channelled into trying to sit up straight. Many users waste valuable energy either shifting and fidgeting in the chair to maintain a comfortable posture, or constantly heaving themselves up as they slide forwards or sideways. It is important that users are able to save as much energy as possible so that, having propelled themselves from A to B, they still have enough energy to carry out whatever activity is necessary.

For most people, the correct size and positioning of the wheelchair seat unit components will be all that is needed to provide them with a stable seating base. However, for those wheelchair users who have never fully developed the ability to sit unaided or for those who gradually lose this ability, perhaps as the result of a progressive disabling condition, a

specialised seating system will be needed.

The following factors need to be considered:

Seat size



Maximum stability will be achieved if the user's body fits comfortably into the chair seat. If his/her weight is evenly distributed over the largest area possible, this will also provide pressure relief, reducing the risk of pressure sores.

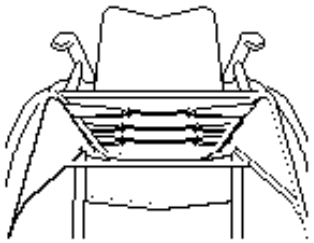
If the seat is too wide, users often sit asymmetrically (lean to one side) in order to feel supported. If the seat is too narrow, it will be uncomfortable and increase the risk of pressure sores.

If the seat is too short, the full length of the thighs will not be supported and too much pressure will be transferred onto the buttocks.

If the seat is too long, a pressure area may develop behind the knee, and the user may not get adequate support from the backrest.

Active user chairs are often supplied with a range of seat widths and depths. Some have frame extenders for very tall users.

Shape and angle of seat



The seat needs to be level to achieve a good sitting posture. A sagging wheelchair seat canvas will cause users to sit asymmetrically or with their thighs and knees rolled together. This may cause undue pressure and 'shearing' - the term used when the outer layer of skin is pulled in a certain direction while distorting and restricting the underlying blood vessels. This may lead to pressure sores.

The tension of the seat canvas on many active user wheelchairs can be adjusted to keep the seat level. However, if a sagging canvas cannot be tightened, and the canvas cannot be replaced, a flat sitting surface can be achieved by placing a piece of hardboard straight onto the frame providing a solid flat base on which to place a cushion.

The angle between the thighs and the trunk is also important for maintaining a good seating posture, as it determines the stability of the pelvis. An angle of 90° is considered best for many people undertaking daily activities. The easiest way to achieve this is by using a ramped or contoured cushion, ie one very slightly lower or shaped at the back to accommodate the buttocks,
However, on most rigid and some folding active user chairs, the seat angle or rake can be adjusted so that the rear seat height is lower than that at the front of the seat, thus creating a ‘bucket’ effect. The backrest will usually have to be inclined forwards slightly to

stabilize the pelvis. This set up will improve the user's stability and performance since the centre of gravity is now lower to the ground. However, disadvantages include causing greater strain on the spine, increased pressure and 'shearing' under the bottom, and potentially more difficult transfers as the user will need to move themselves forward up the slope before transferring out of the seat.

All wheelchair users should be sitting on a cushion which has been chosen at the same time as the wheelchair and which fits its seat. Full-time wheelchair users will probably need a pressure relief cushion; occasional users may only need one for comfort. (For further details, see DLF factsheet 'Choosing pressure relief equipment'.)

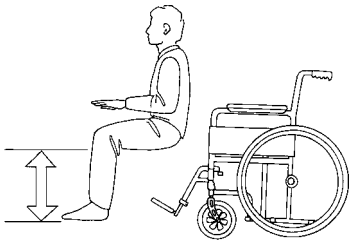
To fully stabilise the lower body, the foot support needs to be considered next.

Footrest length

If an angle of 90° between the user's thighs and hips is achieved, most people will be comfortable if their knees are also at an angle of approximately 90°.

The height of the footrests on the wheelchair should be set so that they support the legs and feet and, in turn, the underside of the thighs. This will reduce further pressure on the buttocks. If the footrests are too high or the seat too low, the user's knees will be higher than the hips so that pressure under the buttocks is increased.

If the footrests are too low, or the seat too high, the user's knees will be lower than the hips and pressure will build up under the thighs.



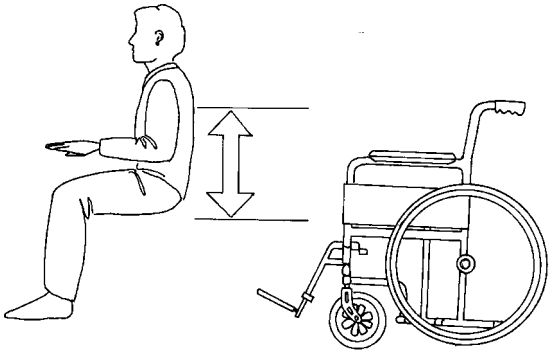
Footrest angle

Users with long legs may need footrests that are set out at a wider angle in front, so that the leg length can be accommodated without hindering activities such as kerb climbing, although the wheelchair length will be increased making it less manoeuvrable. Some active user wheelchairs have a choice of two or three hangers, each of which is set the footrests out at a different angle.

Footplate angle

The angle of some footplates (i.e. the flat plate at the end of the footrest on which the feet are placed) can sometimes be adjusted depending on the style of footrest. Feet can be very strong stimulators of muscle contractions of the whole body, may cause extension patterns, or tremor spasms in the legs. This is a common problem experienced by users with MS (multiple sclerosis). By making the footrest/footplate angle less than 90° the user's feet are prevented from slipping forwards and down off the footplates. This also stretches the calf muscles and may inhibit extension patterns and spasms

Backrest height



Most people only need a backrest that supports them to about halfway up their back in order for them to be stable. Although not as supportive as one that extends to just below shoulder height, it enables the user to propel without restriction. This is a compromise that many active users find most comfortable.

The only disadvantage of a wheelchair with a lower backrest is that the pushing handles are often too low if an attendant needs to help to push the chair. However, some active user chairs have adjustable height or tall, removable push handles to overcome this problem.

Backrest shape and angle

Most users will benefit from a backrest with an appropriately shaped lumbar area. Many chairs have tension adjustable straps which can be loosened or tightened appropriately to make necessary adjustments. This, combined with a suitable backrest angle, provides support and balance for the upper body.

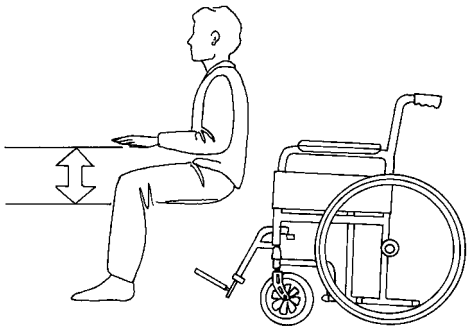
Many rigid frame active user chairs are provided with backrest angle plates which make it possible for the backrest to be angled forwards by a few degrees to provide maximum support. These plates are also useful, as the sitting posture of a wheelchair user may change over a period of time.

Arm support

In theory, if a person has a stable seating base then he/she should not need armrests.

Armrests should not be used to help someone stay in the chair - if this is the case, the seating base of the user should be reassessed. A more sophisticated seating system may be necessary.

However, armrests provide useful rest and stabilising positions for users who tire rapidly



and/or those whose upper limb or neck muscles are weak.

Armrest height

When armrests are properly adjusted, they

should support the forearms of the user comfortably with the elbows at 90°. If they are too high, the shoulders of the user will be hunched; if they are too low, users will tend to slump to one side.

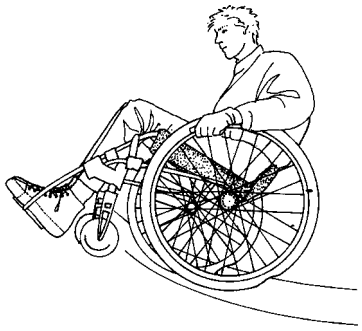
Armrests also provide users who stand up directly from their wheelchairs with an appropriate surface to push down on. However, they do make approaching tables and work surfaces difficult and they often have to be removed for assisted transfers out of the chair.

Users whose wheelchairs do not have armrests should consider side guards which protect clothes from some of the dirt from the wheels and may also provide a degree of stability for the user.

A stable seating position will not only benefit users physically, but also psychologically because, if they are sitting straight, their clothes will hang correctly so that they will look and feel better.

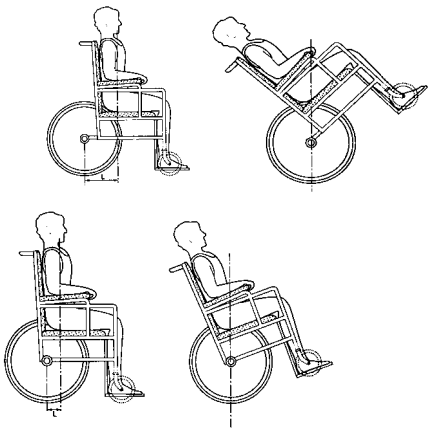
A CHAIR THAT IS EASY TO MANOEUVRE WITH THE LEAST AMOUNT OF EFFORT

Having sorted out the seating base on the wheelchair, the next thing to consider is the type and set up of the wheelbase as this affects how much energy is needed to move the chair.



It is often thought that the weight and the material from which the wheelchair frame is made are the main factors which affect the manoeuvrability of the chair. In fact, it is the size and position of the wheels. These affect the weight distribution, the rolling resistance and, therefore, the manoeuvrability and the amount energy needed to propel the wheelchair.

The ability to back wheel balance has an important effect on manoeuvrability. To do this, the user balances the chair on the large rear wheels so that the front castors are lifted clear off the ground. This makes it easier for him/her to negotiate kerbs or avoid small obstacles such as an uneven surface or grids.



Tippiness is the term sometimes used to describe the ease with which the chair can be made to achieve a balance point.

The position of the rear wheels affects the ease with which a chair can be tipped. If the wheels are set quite far back on the frame, more leverage and therefore more effort is needed to lift the front castors off the ground. To find the balance point of a standard manual chair, the castors have to be lifted quite a long way off the ground so that the chair is leaning backwards at quite a dramatic angle!

Active user chairs wheelchairs have a multi-adjustable axle plate which allows the wheels to be set further forward under the body of the user. If the wheels are set further forward under the user's body, it not only reduces the leverage, but also reduces the effort needed because a higher percentage of the user's weight is distributed over the rear wheels. For example the user's weight may be distributed 40:60 front to rear wheel ratio in a chair where the rear wheels are set quite far back, and 30:70 ratio when they are set further forwards.

The weight distribution and size of the rear wheel will affect the rolling resistance, i.e. how much energy is lost during pushing. To achieve the minimum rolling resistance, as much weight as possible needs to be placed over the larger back wheels without compromising stability. A chair that is too 'tippy' will be dangerous. Always seek professional advice when setting up an active user chair. The larger the rear wheels, the smaller the rolling resistance, since there will be a relatively smaller area of wheel in contact with the ground which makes the chair easier to propel.

As the distance between the front and rear wheels is decreased, the turning circle is also shortened. The result is that less energy is needed to turn the chair, and it is more manoeuvrable in confined spaces.

The position of the rear wheels also affects the amount of energy needed for self propelling. If the wheels are set with their axles in a vertical line with the shoulders of the user, maximum push with minimum effort can be achieved. This reduces the amount of wear and tear on the shoulder joints of the user.

A CHAIR THAT IS EASY TO STEER

On most active user chairs it is possible to camber the rear wheels, (i.e. angled them towards the chair at the top). Anyone who pushes regularly outdoors and has to tackle pavements will benefit from cambered wheels, as the effort required to push the chair in a straight line will be dramatically reduced.

Less effort is needed to keep the wheelchair in a straight line if its wheels are cambered, Camber also increases the ease with which the wheelchair can be turned. For everyday use, camber up to 5° is acceptable; beyond this, the chair often becomes too wide to go through doorways and into small rooms.

People who use a wheelchair for sport may camber the wheels at more than 5° so that they can guide the chair with greater ease and accuracy and because it makes the chair more laterally stable, which is important if the chair is hit from the side during a game.

A CHAIR THAT IS EASY TO TRANSPORT

Some standard wheelchairs can be

cumbersome and heavy to lift into a car. High performance chairs with a cross bracing mechanism underneath can be folded flat and made lighter if the leg rests, armrests and quick release wheels can be removed. Rigid framed chairs can also be dismantled if the quick release wheels and armrests can be removed and the backrest folded down. These 'stripped down' frames can be independently loaded into a car by the user lifting it across his/her body and storing it on the passenger seat or passenger footwell whilst travelling. Ramps, hoists and lifts are also available to assist with transporting wheelchairs. (See DLF factsheet Out and about with your wheelchair).

A CHAIR THAT IS VERSATILE AND ADAPTABLE

A person's body shape, size and disability do not always remain static. As changes occur, wheelchair requirements may also change. Chairs which have interchangeable or adjustable components can be altered to meet these changing needs

A CHAIR THAT MEETS THE NEEDS OF THE CARERS

Many users of self propelled wheelchairs are independent, and can get themselves in and out of cars and buildings. However, others may rely on someone else to load the wheelchair in and out of the car, or maybe to push them round in it, at least for part of the time.

If the person who is pushing the wheelchair is also the carer, it is especially important that once the needs of the user have been met, that as many as possible of the needs of the carer are also taken into account. By reducing energy expenditure and increasing the manoeuvrability and transportability of a chair, life will be made easier and the risk of back injury to the carer minimised. In addition, the right wheelchair will enable the carer to take the wheelchair user to a great many places that had previously seemed either difficult to get to, or even inaccessible.

A CHAIR THAT MAKES THE USER LOOK GOOD AND FEEL CONFIDENT

A chair that is energy efficient and looks aesthetically pleasing will inspire confidence in the user.

WHAT FEATURES SHOULD YOU CONSIDER WHEN CHOOSING A NEW ACTIVE USER WHEELCHAIR?

FRAME

Materials

Steel - strong, cheap but heavier than other materials. Easy to repair but may corrode if finish is damaged.

Aluminium /magnesium/ alloys – these are much lighter than steel and not too expensive. An anodised finish will help to prevent corrosion and scratching. Alloys include chrome molybdenum

Titanium and carbon fibre – extremely strong and lightweight but expensive. Does not corrode but may be difficult to repair.

Rigid frame

Tends to be lighter and stronger than a folding frame, and, as it has no moving parts, it usually requires less maintenance. It will be easier to propel as less energy is lost through movement of the frame. However, unless it has suspension built in, it will provide a rougher ride as there is no shock absorbency in the movement of the frame. Rigid frames do not fold compactly for transporting – only the backrest folds down although the wheels and armrests can usually be removed. This type of frame is essential if the user is likely to take part in sports, as they will not fold if hit from the side.

Folding frame

Designed to be folded flat for easier storage and transportation. However, because there are several moving parts and joints, it tends to be heavier than a rigid frame chair, and may require more maintenance. Requires more energy to propel as energy is lost in the frame movement, but provides more shock absorption.. Not recommended for sports use. Historically, folding frames did not have the same degrees of adjustment to modify for individual adjustment, however, as technology increases, this is becoming less apparent.

Semi-rigid frame

Similar properties to rigid chairs (i.e. less energy is lost because of frame movement) because the frame locks into place when open, but they incorporate some kind of folding mechanism to make them easier to store and transport.

Anti-tip devices

Useful to give confidence to users starting to use a wheelchair, and for those learning to back wheel balance. However, they may inhibit users who use back wheel balancing to get up kerbs. Check whether the anti-tips can be removed when the user feels confident enough.

Tipping levers

Enable another person to assist with kerb climbing - not usually needed as wheelchairs

with a variable axle can be adjusted so that they tip back more easily.

CASTORS

These are the small front wheels that steer and manoeuvre the wheelchair. There are many different sizes and types of castor available on the market – some are very functional, others are purely for aesthetic looks.
Large castors provide more rolling resistance and therefore make propulsion more difficult However, they rolling more efficiently over uneven and rough ground and are more manoeuvrable over thresholds etc.
Small castors provide a small turning circle and better foot clearance.

Pneumatic: These are air filled and therefore usually offer better shock absorption than solid ones and provide a more comfortable ride. May puncture and also require regular maintenance and inflation.
Solid: Hard-wearing but provide little shock absorption and therefore a rougher ride.
Sports castors: These are very small solid castors, great for sport but difficult for use outdoors over uneven ground.

Coloured castors: Available as a design feature as are those with flashing lights.

Adjustable position

By adjusting the position of the castors, the wheelbase can be shortened so that the wheelchair becomes more manoeuvrable.

The size of the castor will help to determine the wheelchair seat height and rake, and also the angle of the footrests.

TYRES

There are many different types of tyres available to be used with active user chairs.

Pneumatic: These are air filled and therefore usually offer better shock absorption than solid ones and provide a more comfortable ride. They may puncture, but some have a special protective inner layer to reduce the likelihood of this happening. They are available either with a strong profile grip, which provides good traction, or a ‘slick’ profile which creates a low rolling resistance. They require regular maintenance and inflation. Some pneumatic tyres require a higher tyre pressure, which are easier propel on solid surfaces, but tend to be more expensive and wear out quicker.

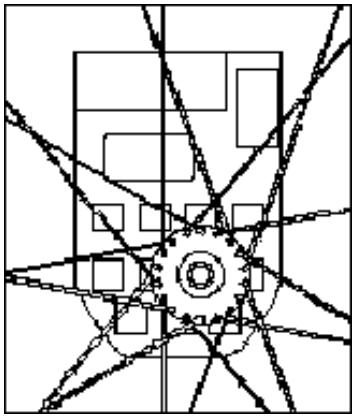
Solid/puncture proof: Hard-wearing but provide little shock absorption and therefore a rougher ride. They are heavier than pneumatic tyres. Available with strong and low profile grips.

Other types of tyre include those with a smooth sidewall which reduces chaffing to the user’s hands; ‘off road’ mountain bike type

tyres; a folding tyre for carrying easily as a spare; extra wide tyres with a high profile for extreme outdoor conditions such as snow.

DRIVE WHEELS

Multi-adjustable axle plate



This plate enables the rear drive wheels to be positioned so that a compromise can be reached between manoeuvrability and stability. The chair will be most stable when the wheel is set in the bottom back position, and least stable when set in the top front position.

Quick release wheels

Useful to reduce the weight/size of the

wheelchair when storing and transporting.

For those users who have restricted finger movements, a quad release mechanism can be obtained which makes the wheel easier to remove.

Materials

The wheel rim can be made of a variety of materials which will effect the weight and strength of the wheel.

aluminium: strong, light and rustproof.

titanium/carbon fibre: very light in weight but expensive.

plastic: strong, but whole wheel has to be moulded in plastic – the rim, spokes and hub – a ‘mag’ wheel.

Diameter

Drive wheels range in size from 18-26in (51-66cm). In general, the larger the wheels the less effort is needed to propel, but check whether they would hinder transferring especially on a short wheelbase.

Spoked wheels

Usually made from aluminium or stainless steel, they make for a smooth ride as their flexibility allows shock absorption. The more spokes on a wheel, the better the shock absorption. Although the spokes can be fairly easily bent or damaged, individual ones can be replaced. Most spoked wheels require regular maintenance, but makes such as ‘Spinergy’ wheels are lightweight and maintenance free.

Composite (or mag) wheels

Moulded rim, hub and wide spokes (usually about 6) give the chair a sporty appearance and are easily cleaned. Although they are more robust and require less maintenance than spokes, if one does get broken it can't be replaced individually. They provide much less shock absorption therefore a bumpier ride. They are heavier than spoked wheels. They are sometimes used with spoke guards as it is possible to get fingers injured in the gaps between the spokes as the wheel spins round. However, the advantage to these large gaps is to allow easy access under the chair.

Handrims

These are attached to the wheel rim and may vary in shape and finish. High friction finishes are available but may damage the hands if the wheelchair is stopped at high speeds. Capstan hand rims (with projections at oblique or right angles) may help a user who needs to propel with the palm of the hand.

Camber

Ability to camber the rear wheels reduces the effort needed to propel a wheelchair across a slope in a straight line. Very important for anyone who pushes outside and therefore needs to tackle pavements.

BRAKES

High mounted brakes

May cause obstruction when the user is transferring sideways. Also, fingers tend to catch in them when propelling. If the latter is a problem, look for brakes that retract when in the off position.

Low mounted brakes

User needs good balance to be able to reach down and operate them, but do not impede transfers.

Hill brakes

Allow forward propulsion but prevent rolling backwards on a hill.

Extension handles

Available for users unable to reach the operating lever, but may impede transfers.

FOOTRESTS

One-piece tubular

Because there are no moving parts, this type of footplate adds rigidity to the frame. The taper provides a sleek look and more support around the user's legs, helping to keep the feet in position and making manoeuvring through tight spaces easier. However, it may make transfers more difficult.

Flip-up

Enable user to stand within the frame when getting up from the wheelchair. They may be flip-ups alone on a rigid chair, or combined with swing-away fittings on a folding chair.

Swing-away (out or under)

Can be moved out of the way for transferring. Usually detachable as well. Some semi rigid wheelchairs have one-piece footrests which swing back under the seat to ease transfer.

Detachable

Reduce the size/weight of the wheelchair for storing and transporting.

Elevating

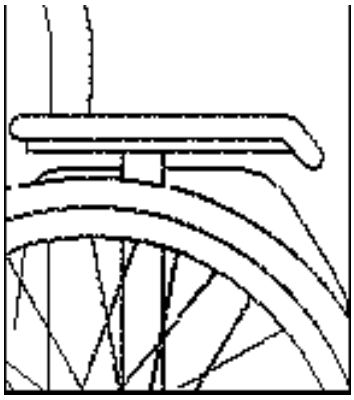
For users who need to have their legs raised for long periods, or who need to keep them straight.

- some models have the option of different, fixed angle footrests which can accommodate fixed deformities, tone reduction and extreme height while still enabling the footplates to clear the ground.

ARMRESTS

Active users with a stable seating base may not want armrests that can restrict arm movement and so make propelling the chairs more difficult. A clothes guard may help to protect clothes from dirt and damage. They would need to be dropped down for transferring.

Desk-style



Allow access to work surfaces but do not provide support for people who need to push down on the armrest to stand up.

Tubular

Offer minimal support, look sporty and usually swing out of the way.

Adjustable height

Can be adjusted to provide maximum support.

Fold-up/fold-down/swing-away

May be more convenient for sideways transfers than detachable ones which can be mislaid.

Detachable

Reduce size/weight of wheelchair for storing and transportation. However, care should be taken not to mislay during removal

Side guards

hich protect clothes from some of the dirt from the wheels and provide a degree of stability for the user. They can be made in various colours and from various materials, and can be detachable or flipped back to assist with side transfers.

BACKREST

Dimensions

Angle and height of backrest affect posture.

Folds backwards/forwards

Useful when storing and transporting.

Pushing handles

Many are an integral part of the backrest frame - others are an optional extra.

Adjustable height

A good idea if a person is assisting as they can help reduce backache during prolonged pushing.

Adjustable angle

Many rigid frame active user chairs are provided with backrest angle plates which make it possible for the backrest to be angled forwards by a few degrees to provide maximum support. These plates are useful, as the sitting posture of a wheelchair user will often change over a period of time.

SEAT

Dimensions

It is vital that the user is accurately assessed for the correct seat size, as this will determine posture and comfort.

WEIGHT AND CAPACITY

A lighter wheelchair is usually an advantage for both an active user and for someone who is assisting.

FURTHER READING

British Standards Institution. Specification for folding wheelchairs for adults, BS 5568:1978. BSI.

British Standards Institution. Designation of types of wheelchair, BS 6936:1988. BSI.

British Standards Institution. Methods of test for assessment of the ignitability of upholstered seating by smouldering and flaming ignition sources, 2nd ed, BS 5852:1990. BSI.

British Standards Institution. Wheelchair tests, Part 5: methods for determination of overall dimensions, mass and turning space, BS 6935:Part 5:1988. BSI.

British Healthcare Trades Association (BHTA). Get Wise to Making a Complaint – how to go about complaining about a product.

British Healthcare Trades Association (BHTA). Get wise to using public transport – a wheelchair user's guide to public transport.

British Healthcare Trades Association (BHTA). Get Wise - how to make sure your wheelchair remains stable.

Department of Health. Out and About – Wheelchairs as part of a whole-systems approach to independence. Care Services Improvement Partnership (CSIP). Finding of review of wheelchair services in England.

Mandelstam, Michael. How to get equipment for disability. 3rd ed. Jessica Kingsley Publishers, 1993.

USEFUL ADDRESSES

British Healthcare Trades Association – BHTA
New Loom House
Suite 4,06, 101 Back Church Lane
London E1 1LU
Tel: 020 7702 2141 Fax: 020 7680 4048
Email: bhta@bhta.com;
Website: www.bhta.com

British Red Cross U.K
Office 44
Moorfields
London EC2Y 9AL
Tel: 0870 170 7000 Fax: 020 7562 2000
Minicom: 020 7235 3159
Email: information@redcross.org.uk
Website: www.redcross.org.uk

ASSIST UK (DLCC)
Redbank House
4 St Chad's Street
Manchester M8 8QA
Tel: 0870 770 2866 Textphone: 0870 770 5813 Fax: 0870 770 2867
Email: general.info@assist-uk.org
Website: www.assist-uk.org

Assist UK leads a UK wide network of locally-situated Disabled Living Centres. Each centre includes a permanent exhibition of products and equipment that provide people with opportunities to see and try products and equipment and get information and advice from professional staff about what might suit them best.

Whizz-Kidz
Elliot House
10-12 Allington Street
London SW1E 5EH
Email: info@whizz-kids.org.uk;
Website: www.whizz-kids.org.uk.

Route2mobility Ltd
Montgomery House
Newbury Road
Enham Alamein
Andover
Hampshire SP11 6JS.
Tel: 0845 60 762 60
Lines are open from: 8am to 6pm Monday - Thursday; 8am to 5pm Friday. Or visit www.motability.co.uk

DLF online

The majority of DLF's advice is now online. If you would like advice and support to get online or information on local courses about getting online please visit one of the following websites.

Age UK
http://www.ageuk.org.uk/work-and-learning/technology-and-internet/
Call **0800 169 8787**

BBC Webwise
http://www.bbc.co.uk/webwise/
Call **08000 150 950**

Digital Unite
http://learning.digitalunite.com/category/using-the-internet/
Call **0800 228 9272** Or you can write to them
Digital Unite Limited, Unit 2B Poles Copse, Poles Lane, Otterbourne, Winchester, SO21 2DZ

Go On
http://www.go-on.co.uk/
Call 0800 77 1234
UK online centres, The Quadrant, 99 Parkway Avenue, Parkway Business Park, Sheffield, S9 4WG

UK Online Centre
http://www.ukonlinecentres.com/

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