

## Guide to Products and Technology for Mobility

Possibly the most common and essential activity of daily living is the act of moving from place to place.

For some people who have physical difficulties, mobility may be improved through a combination of therapy, training or use of special equipment.

A range of devices exist which can make it possible for a person to move, be that independently or with help. The complexity of these devices varies from simple solutions such as a walking stick to complex items such as all-terrain powered wheelchairs.

Enable Ireland services provide support and training for people who may need to choose and use mobility devices. Working closely with the person we can assist them with identifying the most appropriate form of equipment to suit their needs.

### Walking Aids

There are a large variety of walking aids available to suit varying needs for mobility assistance. Care needs to be taken in the selection of the appropriate aid and preferably should be done in conjunction with a chartered physiotherapist. All walking aids are available from the health board on the medical and long-term illness cards.



#### *Crutches & Walking Sticks*

A crutch, or stick of the correct length enables the user to stand straight with the elbow slightly bent. The length of the stick should be equivalent to the distance between the crease of the wrist (with the arm straight) and the ground (when wearing shoes).

When two sticks are being used, the length should be slightly longer as they will be used in front of the body when walking.

### *Slip Knott Ferrules*



These can be placed at the ends of crutches or walking sticks and are very useful when walking on uneven or slippery surfaces. They are harder wearing than standard ferrules and are recommended for long-term crutch users.

### **Manual Wheelchairs**

Wheelchairs are used by people who experience difficulty when walking or who are unable to walk. Manual wheelchairs provide a means of mobility which the user can self-propel or can be propelled by another person.

There are many types of manual wheelchair however four main types are considered here. All four types are available to suit all sizes from children to adults.

### *Folding Frame Wheelchairs*



Folding frame wheelchairs are the most popular type of wheelchair. As the name suggests, this type of wheelchair can be folded to store in small spaces such as the luggage compartment in a car. The wheelchair normally has large wheels to the rear which the user pushes to move and steer the chair, and small wheels, called castors, at the front. This configuration is called a self-propelling chair. Various options of foot support and arm support are generally available

when selecting a folding frame wheelchair.

When smaller wheels are used to the rear the chair is referred to as a 'transit' or 'attendant propelled chair' where a carer pushes the user of the chair.

## *Rigid Frame Wheelchairs*



This type of wheelchair consists of a fixed frame that does not fold, but tends to be stronger and lighter than a folding frame wheelchair. The back support may fold down to make the chair neater for transporting and storing but the main frame does not fold.

Rigid frame wheelchairs are normally used by active, self-propelling users who require a strong, durable wheelchair. As with the folding type of manual wheelchair, various options for parts such as footplate and armrest type often exist.

The lightest models of rigid frame chair are generally referred to as 'ultralight' wheelchairs.

## **Sports Wheelchairs**



Many different types of sports-specific manual wheelchairs are available. These chairs are generally lightweight yet strong and are designed to aid participation in sports such as basketball, tennis and racing.

Many wheelchair athletes have their sports wheelchairs designed and custom-manufactured to meet their individual needs in order to achieve their highest level of performance.



## *Specialist 'Tilt-in-Space' Wheelchairs*

This type of wheelchair is normally

used by individuals who need to adjust their position during the day for postural reasons. The backrest and seat, or backrest only can be tilted or reclined by adjustment manually or by using a powered unit. Control of the tilt or recline by powered means enables the user to adjust his position independently. This can help a person sit in a position that places less stress on the spine, and hence is less tiring for the individual. The manual adjustment systems often cannot be operated independently, and normally require help from a carer.

This type of chair is available in both folding and non-folding versions and is normally used by individuals who require postural support devices.

### *Additional Options for Manual Wheelchairs*

#### **Power-Assisted**



Power-assist devices can be fitted to almost any manual wheelchair to assist in propulsion of the chair. Different types of device can be fitted, depending on whether the wheelchair is propelled by the occupant or by a carer. The power assist device is removed to make lifting, storing and transport of the wheelchair easier.

#### **Sit-to-Stand Riser**



A mechanical or motorised unit brings the user from a sitting position to standing to permit participation in activities at standing height. As well as enhanced accessibility, individuals can benefit health and posture-wise by getting into a standing position for periods of time during their day. This chair can be dismantled for transporting but tends to be of rigid frame design in order to give it the strength to support a person in standing position.

## Wheelchair Accessories

A wide range of accessories are available for use with powered and manual wheelchairs. Examples of such accessories include lights, transport tie down points, storage bags, rain covers and trays. These simple additions to the wheelchair can often be the most important for the user as they may make wheelchair use easier and safer.

The accessories shown here represent only a small selection from a vast range of products available. For more information you can contact your local occupational therapist, the Seat Tech service in Sandymount or indeed you may wish to search the internet to see if you can identify suitable accessories to meet your requirements.

### *Lights*



For wheelchair users who drive outdoors at night it is essential that they are visible to other road users. Lighting systems for powered chairs are usually integrated into the chair electronics so that they can be operated from the joystick control panel. For manual wheelchair users standard bicycle lamps may be

mounted onto the frame of the chair front and back to improve visibility.

### *Transport Tie-Downs*



Most wheelchairs can be ordered with transport tie-downs as an option. If the person is to travel in a wheelchair accessible car, bus, tram or train while seated in their chair they should have a chair which has clearly identifiable transport tie-down points where tie-downs can be attached.



### *Bags*

This accessory can be a useful aid for carrying personal belongings or rain gear. The bag

is usually attached to the chair using straps. Wheelchair bags can be fixed on the backrest, on the sides or underneath the seat of the wheelchair depending on the location which best suits the person. It is important that whenever a wheelchair bag is attached to a wheelchair that it does not cause the wheelchair balance to become unstable.

### *Rain Covers/Capes*



A wheelchair rain cover is a rain cape specially designed for wheelchair use. The cover covers the users lower limbs and ensures that rain does not gather in the seat area. Covers or capes can be purchased off-the-shelf or can be made-to-measure. Some covers are available with insulated filling to keep the wearer warm if this is required.

### *Trays*



A wheelchair tray is a useful accessory for holding everyday items such as books and work materials in a good position in front of the person. Trays are removable and should not be used while in transport. Trays can also be used to provide support for the person's upper body and arms. There are a range of different types of trays available, for example it is possible to get a half-tray

which can be used to support a weak or painful limb.

### *Gloves*

Pushing or self-propelling a wheelchair can be hard work not only on the heart, lungs and muscles but also on the hands. Some people find it useful to wear padded gloves to protect their hands and to improve their grip on the push rims.

### *Crutch Holders*

Occasionally a person who has limited mobility may use a wheelchair to access an area but once they have reached their destination they may choose to walk using a walking stick or crutch. It is possible to get a small holder normally placed to the rear of the chair which can hold a stick or crutch while the person is using their wheelchair.

### *Spoke Guards*

Spoke guards are large, circular plastic discs which cover the spokes on manual wheelchairs and which are used to prevent a person's fingers coming in contact with, or getting trapped between the spokes of the wheels. They come in a range of sizes to suit different push wheel sizes and they are also available in a range of colors and designs. It is possible to have them personalised with the person's name or own design.

### *Tyre Pumps*

An essential accessory for any person who drives a wheelchair with inflatable tyres. Most hand-operated pumps are portable and can be carried in a wheelchair bag or clipped onto the frame of the wheelchair. Foot or battery operated pumps, though easier to use, tend to be heavier and therefore less portable.

### **Trikes and Scooters**

These types of mobility devices are normally associated with outdoor mobility for people who have difficulty walking.

### *Trikes*

Trikes can be an enjoyable form of mobility as well as enabling beneficial exercise. Although they are more often used outdoors especially by adults, they can be a useful mobility and exercise aid for small children.

The trike may be modified to permit those with no lower limb function to pedal using their hands. The trike pictured below is not only powered by hand pedalling but consists of a manual wheelchair which converts into a trike using a front wheel and steering column.



*Three-Wheeled Trike*



Special Hand-Operated Trike

*Scooters*



In essence scooters may be considered to be the powered edition of trikes. Traditionally they consist of two, battery powered rear wheels a seat for the user, a steering column with hand-operated controls and a single front wheel. More robust models feature four wheels. They are particularly suited for use outdoors in accessible community environments which are well designed with access ramps and dropped kerbs. For the user of a scooter an adequate, safe storage space with power supply for charging the scooter batteries is essential.

### **Powered Wheelchairs**

Powered wheelchairs are used by people who may have difficulty propelling a manual wheelchair or who simply wish to have powered mobility.

Powered wheelchairs have battery-powered motors. The wheelchair user controls the speed and direction of the chair by means of a joystick or other control device. Other devices for controlling power chairs include directional switches and scanning devices. The batteries are mounted on the chair frame and are recharged using a mains power supply when the chair is not in use.

There are many types of powered wheelchair ranging from the standard powered chair which is similar to a manual chair but has motorised wheels, to heavy-duty power chairs, which have many powered features such as seat elevation, tilt-in-space, back recline and stair climbing.

#### *Folding Frame*



This type of powered chair closely resembles the standard transit type manual wheelchair but includes rear wheels which are powered by motors. The chair has on-board batteries to power the motors and has a joystick which the user operates to control the speed and direction of the chair.

This type of powered chair is the smallest type of powered chair and can usually be dismantled and folded for transport, but they are much heavier than manual chairs due to the weight of the motors and batteries. As with all types of powered wheelchairs these chairs come in both adult and paediatric sizes.

### *Fixed Frame*



This type of wheelchair, as the title suggests cannot be folded. However, component parts can be removed to make handling easier. Non-folding chairs tend to be more robust and durable than folding frame chairs, and may be fitted with options such as powered seat elevation, tilt-in-space and back recline.

Due to the design of the rigid frame larger and heavier batteries can be used to power heavy duty motors and therefore greater speeds and longer running times may be obtained than with folding frame chairs.

Due to their larger overall size, these types of chair are best suited for use outdoors or in wheelchair-accessible living and working environments.

### *Additional Options for Powered Wheelchairs*

Recent advances in design and technology have led to the manufacture of innovative powered wheelchairs to meet specific needs of users.

### **Attendant Controlled**



A power chair can be supplied with the drive controls mounted to the rear of the chair in order to permit a carer to drive the chair. In most cases the control of the chair can be switched between the person sitting in the chair and the carer so the wheelchair user can drive or be driven depending on the circumstances. It is of particular use where the wheelchair user has limited endurance.



### **Elevating Seat**

The powered elevation mechanism permits the user to adjust the seat

base height in order to access counters and shelves and to interact with other people at eye-level.

### **Tilt-in-Space**

Other available powered functions include tilt-in-space, where the seat can be tilted rearwards if the user wants to take a rest, or tilted forwards if they want to work at a desk or transfer out of the wheelchair. Tilt-in-space can also facilitate hoist transfers as the seating can be tilted back to facilitate insertion and removal of the hoist sling. Powered back recline enables the user to recline the backrest if they want to change position.

### **Sit-to-Stand Riser**

A powered sit-to-stand function is available as an option on some powered wheelchairs. This function enables people, who could not stand independently and who do not have the upper body strength to operate a manual sit-to-stand function to stand and perform functional tasks, interact, or simply enjoy the physiological benefits of standing.

All of these features are normally controlled through the same joystick which is used to drive the chair.

### **Switch Driven**

Some people have difficulty operating a joystick to drive their powered chair and use directional switches or scanners to drive the chair. Although these control devices may be difficult to learn to use at first, when the user masters them their potential for independence in mobility may be realised fully.

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