

Guide to adapting a Snowdon Push Wheelchair

The route

The route you will be taking for the Snowdon Push is approximately 8 miles long. You will begin on a short length of tarmac pathway at the base and continue on mixed narrow rock, gravel track and rock staircase. The gradient can be severe and slippery, even in dry weather. You will be going in both directions, so bear this in mind when designing and strengthening your 'chariot'.



The team

Teams will normally consist of 10 to 16 able-bodied members, plus one SCI person in the chair.

The chair: Strength

Wheels and frame must be strong enough to survive 16 miles of rough terrain, including bumping up and down rocky steps around 30 centimetre sin height. Be sure not too burden the team with too much excess weight to transport up and down the mountain.

Brakes

Brakes are essential to help slow the downward journey. Discs are best, but bicycle style rim brakes are effective. Holding onto the tyre or push rims CAN cause blisters and serious injury. If you have no brakes, then consider having more team members on the ropes to assist with slowing down on the downward trip.

Wheels

Heavy duty spokes, mountain bike tyres, tubes filled with 'slime' are the best options here, as wheels take the worst hit when climbing. Designs of 2, 3 or 4 wheels are probably your safest option. Small castor wheels on the front are useless on the rough terrain, and in some instances can get caught on rocks and in gullies. Punctures are common so take spare inner tubes, and even a spare wheel, in case of broken spokes, and hubs.



Feet are safest when secured to the footplate as shown above.

Passenger security and comfort

The SCI member of the team **MUST** stay within the protective confines of the chair, or it will not pass the security check before the climb. Extra padding helps combat the jolting from occasional rough pathways. Depending on the mobility of the SCI person, you will need to consider the safety and protection of arms and hands.

Foot protection – VERY IMPORTANT

The most common form of injury on the Push originates from feet which have fallen away from the foot plate and are subsequently broken or fractured. Feet **MUST** be protected by a strong foot plate, and must not be allowed to fall away from the plate. Legs should similarly be secured to stay within the chair, and not rest against the rotating wheels. If the pre Push safety check highlights that you do not have adequate foot support you will not be permitted to take part in the challenge.

Rest of the team

With up to 16 people and some narrow pathways, space around the chair is limited. Care should be taken when walking close to the chair as feet can easily be trapped under the wheels and foot plate. Care should also be taken with solid attachments on the chair, as these can easily cause injury to those around it.

Ropes and equipment

Using ropes secured to the chair is essential, both to pull up hill, and to slow down on the downward journey.

Ropes don't steer the chair very well, so having a T bar secured to the back and/or front of the chair is recommended. Take care to provide enough space for the team members to walk at their biggest gait without trapping their feet under the chair, or into other team members. T bars are excellent for tilting the chair back and forth when negotiating obstacles.



Foot plate with high sides, SCI team member is secured with shoulder and waist straps.

Chair examples

Two wheeler (On page 4) A 2 wheeled chair, aka Rickshaw design, is simple and effective. A long bar can be secured to the chair, but consider the angle at which the chair is when climbing AND descending. Also, with no front wheel, some of the weight of the chair and the occupant has to be carried by the team members holding the T bar. Brakes on both wheels will benefit the downward journey. Trying to hold onto the tyres can cause blisters and serious injury. Ropes secured to the chair are a must, to allow team members enough room to walk comfortably, whilst pulling (or retarding/braking on the down slope) the chair.



Note adjustment mechanism on the T bar, to cater for changing slope angles.



Heavy duty tyres, well padded push bar, castor style third wheel.



Fixed front wheel, SCI person well strapped in legs secured with straps.



Steerable third wheel.



Steerable third wheel including a extension bar for team members to steer with too.

Three wheeler (On page 5-6) A 3 wheeled chair can bear all of its own weight, but the third wheel must be big enough to roll over most of the rough terrain (at times, the chair must still be fully lifted to negotiate difficult areas). A 3 wheel design does not steer as well as 2 wheels though, unless it is a castor style wheel, or you design a steering system (or are happy to lift the front wheel to alter direction). Brakes on 2 or 3 wheels will help the downward journey. A third wheel will dictate the angle at which the SCI person sits at i.e. tilting back on the upward trip, and tilting down on the downward trip. Consider comfort and security based on this.

Four wheeler (On page 7) A 4 wheeled chair is normally the most stable. It will be heavier, and steering must be considered. However, on very uneven ground it will tilt a lot. There are some purpose built quad bike frames with excellent brakes and steering, but they tend to be for SCIs with a lower injury (i.e. better core/trunk muscles). Consider safety and comfort. You may not need a T bar and ropes may be sufficient for the rest of the team to use to pull this style of chair.

On all chairs, consider that at points along the route, they will need to be fully lifted off the ground to negotiate obstacles. Therefore, you need sufficient, AND SECURE, hand holds on the chair for AT LEAST 4 team members to do any lifting.



Four wheeler with steerable quad and disc brakes on front wheels.

Harnesses

On all chairs, you will need enough rope for team members to have the leg space to pull on the rope. Take care not to let excess rope trail on the ground and cause a tripping hazard. Create loops along the length of rope for easier hand holds, or to go over shoulders. Take care the loops do not close up and crush fingers.



Harnesses keep hands free.



Team members can get in each others way when it comes to ropes.



Harnesses should attach at waist level so as not to over stress the lower back. This set up will cause a lot more muscle strain and pain.



An example of a team lifting over the rocky terrain.



The loose surface can be slippery.



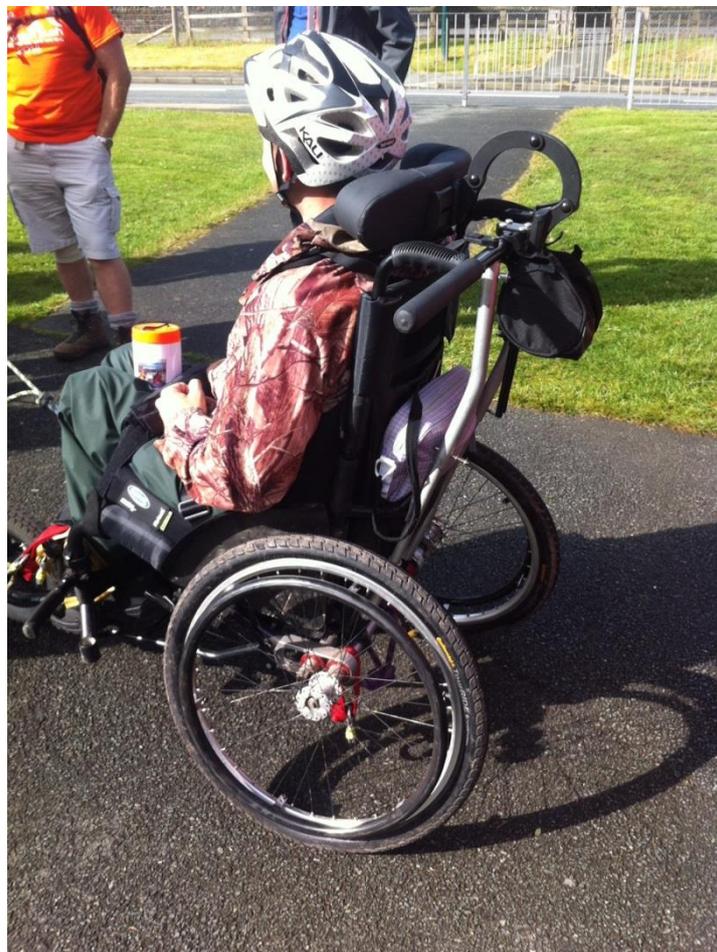
Have a spare wheel carried in case of need.



Big steerable 3 wheel design with wide bars for team members to use. Disc brakes on front wheels.



Extra wide push bars have to be lifted over gate posts.





What not to do ;-) – held together with a broom and a mop handle!