



Patron: Laura Hamilton

Guide to Cycling

For Reach children there are usually three main areas of concern when it comes to bike riding. Firstly the handlebars need to be appropriate for the rider to have good control when steering and balancing. Secondly, the brakes need to be easily and safely operated. Thirdly, school age children should have the opportunity to take their Cycling Proficiency test along with their friends at school.

Obviously situations will differ according to the degree of limb deficiency, which is why there cannot be one prescriptive 'recipe' for adapting a bike. Each child will need their bike to be tailored to suit their particular needs (and taste!). When buying your first bike, it is a good idea to approach your limb centre for advice (even if you have never been before). Sue Stokes at head office can tell you where your nearest centre is.

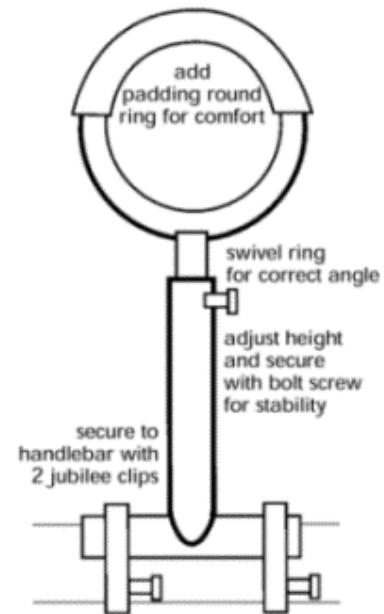
Your limb centre should at the very least have a contact for a local dealer who can fit the necessary adaptations. Limb centres have varying policies on bike adaptations. Some may be willing to undertake the work for you, and some may offer a prosthesis that will work with a device on the bike. In all likelihood though, you are going to have to sort this out yourself, so, here is the Reach Guide to Bicycle adaptations.

Handlebars (steering and balance)

If your child has one arm shorter than the other then balance can be an issue in two senses. Firstly the child needs to be steady and have good control when on the bike, but also they themselves need to be balanced so that they are not putting undue stress on their back by compensating on one side. Of course there are many different ways to customise handlebars to suit a youngster with an upper limb deficiency. The difficult part is trying to weigh up which will be the most suitable at which time.

The two main approaches are to either modify the handle bars (bring the bar towards them) or to provide a prosthesis that enables the child to use existing handlebars. To some degree, modifications to standard handlebars can be done relatively simply and cheaply using readily available handlebar extensions called 'end bars'.

Brian Harrison customised bike handlebars for his daughter Stephanie a few years ago. 'I extended the left side of the handlebars by cutting a piece of tube to the appropriate length (ensuring that the handlebars did not dig into her ribs when cornering) then welded a clamp on the end of this tube to connect it to the handlebars. The final short piece of tube which Stephanie holds on to is a standard stock item from a cycle shop.



I then transferred the existing rubber grip to this tube. This short section has a clamp which allows rotation to the most comfortable position.' Brian did this work himself and has since successfully transferred the extensions to Stephanie's latest bike. Brian commented that he did not want Stephanie's bike to look clumsy and hoped that what he had made looked more like a 'sporty add-on'. He achieved this by spraying the end bars to match her black bike, and transferring the sporty rubber grips.

If your child wears a prosthesis already then steering a bike might pose no problem at all. Beware of having a prosthesis made just for bike riding however, as young children tend to frequently change activity and may well not bother to put it on, thus undoing all your good work and riding the bike in an unsafe manner. For older children a special piece of kit might be just what is needed though, particularly if they are doing longer and/or off-road cycling. Helen Joiner, Occupational Therapist at Chapel Allerton Hospital in Leeds, points out that parents should always consider the acceptability to the child of any special devices. 'Anything that emphasises their 'difference' in any way or is a hassle to use, will detract from the enjoyment of cycling. Children are very adaptable, so what might be perceived as a future problem by parents or others may well not turn out to be a difficulty at all.'

If steering a bike independently is not an option for your child, you can still let them enjoy cycling with you. Peter Taylor makes the 'Tagga Trailer Cycle' which attaches to the seat post of an adult bike and tows along behind. The adult rider is thus responsible for balance and steering but the child can pedal. If necessary these trailers can be fitted with full seats so that a child can be strapped in for safety. Pashleys also supply one and two wheel trailer cycles.

Brakes

The law requires bicycles 'with a saddle height over 635mm to have two independent braking systems with one acting on the front wheel(s) and one on the rear' (Pedal Cycles Construction and Use Regulations 1983 and section 81 of the Road Traffic Act 1988). A front brake operated alone can cause the bike to flip and catapult the rider forwards over the handlebars, and a rear brake in isolation is not sufficient to stop the bike when moving at speed because when the rider brakes the weight is pushed on to the front wheel and the rear wheel brake cannot work efficiently.



There are two mechanisms for operating brakes. The traditional (British) system is a hand operated lever positioned on the handlebar with cabling to the site of the brake. You may like to try connecting both brakes to a single lever (called a 'tandem brake'). This works well for many people and is relatively simple and inexpensive to do. However, this does mean that the brakes are not 'independently operated'. If the rider has a large enough hand span you could position two independent brake levers together so that they are used simultaneously in one action. There is a special mount for doing this available from Pashleys but beware, any arrangement which means both brakes are operated by one hand requires good grip strength.



If your child is able to reach the levers for hand operated brakes but has reduced grip strength then you may consider 'V' brakes or a lever operated hub brake in preference to the standard calliper brake. 'V' brakes and hub brakes require less pressure, while hub brakes are said to be more controllable and more durable. They are safer in wet weather because they are inside the hub of the wheel, sealed from the elements and do not rely on making contact with the rim of a wet or muddy wheel (hence they are used by many off-road cyclists).



The second system is entirely different. While we Brits have been braking with our hand-operated brakes most of Northern Europe and many people in the US have been using their feet to do the work, with pedal operated brakes called 'coaster brakes'. Coaster brakes used to be quite severe and required careful application to avoid the wheel locking, but modern versions have more play in them and so are suitable for children. Apparently the very first BMX bikes were fitted with this type of brake system, but sadly are no longer available.

Getting Brakes Fitted

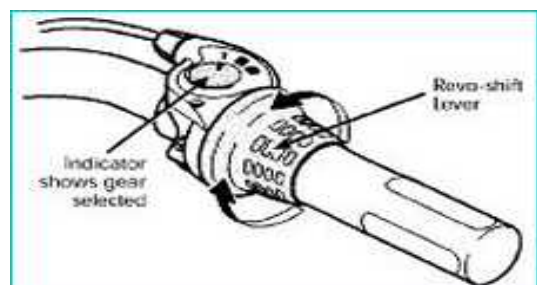
Your local independent retailer should be able to find a coaster brake hub and fit it for you. Sturmev Archer produces a coaster brake hub, but has recently been bought by a Japanese company. At the time of going to press Sturmev Archer products are unavailable but are expected to be back in the shops within a few weeks. Shimano also produce a coaster brake in 3, 4 or 7 speeds but these are not suitable for small children's bikes. SRAM produce a range of coaster brakes that will fit children's sizes (see address panel for all contact details). Fitting a coaster brake hub is not a DIY job as it involves dismantling the wheel, replacing the hub and re-lacing the spokes. Independent bike shops tend to have workshops on site and are usually experienced in taking bikes to bits to customise them. It may be possible to source a coaster brake hub unit yourself (for example through Halfords) and take it to someone to be fitted but there are potential problems as not all hubs will work with all wheels, and not all hubs will fit all frames. You need to know what you are doing, or have very reliable advice. My local Halfords were willing to supply me a Nexus (Shimano) hub and wheel with a Revo-shift (see 'Gears') from £90, but remember this cost will be in addition to the price of the bike. If you need help finding a suitable shop you can try asking the Consortium of Bicycle Retailers or Cycle Source.

Another way of getting a bike with coaster brakes is to buy a model that comes with coaster brakes already fitted as standard. After much searching I found a shop willing to supply imported bicycles from the Netherlands, either in person or by mail order, to anywhere in the UK.

Reality Cycles in Rotherham can supply bicycles made by Gazelle, in sizes ranging from a 12" wheel suitable for a four to five-year-old to a 26" wheel suitable for a teenager. The smaller sizes come as single speed hubs but some of the larger bicycles are available with three or five gears. Reality Cycles did comment that their Gazelle bicycles are built for the Dutch market and are made to a higher specification than the children's bicycles that are typically supplied in the UK.

Gears

Children with a partial hand may find the revolving gearshift system ('twist grip') useful. Traditionally the gears are controlled with a thumb-operated lever on the handlebar. This usually means that the rider does not need to let go of the handlebars to change gear, however, this proves trickier if you have a partial hand.



A 'twist shift' (sometimes known as a 'motoshift') rotates around the handlebar and is controlled by turning the sleeve Shimano make a system like this called 'Revoshift' which they describe as having 'low-effort rotational shift action [which] doesn't depend on finger strength [and] keeps your hands on the handlebars.' Shimano's Revoshift units work in conjunction with their SG-3C40 Coaster Brake Hub if required. SRAM also make a twist shift gear change called a 'Grip shift' and this is available from Halfords at £27.99.

The SRAM 'half-pipe' design has a wider rotating sleeve and so may well be even easier to grip. Many children's bikes come with this design of gearshift as standard. If this is the only adaptation required then you should only need to buy and fit a separate grip shift if you are modifying your current bike or a second-hand bike. New on the market from Shimano is an automatic gear changing system. Rather like an automatic car, the sensors on the wheel feed back to a nifty little computer which operates an automatic gear change. This is obviously very advanced (and expensive) but it just shows that if you look hard enough you can find almost anything you want to.

Cycling Proficiency Tests

It is an offence for any cyclist to ride on the pavement, but the policeman I consulted commented, 'you won't find many police officers who will make an eight year-old ride on the road'. It is a matter for parents to decide when their child is sensible enough to ride on the road but when the time is right for your child to go out unaccompanied on their bike make sure they know the ground rules. If they are staying on the pavements they must remember that they do not have any right of way and should yield to pedestrians. They must dismount to cross roads and should (politely!) make pedestrians aware of them by using their bell.



Most children are offered the opportunity to take part in the National Cycling Proficiency Scheme. They are taught by road safety officers, police, trained volunteers and in some areas, their schoolteachers. Often the road safety officer undertakes the testing. Candidates learn about basic road craft, the Highway Code and simple maintenance as well as how to pedal and control their bicycles properly. The object of the test is to make your child as safe as possible on our dangerous roads. That objective has to be of paramount importance to the examiner and if the examiner is satisfied that the child is safe on the roads then the candidate must pass, if not then the child does not pass.

Signalling.

The cycling proficiency test does include hand signals and therefore the examiner may insist a child can control the bicycle whilst signalling. The two most important signals being for left turn and overtake/right turn. The signals given for moving off and slowing down are only given when they will be of benefit to other road users.

This can be a difficult problem to overcome. Some children may not be able to control the cycle sufficiently enough with just their affected limb in order to give appropriate hand signals with their sound limb. It may be safer to teach your child, especially in the circumstances of a right hand turn, that if they can not cope with the traffic at a junction to dismount and walk the route as a pedestrian. (As recommended in the Highway Code) If your child is to take part in a Cycling Proficiency Course this aspect should be discussed with the course organizer.

It is possible to purchase indicator kits for bicycles and you may consider this for your child. However, they are easily broken, may not be clearly visible and could lead to a false sense of security so it is advisable to consider this carefully. They are available from most Bicycle outlets.

If you meet with any difficulties regarding being allowed to take the test or finding safe alternative manoeuvres to replace those in the test that your child will not be able to perform, contact Sue Stokes.

Useful Contacts:

Association of Cycle Traders 01892 526081 or use the interactive map on their website at www.cyclesource.co.uk

British Schools Cycling Association at www.bsca.org.uk

Consortium of British Bicycle Retailers 01908 613263 or www.cobr.co.uk

Disability Action Group of the London Cycling Campaign 02079 287220

Remap Volunteers design and manufacture, or adapt, equipment for people with disabilities. www.remap.org.uk