

The different types of bikes for different conditions:

In a nutshell:

- Tandems build confidence, allowing people to learn how to pedal, the blind to engage in the activity with their carer beside them and those who cannot pedal, paraplegics for example to have passive physio whilst enjoying a cycle ride with their carer, who can do the pedalling for them! The Wheelchair transporters also mean people with Brittle Bone disease can also enjoy cycling as an activity.



There are various manufacturers for these bikes which include [Draisin GmbH](#) who work in partnership with [Quest 88](#). Quest 88 also work with British Cycling on their CPD Development Module, Disabled Cycling Workshop. Furthermore Quest 88 are also the authorised distributors for [TopEnd](#), the sportive adapted bikes from the USA for Paralympians. Pedal Power work with [TomCat Trikes](#) and Wheels for All work more with the [Van Raam](#) distributors.



- Recumbent bicycles are wonderful for people who suffer with epilepsy, multiple sclerosis, spinal injuries or recovering from strokes and Polio. These can be hand cranks, electric assist (for amputees) or foot powered – There are even folding versions of the recumbent both electrically assisted (ideal for recent amputees) or ordinary recumbents. Other versions include special aerodynamically designed bikes for Paralympians and semi recumbents for those who are unable to get up and down at low level. [KMX](#) in Portsmouth and [ICE](#) in Falmouth are two UK manufacturers.



- Hand Crank bikes are good for people orthopaedic impairments of the hip or knee, has spina bifida , a spinal injury or lower body weaknesses like paraplegics or someone recovering from a shoulder injury and needs to be able to exercise it, as shown overleaf. There is also a kneeler version in the form of the Force K.

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- There is even a Draisin version of the Tom Cat Carer-Control™ system enabling the carer to control steering and braking so riders with learning difficulties (including severe), physical disability or visual impairment can have fun and exercise in perfect safety.



- TRIKES and GO-CARTS are available in adult and children sizes and great for people with balance issues.



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Another type of bike is effectively a three wheel balance bike, known better as Road Racers and support the individual in a standing position with a saddle and chest support as they lean forwards.

- There is also the [BOMA](#) and [MOUNTAIN TRIKE](#) which are more wheelchairs suitable for off-roading. The Boma is motorised and powered up it morphs into a sweet looking lightweight off road wheelchair that comes apart for easy transport. The Mountain Trike however, is manual (with 2 drive levers) and is hand driven.



- For those who want to ride on two wheels, low step through bikes are the best option, as a high cross bar can be very off putting and there is also the electric assist option as well for those who live in hilly areas and need a little help due to chronic conditions such as arthritis.



Understanding what can be achieved with supports/accessories:

Footplates, toe clips & Ankle Foot Orthoses (keeping feet on pedals):



Quest 88 manufacture two kinds of footplate: the standard footplate features ankle and foot straps to secure the child's foot to the pedals; the advanced footplate uses the straps in the same way, but can be used in-conjunction with ankle-foot orthoses (calf supports).

The ankle-foot orthosis is a "splint" type device which controls the child's ankle and foot relationship. This prevents the toes from dropping to the point where it is hard to maintain pressure through the pedals to drive the tricycle and keep up momentum. The ankle-foot orthosis also controls the position of the knees and influences the hip adductors/abductors. In effect, this removes the need for a pommel or wedge to space the child's knees apart.



Saddles, Hips and the upper body (supporting the upper body and posture):

Hip and upper body supports can be used to either:



1. Support those with very little sitting balance and/or upper body control, to enable them to sit on a cycle.

(For those with more complex needs)

- 🚲 Hip supports work as a foundation for controlling stability further up the trunk, thoracic, chest supports and a head support can be added for better positioning and control. Belts are used to secure the rider and to fix their position.
- 🚲 The rider's position and posture is further enhanced when they are holding the handlebar, enabling them to extend the arms and push back their shoulders.

2. Give riders with moderate balance problems a sense of security and confidence whilst riding. (for those with moderate disability, learning disabilities or confidence issues)

For this category of rider, the hip support is not there to control positioning or posture as such, but is there to give the rider more comfort and confidence. The position or height of the support is less critical. Belts can be used but are not always necessary.

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Steering, hands and handlebars:

There is a broad range of handlebar sizes and styles to choose from. The double or "twin" grip style allows the child to move their hands between the inner and outer grips to assist in the steering of the tricycle. Another style available is the "forearm gutter" style which offers support for the arms and features vertical hand grips. Also there is a dual braking system for anyone who has one sided weakness.



Assisted steering:

Mainly developed for children and often referred to as "push/pull rods" or "steer rods", these are devices which help put the parent or carer in control of the child's speed and/or direction. Each manufacturer has their own unique system, some more complex than others, although they generally achieve the same goals.

Push rods can be used to assist the child's pedalling whilst they steer according to where they want to go. This is great for developing independence and improving spatial awareness as the child gains an understanding of cause and effect whilst steering. The push rod is also useful when a child is tiring or as a confidence builder in the first few days/weeks of using a new tricycle.

Pull rods are used to lead the tricycle from the front. The main advantage is that the parent/carer is able to engage and encourage the child face to face. One disadvantage however, is that the parent or carer is having to walk sideways on or sometimes backwards.

Rear steer systems are available from most manufacturers and are available on or Draisin [Neon](#) and [Laser](#) models. The rear steer system is especially useful for assisting children who do not have the awareness or ability to steer independently and who are unlikely to in the future because of the nature of their disability. Rear systems are more expensive than the much simpler push and pull rods and should only be considered where it is highly unlikely that a child can develop their own steering skills over time with training.

Gripping & Gripping Aids:



These are designed for children and adults who have low muscle tone or weakness in the lower arm and hand and who want to participate more fully in leisure or DIY activities.

The [Gripmit®](#) from Quest 88 can be used to assist with the gripping of walking aids and tricycle handlebars, particularly where the user has a tendency to release handles spontaneously. Important: In this situation the Gripmit® must be prescribed and used responsibly and should not be simply relied upon at the expense of training and encouraging the individual to grip independently.



MEET A FEW FRIENDS and discover their stories:



Lauren lives close to the Welsh border and regularly rides the track at Newport Velodrome.

She is a lively and enthusiastic young lady and to talk to, you would not know that she has any problems as she has a feisty spirit and lives life to the full.

Lauren however, contracted Meningitis as a baby and also has to deal with Cerebral Palsy. The only visible outward sign of any problems at all tells us that she has some loss of hearing.

Lauren's first bike was a Quest 88 trike. She has now progressed to a fixed wheel track bike with no brakes nor any gears and she rides the track well! Who knows where it will take her in the future?



Caroline is a Community Health Champion in Sheffield, and became the regional winner of the ITV Feel Good Factor Award. The award is to celebrate an outstanding individual who supports and enables others to change their lives for the better and is part of the ITV contribution to the national Change4Life campaign.

Caroline had a car accident in 1988 which left her in a coma for 4 months .. 5 years ago after her marriage broke down she slowly regained her independence with the help of her friends, neighbours and local CTC Champion. She also hopes to train as a National Standard Assistant (Cycling) Instructor through British Cycling and in June, will be an Olympic Torch Bearer.

Caroline has gone from an electric scooter to a trike and now learned to cycle using a recumbent bike which her main mode of transport. In her own words *'I won Pride Of Yorkshire and was invited to Buckingham Palace (July 12th 2011 to a Garden Party). The confidence that learning to cycle has given me is immense, I feel I have my own identity now.'*

And on 18th January 2012, for the first time since 1988 Caroline cycled on 2 wheels, having had her trike stolen just before Christmas so now she is saving up for a new one! She has been selected to carry the Olympic Torch too.



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Martin has a rare condition called Klippel-Feil Syndrome. It creates a fusion in the cervical spine. Depending on the area of fusion, there can be related congenital conditions. In his case, he was born with a cleft palate, hearing loss, underbite, short neck with webbing (trapezius muscles are extended from the mastoid areas to the shoulders), painless restriction of cervical movement, scoliosis, and kyphosis and a rare aplastic anaemia.

Despite this he has been part of a crew bringing the Samuel Whitbread back from Germany via the Netherlands (1989), and expeditions to Snowden (1993) and Ben Nevis (1994).

Now, he is a founding and Committee member of: “Not About the Bike”., a Norwich based Social Enterprise recycling old bikes, maintenance training and organising inclusive cycling.

He also has a keen interest in promoting sport for disabled people, in particular outdoor pursuits/adventure such as climbing, cycling, canoeing, however ambitious or extreme and has done the C2C in a Molton Rock Boma demonstrator and is now planning his E2E adventure. He has two new ventures he wants to do, as already mentioned, his E2E though whether John O’Groats to Lands End or Lands End to John O’Groats has not yet been decided and the Irish End 2 End on the Emerald Isle as well.

All Martin’s trips are ably arranged by a company based on the edge of Dartmoor who work with disabled groups, <http://www.spirit-of-adventure.com> – The photo of Martin in his Boma was taken during the summer of 2011 when he cycled the ‘Coast 2 Coast’ in Devon starting over at Barnstable and finishing in Plymouth mid July.



(LEFT) From R-L: Vin Cox, current GWR holder for circumnavigating the world on a bike, Lady Mary (former Lord Lieutenant of Cornwall) and Lady George at the launch of CycleAbility on St Piran’s Day, Saturday March 5th 2011.

(RIGHT) From L-R: The now retired Mayor of Newquay Cllr P Lamshead, Lady Mary and Lord George at the Cornish Bikeability Launch August 2007

So how does all this help?



- It's all about progression but not in the sense one might think
- One needs to think OUTSIDE of the box
- Progression might be going from a tandem to four wheels to three or even two
- The development of greater social skills because they are integrating with other people
- Becoming an Assistant Ride Leader themselves
- Helping others learning to cycle either for the first time or again
- To try out for the Paralympic Cycling Team and why not if they are fit enough and willing to make that kind of commitment?

With the last word from Dr Gary Brickley:

Senior Lecturer and Paralympic Cycling Coach



"In coaching I have always adopted an athlete centred humanist approach. I feel that my role as a coach is not just about the technical and physiological but it is also about ensuring each individual gets the best out of themselves.

I therefore see numerous advantages psychologically for cycling for those with disabilities;

Confidence
Mobility
Independence
Anxiety – good and bad

Improved self esteem
Equality
Teamwork – tandem

I am concerned that some disabled individuals are being denied the health benefits of cycling due to lack of access, etc. Schemes such as Cycleability that Cornwall is leading create numerous psychological benefits.

These benefits can also enhance the quality of life for everyone that interacts with the cyclist, the benefits are therefore huge."



Gary is coach to Darren Kenny, the track cyclist from Dorset when he is not lecturing at Brighton University. For his full bio, go to www.brighton.ac.uk/chelsea/research/downloads/sesstaff/GBrickley.pdf



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TANDEM or COMPANION BIKES: (The two seaters are quoted with the electric assist option added in as days out in Cardingham Woods or Siblyback Lake, it would be the difference between success and disaster. (*MULTI USER = Includes sliding seats and supports etc. so anyone can use them.)

BIKE	PRICE	DESCRIPTION (<i>and Beneficiaries</i>)
DRAISIN PLUS	£8500 stand alone with motor or *MULTI USER £9150	Wheelchair bike incorporating a detachable wheelchair and 5 point harness. (<i>Ideal for someone with mild cerebral palsy.</i>)
DRAISIN TWISTER	£8500 stand alone with motor or *MULTI USER £9150	Side by side tandem with controls that can be disconnected on one side. (<i>Perfect for someone who is blind with their carer, learning to pedal or remedial work with footplate adaptations.</i>)
DRAISIN DUO	£8200 stand alone with motor or *MULTI USER £9050	The tandem tricycle with rear control. (<i>Confidence boosting, visual impairment and severe learning difficulties.</i>)
DRAISIN LOADER	£9495 with motor	Wheelchair carrying bike able to take up to 36 stone in weight. (<i>Brittle Bone Disease, severe Cerebral Palsy, Quadraplegics etc.</i>)

HAND CYCLES:

BIKE	PRICE	DESCRIPTION (<i>and Beneficiaries</i>)
EXCELERATOR	£1799 or *MULTI USER also available	Basic upright hand cycle available in adult and child sizes. (<i>Hand cycles are good for orthopedic impairments of the hip or knee, Spinabifida, spinal injuries or lower body weaknesses e.g. paraplegics or someone recovering from a shoulder injury and needing to exercise it.</i>)
TOP END XLT	£1799 (7 gears) *£2695 XLT PRO (with 27 gears)	Aerodynamic hand cycle with 7 speed gear hub. (<i>Tri-pin quad hand pedals are a popular option for those who have impaired hand function and the mountain drive transmission is great for low endurance or steep terrain to climb.</i>)
MOUNTAIN TRIKE	£3995 fully fitted	The Mountain Trike is designed with two drive levers and hydraulic disc brakes giving the rider excellent propulsion, control and braking, over difficult ground and up even steep hills.

SINGLE SEATER BIKES:

BIKE	PRICE	DESCRIPTION (<i>and Beneficiaries</i>)
DRAISIN RELAXINO	£3300 or *MULTI USER available	Semi recumbent with body steering or power assisted option (<i>Cerebral Palsy, Multiple Sclerosis, people with balance impairment or amputees – can also have a motor added</i>)
DRAISIN TRICI	£1650 or *MULTI USER available	A stable and robust tricycle with a trainer version option for adaption (<i>which can be adapted to include back supports, footplates and splints to control the child's ankle/foot relationship for moderate to severe physical disabilities.</i>)
DRAISIN NEON	£1535	The child's version of an Trici with rear parental steering. (<i>Impaired vision, learning difficulties from mild to severe, physical disabilities.</i>)
QUEST 88 KITTEN	£950 fully fitted	A tricycle suitable for children from approximately 2 to 5 years of age. (<i>Balance issues and confidence building.</i>)
QUEST 88 COLT AND PANTHER	£1100 fully fitted	A fixed drive tricycle to add momentum which assists pedalling. (<i>Beneficial for Spastic Diplegia sufferers</i>)
RACE RUNNERS	£1500 large	Balance trikes minus the pedals. (<i>Cerebral Palsy, Muscular Dystrophy, Parkinsons Disease and mobility and balance issues.</i>)
BERG GO-KARTS	Clipper £1245 Gran tourer £2224	A low level 4 wheeler bike for children/youths (<i>Balance issues</i>)
ICE RECUMBENTS	Starting from £2000	Ground level trikes in a laid back position (<i>Epileptic sufferers, Stroke victims, Cerebral Palsy, Multiple Sclerosis, people with balance impairment or amputees.</i>)

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KMX KARTS	Ranging from £695 to £1999	Recumbent 3 wheeler BMXs .. for those who are more adventurous - Three-wheeled vehicles resembling a cross between a BMX, mountain bike and go-kart, with a remarkable stability due to its low centre of gravity. (<i>Epileptic sufferers, Stroke victims, Cerebral Palsy, Multiple Sclerosis, balance impairment or amputees.</i>)
TOMCAT TRIKE	Prices start from £1172 or £2858 *MULTI USER	The Tomcat tricycle is designed to suit the needs of children and adults with mild to severe disabilities, whether learning, visual or physical. (<i>Learning difficulties from mild to severe, physical disabilities.</i>)
TOMCAT ROADHOG	Prices start from £1172 or £2858 *MULTI USER	The Roadhog™ frame is tough and stable, but most important of all it's light in weight and nothing is more important to the special needs user. It also features an innovative low friction transmission; a Two Piece – Easily Transportable Frame and Tomcats Unique Make and Break Gear Change™ system. (<i>Confidence boosting for people with muscle tone, co-ordination or endurance issues.</i>)

CARER CONTROLLED TRICYCLES:

BIKE	PRICE	DESCRIPTION (<i>and Beneficiaries</i>)
TOMCAT TIGER	Prices start from £943 as a basic trike to £1791 *MULTI USER	This trike for is built in two sizes it is custom configured for each child with a whole range of accessories to suit their individual needs. It features a maintenance-free, friction-free drive system (<i>Ideal for young children with low muscle tone.</i>)
TOMCAT TAMARA	Prices start from £1253 or £1726 *MULTI USER	Mainly intended for hoist users, it enables those with very limited mobility to enjoy the social and therapeutic benefits of cycling by making physical access to a trike much easier by a tilting backrest system clear of the saddle area and similarly quick and easy access for ambulant users with co-ordination or overweight issues. (<i>Perfect for non ambulant hoist users, impaired vision, severe balance, co-ordination or obesity issues .</i>)
TOMCAT TRAILER TRIKE	Prices start from £1172 or £2858 *MULTI USER	The Tomcat Trailer Trike is a trike that converts into a trailer in just a few seconds sharing all its accessories, features and benefits of the trike. (<i>Impaired vision, learning difficulties from mild to severe, physical disabilities.</i>) NB: A TRAILER MAY NOT BE SUITABLE FOR CERTAIN BEHAVIOUR DISORDERS SUCH AS COMPULSIVE ROCKING OR CERTAIN UNPREDICTABLE BEHAVIOUR ISSUES.

Most of these bikes, in particular Draisin and TomCat, break down into 2 pieces for easy storage and transportation.

NB: These prices are excluding VAT which unless a club is a registered charity, will apply!

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ADAPTIONS AND ACCESSORIES: Including electric assist or the accessories such as back supports, footplates and splints, the different hand/handlebar options, dual braking (both on one side), rear steering or mountain drive transmission etc.

ACCESSORY TYPE	PRICE	DESCRIPTION
MOUNTAIN DRIVE TRANSMISSION	£450	The mountain drive transmission is great for low endurance or steep terrain to climb – HAND CYCLE ONLY
HANDLE BAR ADAPTIONS	£30	The double or "twin" grip style allows the child to move their hands between the inner and outer grips to assist in the steering of the tricycle. Another style available is the "forearm gutter" style which offers support for the arms and features vertical hand grips.
GUTTER	£90	
HAND OPTIONS	<p><u>TRIKES:</u> GripMits £54 to £68 per pair</p> <p><u>HAND CYCLES:</u> Quad twist shifter £48 Tri Pin Quad Hand pedals £230 Quad Gloves £78</p>	Tri-pin and quad hand pedals are a popular option for those who have impaired hand function
HEAD, BACK AND HIP SUPPORTS	Hip support and bar from Draisin £298	Hip supports work as a foundation for controlling stability further up the trunk, thoracic, chest supports and a head support can be added for better positioning and control. Belts are used to secure the rider and to fix their position.
SPLINTS	£86	All of the Draisin range of cycles we supply can be fitted with a hub motor and pedal assist technology. This is normally operated by a twist throttle and works when the rider meets resistance and pedalling becomes difficult or when they become tired.
FOOT PLATES	£54 - £66 Draisin Cage Pedals £90	Quest 88 manufacture two kinds of footplate: the standard footplate features ankle and foot straps to secure the child's foot to the pedals; the advanced footplate uses the straps in the same way, but can be used in conjunction with ankle-foot orthoses (calf supports).
DUAL CABLE BRAKE LEVER	From £44.45 (Pedalon.co.uk)	This allows for both front and rear brakes to operated on one or other side, so for a stroke victim, the brake lever would be placed on the unaffected side to give maximum control.
REAR (CARER CONTROLLED) STEERING	£210	Rear steer systems are available from most manufacturers and are available on or Draisin Neon and Laser models. The rear steer system is especially useful for assisting children who do not have the awareness or ability to steer.
PUSH RODS COMBI ROD FRONT AND BACK	£52	Push rods assist the child's pedalling whilst they steer according to where they want to go. This develops independence and improving spatial awareness as the child gains an understanding of cause and effect whilst steering. The push rod is also useful when a child is tiring or as a confidence builder in the first few days/weeks of using a new tricycle.
ELECTRIC ASSIST OPTION	36v £2650 24v £2000 (Loader only: £2995)	All of the Draisin range of cycles Quest 88 can be fitted with a hub motor and pedal assist technology. This is normally operated by a twist throttle and works when the rider meets resistance and pedalling becomes difficult, when they become tired or encounter an incline.
TOMCAT TRAINERS	Prices start from £118.00	Tomcat Twisters are a brand new product designed for splint users or those with arthritis or fine motor problems. They have an innovative lacing wheel behind the heel instead of conventional laces. (<i>For individual purchase, not club use at this point in time</i>). Pull the wheel and the counter (heel support) drops clear to allow the foot and splint to be inserted. Press and twist the wheel and the shoe gathers together again to fit the foot like a glove.