

## CYCLING WITH AT FOR ADULTS WITH A MOBILITY DISABILITY

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Cycling is an activity that many people enjoy as a hobby, in competitive sports, or as a form of exercise. This should come as no surprise given how many [benefits](#) cycling offers. Studies indicate that cycling can help improve mental well-being, promote weight loss, build muscles, improve lung health, reduce the risk of heart disease and cancer, improve sleep patterns, boost brain power, and increase spatial awareness.

When you think about cycling, an image of a standard bicycle (also referred to as bike) may come to mind: a narrow metal frame with one wheel in the front and one in the back, two foot pedals in between the wheels, a handlebar in front, and a small seat at the back. But just as there are multiple purposes for cycling, there are many different types of cycles on the market, including those specifically designed for individuals with mobility disabilities.

According to the [World Health Organization](#), over one billion people (approximately 15%) of the world's population have some form of disability. For many countries,

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mobility disability is the most prevalent type of disability. That is also the case in the United States where [13.7%](#) of people with a disability have a mobility disability.

If you have a mobility disability, there is a full range of cycles that assistive technology (AT) developers have created to help you reap the many benefits of cycling. This guide explores some of the different types of adapted cycles that are currently available on the market, including adult trikes, double rider bicycles, and handcycles.

## Adult Trikes

[Trikes](#) (also known as tricycles) are similar to bikes in function and style. Trikes are equipped with three wheels instead of two. Trikes have one wheel in the front and two in the back. The addition of a third wheel helps keep the trike balanced and upright both when in use and not in use, providing you with extra stability as you mount, ride, and dismount.



*Trailmate EZ Roll Regal*

One option is the Trailmate [EZ Roll Regal](#). This adult trike has an adjustable steel frame with square tubing. With this model, you will be able to alter the distance between the seat and pedals and between the seat and high-rise handlebar to accommodate your height. It also has a low step-through, which means that you can place both feet flat on the ground while seated so you can easily mount and dismount the trike.

Measuring 43 inches high, 28 inches wide, and 74 inches long, the Trailmate EZ Roll Regal has a weight capacity of 250 pounds. The Trailmate EZ Roll Regal also features:

- A high-back tractor-style seat designed to provide comfort and support;
- A single-speed gear;
- A V-brake system;
- A front handbrake lever;
- Three 24-inch alloy wheels with treaded pneumatic tires;
- A rust-resistant rear wire basket; and
- Extra safety features, including a chrome front fender, safety flags, and a reflector package.

While the single-speed gear is standard, the EZ Roll Regal offers optional gearing systems: the coaster brake and the three-speed gear and coaster brake kit. The [single-speed gear](#) is equipped with one gear, and the [coaster brake](#) is a brake that engages when you apply reverse pressure on the pedals (e.g., pedal backwards a quarter turn). The three-speed gear and coaster brake kit provide three different gears for pedaling (one easier and one harder than the single-speed gear) and a coaster brake. A higher gear has greater pedal resistance than a lower one, which means you must apply more force to the pedals to get them to move. Using a higher gear may help you maintain steadier control of the trike when traveling downhill. Regardless of the gearing option you choose, the EZ Roll Regal comes with a front handbrake lever that can stop the trike.

Another option is the [Adventurer Series 2000 Extended Tilt \(AS 2000XT\)](#).

With an extended frame and a tilting seat back, this trike allows you to ride while seated in a recumbent (or reclined) position, a beneficial feature if you need additional trunk and/or head support.

Measuring 32 inches high, 35 inches wide, and 67 inches long, the AS 2000XT has a weight capacity of 225 pounds. The AS 2000XT also features:

- A 16.75-inch-wide and 14-inch-deep seat base with a 17-inch-wide and 18-inch-high back rest and a 10-degree seat angle range;
- A direct drive gear mechanism which allows you to start pedaling and continue pedaling the trike without requiring much force;
- A front V-brake and rear disc brake with a handbrake lever;
- Three 20-inch wheels with Never-Go-Flat tires and aluminum rims;
- Adjustable hoop handlebars with a telescopic post to adjust height and handlebar proximity;
- Mountain bike-style pedals which are textured for added grip and provide an enclosed toe cage for a more secure hold as you ride;
- A self-centering spring which keeps you and your trike in a straight line and prevents veering;
- A 2-inch wide seatbelt; and
- Extra safety features, including an orange safety flag, wheel reflectors, and a trike bell.



*Adventurer Series 2000 Extended Tilt (AS 2000XT)*

## Double Rider Cycles

A double rider cycle is a bike or trike with two sets of handlebars, seats, and pedals. It allows two people to ride the cycle together, typically seated one behind the other (also known as tandem) but could also have two cyclists seated side-by-side (also known as sociable). AT developers have created adapted double rider cycles so you can enjoy cycling with a companion.



Fun2Go

One option is Van Raam's [Fun2Go](#). This sociable trike consists of two bike seats, two handlebars, two sets of pedals, and a total of three wheels (one in the front and two in the back). Each seat has its own set of pedals, and the two seats are connected to each other side-by-side to make communication easier while cycling. While both you and your friend can pedal your respective pedals, only one of you will be steering the trike (the driver).

Measuring 24 inches high, 44.5 inches wide (including armrests), and 78.7 inches long, the Fun2Go trike has a total weight capacity of 529 pounds (264.5 pounds per seat). The Fun2Go trike also features:

- Two height-adjustable cushioned seats with backrests;
- An 8-speed hub on the driver's side and three gear options on the co-driver's side, which enable each person to independently set their pedaling speed (more information below);
- Hydraulic rear disc brakes and a parking brake;
- Three 20-inch wheels;
- Two height- and angle-adjustable handlebars;
- A battery-operated headlight system controlled by a sliding switch with three different positions (on, off, and auto);
- A battery-operated rear light system similar to the headlight but controlled by a single button; and
- Extra features including a trike lock, basket, and bell.

The Fun2Go's driving mechanism make it possible for the driver and co-driver to independently choose their own speed in pedaling while working together to cycle. The co-driver can also choose not to pedal at all, and in that case the pedals on the co-driver side will be immobile.

There are also a few optional accessories you can add to the Fun2Go trike to receive additional safety and support. They include:

- A rotatable seat that swivels from side to front for easier mounts/dismounts;
- A hip belt, 4-point belt, or 5-point belt;
- Armrests that flip up when mounting/dismounting;
- Pedals with foot straps to ensure that your feet stay securely planted on the pedals;
- Lower leg support in a curved-shaped attachment with a Velcro strap that cradles your lower leg and offers additional support when riding;
- A 5-centimeter-thick (approximately 2 inches) back pillow or 5-centimeter-thick seat pillow; and
- Optional electric engine for power assistance.

Another example is the [DUET Wheelchair Bicycle Tandem \(Model Plus\)](#), a tandem bike set that comes with a bike and a wheelchair. The two units are connected to each other with the wheelchair in front and the bike in back, and the bike's handlebar is connected to the back of the wheelchair, similar to where the wheelchair's push bar would be. This alignment allows you and your friend to travel together and converse with each other while both facing forward. And when you and your friend arrive at your destination, you can detach the wheelchair from the bike with the quick release locking mechanism and use it independently as a standard wheelchair.

The bike part of the DUET Plus model measures 34 inches high (with seat down), 14 inches wide, and 51 inches long and has a weight capacity of 275 pounds.

The DUET Plus bike also features:



*DUET Wheelchair Bicycle Tandem (Model Plus)*

- A suspension bike seat;
- Shimano® Nexus 8-speed gears;
- Coaster brakes;
- One 26-inch, puncture-proof tire;
- An adjustable handlebar;
- A battery-powered LED light system that comes with an on/off button;
- An alloy luggage rack that attaches to the back of the bike to carry luggage or other belongings;

- A kickstand that features two levered bars that fold down from the bike’s frame to keep it propped upright when not being ridden and close back up when raised so that it does not interfere with pedaling; and
- A bike lock.

The wheelchair part of the DUET Plus model measures 43 inches high (with headrest at lowest point), 26 inches wide, and 56 inches long (with footrest) and has a weight capacity of 275 pounds. The DUET Plus wheelchair also features:

- A folding seat with a three-position seat angle;
- Reliance on the biker’s 8-speed gear system (the wheelchair itself does not have an independent gear system);
- A wheelchair parking brake and 90-millimeter twin drum brakes;
- Two 26-inch, puncture-proof tires;
- 26-inch-wide transparent wheelchair spoke covers that protect your hands from touching the wheelchair spokes;
- An adjustable lap belt;
- An adjustable 4-point “H”-style upper body harness made of nylon and Velcro that attaches to the standard lap belt;
- A height- and angle-adjustable headrest;
- An adjustable and removable footrest plate; and
- A removable and washable seat upholstery.

## Handcycles

Now, let’s explore a different kind of cycle, one that is powered by arms and hands and not by legs and feet. A [handcycle](#) is a three-wheeled, self-propelled cycle that moves when you rotate its hand pedals in a continuous, circular motion with your arms and hands.



*Top End Excelerator Pro (XLT Pro)*

One example is the [Top End Excelerator Pro \(XLT Pro\)](#). This three-wheeled handcycle consists of an adjustable seat with backrest, two hand pedals located on either side of the seat at chest level, and a footrest.

The XLT Pro comes in varying heights and widths and measures

80-inches long. This handcycle has a total weight capacity of 250 pounds. The XLT Pro also features:

- A 15-inch-deep seat that is available in widths of 14 to 18 inches (in 1-inch increments);
- A 27-speed gear and braking system controlled by the Shimano® Rapid Fire hands-on shifter/brake levers, which are mounted on the right-hand pedal;
- A parking brake located on the left side of the frame;
- Three wheels available in varying sizes and styles, including 26-inch high-performance wheels, 24-inch cruiser wheels, and 24-inch off-road wheels;
- Two ergonomically designed, ovalized aluminum hand pedals that come in 22-, 24-, and 26-inch widths;
- An angle-adjustable backrest (can be adjusted from 90 degrees to 110 degrees) that comes in widths of 7 to 18 inches (depending on the selected seat width) and in heights of 11 to 18.5 inches (depending on the width of the backrest);
- A seat restraint with a hook-and-loop fastener;
- A footrest with safety straps; and
- Reflectors.

Another example is the [Lasher Sport All Terrain Handcycle \(ATH\)](#), a three-wheeled, recumbent handcycle that is specifically designed for off-road use. It consists of an adjustable seat with backrest, two rotatable hand grips that serve as hand pedals, a footrest, and front-wheel drive. The ATH has an upright, forward-tilting seating system to ensure that you are bearing more weight on the front-drive wheel when seated so you can propel the handcycle up steeper slopes with less exertion. With rugged wheels and 6 inches of ground clearance, the ATH also allows you to traverse over rough trails and bumpy terrain in the great outdoors and pop onto and drop off curbs in more urban settings.

The height, width, length, and weight of the ATH can vary with customization, based on your preferences. The



*Lasher Sport All Terrain Handcycle (ATH)*

ATH features include:

- A length-adjustable seat base (the seat is 14 to 18 inches wide and 14 to 18 inches deep);
- A Shimano® SLX 11-speed shifter;
- An Avid Juicy 3.5 hydraulic disc brake and Avid BB5 parking brake;
- Three 26-inch mountain bike wheels (with a variety of wheelchair, mountain bike, winter, and road wheels available);
- An angle-adjustable backrest (can be adjusted from 70 to 90 degrees) that has a 1.5-inch foam padding and comes in heights of 12 to 20 inches (in 1-inch increments);
- Two Ergo-Grip hand grips;
- Tension-adjustable nylon seating; and
- Reflective decals.

### For More Information

To learn more about these and other AT for cycling, please visit [AbleData](#).

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