



## Cycling Aids for Arm Amputees

Once spring arrives, many upper limb amputees gear up for the cycling season. This activity provides a good cardiovascular workout while placing minimal stress on the residual limb(s). With the assistance of the following devices, riding can be a safe and pleasurable experience.

### Steering and Balance

Some arm amputees ride their bikes using special sockets, semi-sockets or bars attached to the handlebars. A residual limb can slip into a socket or rest against a bar adaptation to assist with balance and steering.

Many adaptations simply require a little ingenuity, while others may necessitate changes to the hardware of the bike itself. Some devices can be made by your prosthetist; other adaptations or adjustments to a bike can be made by a local bike shop or even by practical family members and friends.

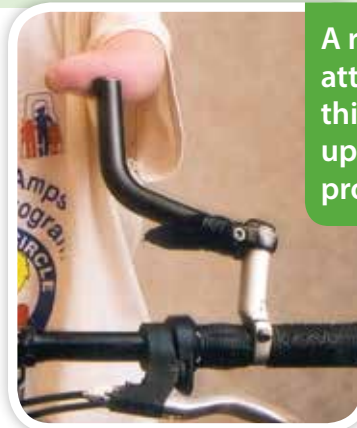


This partial hand amputee has a socket device clamped to the handlebar.

The TRS Mountain Master has a strong, flexible polyurethane body that absorbs shock. It is versatile enough to pull wheelies and ride over obstacles, yet has a built-in rider-controlled release system to facilitate dismounts.



Photo Credit: TRS Inc.



A raised bar attachment enables this amputee to sit upright and properly balance.

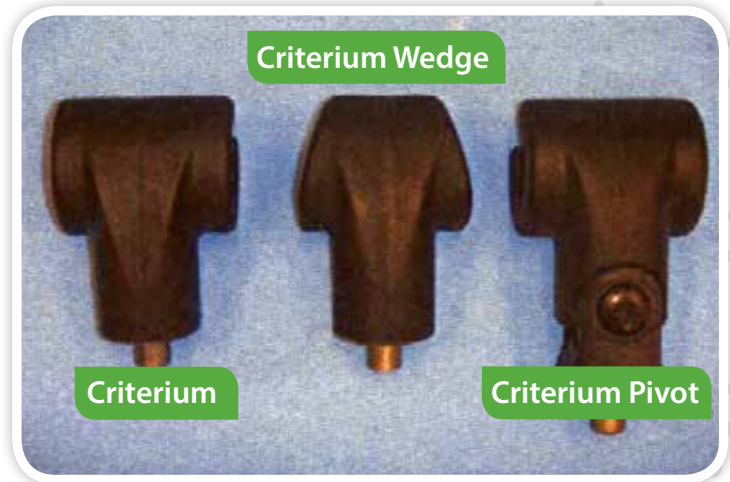


Photo Credit: TRS Inc.

The Criterium Bicycle Handlebar Adapters from TRS are terminal devices that snap on and off handlebars. There are three versions: the Criterium, the original and simplest version; the Criterium Wedge, which allows for more angulation on the handlebars but is still a simple one-piece device; and, intended for more serious riders, the Criterium Pivot, which is more difficult to release from the handlebars. The Pivot is a two-piece device, allowing for much greater angulation and arm torque.

## Cycling Adaptations



A bilateral above elbow amputee added a frame to her handlebars that she leans against with her chest to steer.



This is an example of a below elbow socket design for a bicycle handlebar.

A device like the one featured here can be designed for an amputee by a prosthetist.



This amputee steers the bike by placing the residual limb between the extended handlebar and the pad.



These rings fitted to the handlebars allow the amputee to use hooks to balance and steer.



This specialized attachment allows this bilateral arm amputee to be steady and have good control when on a bike.

This amputee uses a quick release hook for increased security in the event of a fall.



This amputee slides the residual limb through a padded ring device to balance and steer the bike.



## Changing Gears and Braking

These commercially available devices can help with gear changing and braking. They can be purchased and then installed at a local bike shop.

Upper limb amputees may also opt for “coaster brakes,” a breaking system that is initiated by pedaling backwards.



The SRAM Grip Shift allows for single-handed gear shifting. Once the device is installed, gear shifting is possible by simply twisting the handle.



*Photo Credit: TRS Inc.*

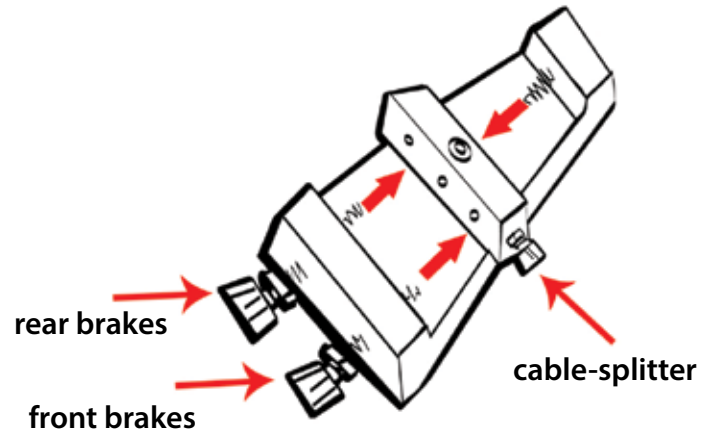


*Photo Credit: TRS Inc.*

The Dual Bike Brake Lever by TRS allows for both the front and rear brakes to be operated simultaneously on one side of the handlebars. The device can be mounted on either the right or left side and fit mountain bike handle bars.

Custom-made braking and gear shifting devices can also be designed.

A bilateral arm amputee customized her mountain bike with pressure sensitive hand brakes and gear shifters that are triggered with a simple pushing motion. She then attached Velcro to her handlebar and cycling glove, enabling her to control her steering with one hand.



An amputee has an adaptation for changing gears and a “cable-splitter” which allows her to operate the front and rear brakes from one lever. This one handed operation frees her artificial arm for steering and balancing.

## Safety First

- Always wear a helmet! It should be positioned well down on your forehead, not tipped back.
- Be visible; use lights and reflectors. Check your batteries often!
- Be alert; scan the route ahead and ride on the right side of the road with the flow of traffic.
- Obey all traffic signals, signs and lane markings.
- Keep your bike in good working condition. Also, only ride a bike that is sized and adjusted to fit you.
- Always let someone know before you take your bike out for a ride.

## Does Your Bicycle Helmet Fit Properly?

