



# ADAPTIVE / REHAB catalog

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## CYCLING FOR ALL

If you were to ask the team at AZUB why they love their jobs, they would often express the joy they find in building bikes that bring happiness to customers and facilitate new adventures. Witnessing the excitement of customers when purchasing a new bike and contemplating the possibilities it offers is truly rejuvenating. However, the impact on our disabled customers is beyond imagination. For many of them, an AZUB trike is the sole means to travel freely over longer distances, enjoy the outdoors, or simply run errands. Just a few encounters with these customers each year suffice to keep our motivation high for a long time. The feeling of witnessing a cyclist with a disability embark on their first ride is simply awe-inspiring.

In our endeavor to broaden horizons for as many individuals as possible, we have tailored our recumbent bikes and trikes to accommodate those who may otherwise struggle to ride a conventional bike. These individuals face various limitations, including issues with balance, cerebral palsy, multiple sclerosis, the aftermath of strokes, work accidents, and more.

Though their stories may often be somber, their determination to overcome challenges is remarkable, and their sense

of humor surprisingly resilient. We strive to bring smiles to their faces through a range of modifications that enable them to comfortably sit in our recumbents, operate them with ease and safety, and enjoy extended periods outdoors.

These modifications may range from simple adjustments like mounting shifters and brake levers on one side of the handlebars to more complex adaptations such as installing electric drives, utilizing electronic or automatic gear shifting, or raising the seat. In some cases, adaptations are highly specific and demanding, such as enabling individuals without hands to steer a trike by leaning their body and braking with their knee—all while ensuring complete safety.

Explore some of the inspiring stories of our customers, discover the modifications we've crafted for them, and consider if a similar trike could benefit you, your loved ones, or your clients and patients. Should you have any inquiries, our team is prepared to address them and find the optimal solution for everyone involved.





## ABOUT AZUB

AZUB BIKE was founded by Ales Zemanek in 2000 and is based in Uhersky Brod, Czech Republic. This is also the origin of the company's name, an abbreviation of the owner's name and the city in which it is based. Since the beginning, it has been dedicated to designing and producing recumbent bikes and trikes. For more than two decades, it has gained a reputation for its innovative solutions both in development and in company management or marketing. Gradually working its way up to a premium brand, it has more than 80 dealers worldwide and specializes mainly in custom builds and truly unique solutions to customers' ideas and needs.

It has also confirmed its position by winning three Trike of the Year titles from the respected online magazine Bentrideronline. In 2015, it was for the AZUB TRIcon 26 trike, which was the first to use a wide rear wheel hub with a modern thru-axle, which

provides superior rear fork stiffness and excellent cornering behavior. In 2016, the TRIcon 26 was followed by the full-suspension Ti-FLY 26. Its front suspension is unique in the form of transverse titanium leaf springs, giving the trike excellent comfort and good light-sport riding characteristics. And finally, in 2018, we won the award for the AZUB Ti-FLY X off-road trike, which combines the wide rear fork and titanium suspension with three large 26" wheels, making it the ultimate machine for off-road trips.

Whether you buy your trike from our dealers or communicate directly with them, you will always get expert advice from people who really know about recumbent bikes and adaptations for people with various limitations and are ready to find the best solution for their customers. We aim to ensure that as many people as possible can experience the joy that cycling brings.



## TRIKES AND THEIR MODIFICATIONS

While two-wheel recumbent bikes may suit some individuals with disabilities, the majority of our customers facing physical limitations opt for recumbent trikes. Unlike traditional upright bikes, these tricycles offer stability, eliminating the need for the rider to balance. They are relatively easy to get on and provide greater control for riders with disabilities. This stability is attributed to the three-wheel design and the utilization of a large ergonomic seat, which provides ample support for the rider's back and buttocks, preventing sliding forward and offering partial support during cornering. Additionally, seat belts can be added as necessary to prevent lateral movement. Compared to upright tricycles, recumbent models are significantly more stable, making them safer and more capable of handling rough terrain or off-road conditions.

Trikes come in various configurations, with options for small or large wheels, electric motor assistance, or human-powered operation. Suspension choices range from no suspension to rear or full suspension. They can be equipped with a folding hinge for convenient transportation. Our smallest model, the T-Trisek,

accommodates riders from 135 cm (4' 3") tall and can grow with a child up to 180 cm (5' 11") or beyond, with virtually no limit to rider height. Most of our cycles have a maximum weight capacity of 125 kg (275 lbs).

We offer a comprehensive range of accessories for our bikes, including mudguards, racks, lights, bike computers, bottle cages, bells, and more. Additionally, we provide unconventional cycling accessories such as headrests. For customers with specific health limitations, we offer custom pedal options to accommodate limited hip or knee flexibility or to prevent the leg moving sideways while pedaling. Other features available include a high seat adapter, grab handles for easier dismounting, a cane holder, and a variety of other customizable options to suit individual needs.

You can find everything in our configurator at **[configurator.azub.eu](https://configurator.azub.eu)**.

You can also ask one of our dealers or us directly.



## PARAPLE CENTRE

*Dominika Čermáková - movement therapist*  
[www.paraple.cz](http://www.paraple.cz)

Causes of spinal cord damage include injury or disease. In the Czech Republic, approximately 270 people find themselves in this situation each year. A spinal cord injury brings about a significant change in life; nothing remains the same as before. It's not just the loss of the ability to walk; everyday tasks suddenly become daunting challenges. Individuals must learn to navigate their bodies, manage tasks like dressing, washing, caring for children, and driving, all while often contending with reduced hand mobility and health complications.

Since 1994, the non-profit organization Paraple (Umbrella in English) Center has been aiding individuals in wheelchairs following spinal cord injuries and supporting their families in coping with the challenges of their new circumstances. Paraple helps clients reintegrate into normal life, providing them with opportunities to live like their peers. Clients typically undergo a three-week stay at our center, during which they work towards various goals aimed at advancing their quality of life. These goals often involve increasing self-sufficiency, practicing transfers, learning to use assistive devices, or exploring sports activities. Our multidisciplinary team of therapists, including physiotherapists, occupational therapists, psychologists, nurses, personal assistants, social workers, and movement therapists, collaborates to facilitate the client's transition back to a normal environment.

Not all individuals with spinal cord injuries are completely unable to walk. The extent of disability depends on the location and nature of the damage. Some clients who use wheelchairs can stand and take a few steps, while others may walk with crutch support or without any assistance. For these clients, recumbent trikes

provide an excellent sports aid, allowing them to build lower limb strength, improve fitness, and explore new places like any cyclist.

Clients often encounter recumbent trikes for the first time during their stay at the center. This introduction occurs in a safe environment with the support of therapists and assistants, helping alleviate any fears about the new experience. Currently, Paraple Center provides two electrified recumbent trikes for client use, enabling enjoyable rides even in hilly terrain.

And what does it look like when a client decides to start riding a recumbent? At the beginning, the client is introduced to the device and its controls, and then the seating position is adjusted so that the client feels comfortable and the health „safety“ is maintained. And then there is nothing else to do but go for a test ride. A great advantage is that both recumbent trikes available with us are electrified, so even hilly terrain is no obstacle to beautiful trips. After the first ride, clients' reactions are usually enthusiastic. „I thought I'd never get on a bike again“, „This is a great tool“, „The controls are easier than I thought“, „I'll be able to go out with my group again“, etc.

When a client decides to pursue a recumbent bike, we confidently refer them to AZUB, who guides them through the entire process, from selection and customization to handover and final setup. (Note: Outside the Czech Republic customers need to contact one of the AZUB dealers.)

With a recumbent trike in hand, clients can look forward to racking up miles and experiencing the joy of cycling once again.





## FLOWING FREEDOM

*Jacki Mueller*

*Certified Therapeutic Recreation Specialist*

Definition of FLOW, is the mental state in which a person performing an activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity.

Cycling offers a pathway to enter a state of flow, where the mind is fully engaged. Recumbent trikes have significantly reduced barriers for riders, granting them newfound freedom and independence.

The sheer joy emanating from someone after their first ride on a recumbent is priceless. With the appropriate adaptations tailored to their needs, the possibilities are endless. As a Recreation Therapist, I conduct thorough assessments with clients before cycling sessions. We delve into their medical history, previous cycling experiences, current abilities, and personal objectives. This ensures an authentic demo experience, empowering individuals to select the trike and adjustments that best suit their body and riding preferences.



## **AROUND AUSTRALIA ON A TRIKE**

### *Tommy Quick / stroke*

Tommy Quick is a young man whose life took a drastic turn when he suffered a stroke at the age of 12. However, Tommy refused to let this setback define him. Instead, he saw it as a new beginning.

In 2021, Tommy embarked on an extraordinary journey as a personal challenge, aiming to travel 9,000 km / 5,600 miles on a recumbent trike to visit the four furthest points of the Australian mainland. His primary goal was to advocate for social inclusion for stroke survivors and raise awareness about the condition. Additionally, he sought to raise funds to support stroke survivors and enhance the availability and quality of services for them. Unfortunately, his journey faced a setback when he was struck by a reckless driver, sustaining severe injuries. Tommy had to undergo intensive rehabilitation to learn to walk again for the second time in his life. Through immense effort and remarkable rehabilitation progress, Tommy resumed his journey a few months later,

determined to complete what he had started. This time, he rode an AZUB TRIcon 26 trike. As of the preparation of this leaflet, Tommy has completed most of his journey, reaching all four points of the Australian mainland. However, he still has the final leg of his journey ahead of him, bridging the gap between where he was hit by the car and his home. Tommy has traversed thousands of miles not only on paved roads but also on gravel paths far from urban areas. His courage and perseverance are truly remarkable!

#### **Trike:**

*AZUB TRIcon 26 with Shimano Steps motor. Hydraulic disc brakes on the front wheels controlled by one lever only. Rear parking brake. Headrest and cane holder. Homemade system to prevent knee buckling when pedaling.*



## JIŘÍ WANTS TO LIVE AND CLIMB PEAKS

*Jiří Hos / severe work injury*

Mr. Jiri Hos experienced a workplace accident in 2016 while working as an electrician. While inspecting a transformer at a wind power plant near Aš in the Czech Republic, he suffered an electric discharge, resulting in the loss of his leg, both arms, and hearing. Despite this tragic turn of events, Jiri refused to be defeated by fate. With the unwavering support of his wife, Jana, he courageously faces his daily challenges.

Determined to regain some semblance of his former activities, Jiri made the decision to acquire a trike. Over time, we collaborated to develop and implement modifications allowing the tricycle to be propelled using only one leg and steered with body movements. This posed a significant challenge, but with perseverance, we succeeded. Mr. Hos has since conquered numerous Czech peaks on his recumbent trike. While he is capable of riding independently,

he requires assistance with mounting and dismounting, as well as starting the engine.

Mr. Hos openly shares his journey and hopes to inspire other individuals with disabilities through his actions. He is committed to motivating others by demonstrating that life's obstacles can be overcome with determination and resilience.

### **Trike:**

*AZUB Ti-FLY 26 equipped with Shimano Steps motor, Enviolo stepless gear hub, and automatic shifting. The steering is controlled by tilting the hull, and the brakes by pushing the knee on a large orange part that we 3D printed. The rear hydraulic brake can be operated with a short end of one hand pushing on a conventional brake lever.*



## FOUNDATION TRUSTEE TRAVELS AROUND SLOVAKIA ON A TRIKE

*Peter Káčer / Cerebral palsy*

Despite his cerebral palsy, Petr Káčer is a well-known figure in Slovakia and is recognized by almost all viewers of the popular TA3 TV channel. Petr serves as a trustee of the TA3 Foundation and, as part of his efforts to raise awareness and funds, embarks on a seven-day tour each year on his AZUB recumbent. Throughout these journeys, he travels across Slovakia, attends organized events in various cities, meets with his fans, and simultaneously presents donations to individuals in need who have sought assistance from the foundation.

Over the course of the event's first seven years, more than one million euros have been raised and distributed—an incredible achievement.

**Trike:**

*Currently the third from AZUB in the form of Ti-FLY 20 with Shimano Steps engine and our developed push brakes, which allow for braking even for people who would otherwise not be able to press the classic brake lever. The trike is also fitted with special pedals with larger foot support and a cane holder, among other features.*



## VETERINARIAN ON THE ROAD

*Honza Hnulík / Multiple sclerosis*

At the age of 24, doctors diagnosed him with a progressive autoimmune disease known as multiple sclerosis. They immediately informed him that his condition would deteriorate, ultimately leading to the use of a wheelchair. Despite this prognosis, they emphasized the importance of exercise. Since childhood, he had been active in various sports including karate, horseback riding, swimming, skiing, and cycling. However, as his health declined, his sporting options diminished, leaving him with regular rehabilitation exercises, swimming, and cycling.

Due to balance issues, he transitioned from a traditional bicycle to a more stable trike. Initially, he considered a conventional upright tricycle after hearing positive stories about it. However, he soon realized that riding such a tricycle posed challenges, notably in terms of balance and handling. Reflecting on his experience, he remarked, „Riding such a machine is governed by different principles than on a conventional bicycle and, for example, turning is not done by leaning the body and steering handlebars, but purely with the handlebars. Handling bumps is also different because there are two wheels at the back, and you have to handle bumps on the right and left of the axle. But the worst thing is the center of gravity, which is high, so it is no problem for a healthy person to tip over“

Honza found it difficult to accept the limitations of such a tricycle, and he felt disheartened by the situation. Fortunately, his brother came across information about recumbent trikes, prompting Honza to visit our company shortly thereafter. „Even based on the recommendations of physiotherapists, riding a recumbent trike is deemed the most suitable rehabilitation exercise. It offers effective physical activity, sufficient muscle stretching and strengthening, which are crucial for me, and of course, provides safe stability given my challenges,“ Honza explained regarding his decision to acquire the AZUB recumbent. He then embarked on rides not only in the Czech Republic but also in Austria around Lake Neusiedl and in Hungary along the Tisza River. Over time, he invested in a new trike equipped with full suspension and electric assistance for enhanced comfort. His latest adventure took him along the Danube River.

**Trike:**

*Actually, Honza would not need any exceptional modification because his „only“ problem is balance. Even so, there are a few accessories that make his rides easier. AZUB Ti-FLY 20 with a Shimano Steps motor, grab handles for easier getting on and off, a high-seat adapter, and a cane holder.*



SPARKASSE

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## WITH OR WITHOUT A WHEELCHAIR

*Lucie Müllerová / spastic paraparesis*

Lucie resides in a quaint Czech village, where her family has always been deeply involved in various sports, travel, and cultural activities. As her two wonderful children grew older and pursued their own interests, Lucie and her husband began to explore new dreams, including motorcycle travel and paragliding. However, tragedy struck in 2021 during a paragliding accident, turning her life upside down in an instant.

Following the accident, Lucie received a diagnosis of spastic paraparesis with cauda equina syndrome, requiring her transition to utilizing a wheelchair. Despite this, she can manage to walk with assistance and contends with neurogenic bladder and bowel issues.

Initially overwhelmed by the challenges, Lucie found strength and determination with the unwavering support of her family and community. Refusing to accept a life confined to a wheelchair, she embarked on a journey of recovery.

Throughout her hospitalization in the spinal unit and rehabilitation centers, Lucie encountered numerous supportive individuals

who inspired her. Despite her newfound limitations, her love for movement and travel persisted. With her family's assistance, she embraced the notion that life could still be rich and fulfilling, even with significant restrictions.

Lucie commenced her rehabilitation journey at the Kladruby Institute, where she explored various sports activities, including hand-cycling, handball, basketball, and archery. Guided by a peer mentor, she progressed steadily. Her journey continued with a visit to the Paraple Centre, where she not only learned to monoski but also experienced riding an electric trike. From that moment, acquiring her own tricycle was a natural step forward. Today, she enjoys exploring the world on her tricycle, having even ventured on holiday trips to Norway.

**Trike:**

*AZUB Ti-FLY 26 with Shimano Steps motor, high-seat adapter, special pedals and headrest. The trike has basically no major modifications and all accessories can be found in our configurator.*



## LUCAS'S JOURNEY

*Lucas Michael / Duchenne Muscular Dystrophy*

We've always been an active family. When Lucas was diagnosed with Duchenne Muscular Dystrophy (DMD) in 2015, we weren't sure what that meant for some of our favorite family activities: hiking, biking, camping, and skiing. DMD is a progressive neuro-muscular disorder that causes muscle weakness. Even with today's scientific advances in gene therapy, DMD can only be minimally treated. While in many ways Lucas is just like any other 13 year old 7th grader, he does have limitations. Today, nine years later, we've been able to continue many of the things we love, just in a different way.

One silver lining of Lucas's diagnosis has been our involvement in a world we never thought much about before: adaptive sports. Lucas began with Breckenridge Outdoor Recreation Center (BOEC) in 2019 and hasn't looked back! It's an amazing organization with the most wonderful staff and instructors; through BOEC Lucas has grown to love downhill skiing, one of our favorite family activities. Lucas skis on a bi-ski with the help of an instructor and can be seen screaming down expert terrain whenever he gets the chance.

During one of my interactions with BOEC, I became familiar with their summer adaptive cycling program. While we had biked as a family in the past, Lucas had outgrown our former way of biking (first in a chariot, then in a partial pull-behind) several years before. He often would tell his twin brother Ben when he would decline our offer to go biking, „you should go; I would love to bike with mom and dad if I could.“ We started thinking more deeply about biking as an option for him. Fast forward several months of exploring different options such as bigger pull-behinds, tricycles, e-bikes, with no luck, we stumbled upon a recumbent shop, right in our backyard in Colorado Springs! Lucas is now the proud owner of a bright blue T-Trisek by Azub and he couldn't be more excited. As soon as the weather allows, we plan to be out on our bikes enjoying the Colorado sunshine whenever we can!

*Emilee, Lucas's Mother*

**Trike:**

*AZUB T-Trisek with Shimano Steps e-assist, HASE adjustable cranks and special pedals. And a huge bright flag, of course!*



## ADJUSTMENTS FOR CYCLISTS WITH MOBILITY RESTRICTIONS

### Electric drives

We always offer several different types of electric drives whose parameters and names change occasionally. There is no doubt that e-motors, in particular, are a massive benefit to people with disabilities as they help them to get up hills, cover longer distances and enable them to go on trips with family and friends without being held back.



### One-hand Control

One pretty common disability we address is the limited functionality of one side of the body and the associated inability to operate the brakes and shifters, which are split between the two sides of the handlebars. Fortunately, the solution is quite simple, and controlling the whole trike on one side is a routine modification.



### Electronic/automatic shifting

The fantastic technology of modern shifting systems or outright electric drives. To operate the electronic shifting, you don't need to exert much force to move the shift lever. All you need to do is gently push the button. What's more, there are now systems that can shift automatically, so all you have to do is get on and go.



### Push Brakes

In some cases, people have trouble operating conventional brakes, where they have to squeeze the brake lever. This may be due to weak hand muscles or spasms that do not allow the fingers to release after braking. For such cases, we have developed so-called push brakes. They require modification of the handlebars and adapting the steering style, but they work perfectly. When using them, the cyclist brakes by pushing one or both sides of the handlebars and must steer by pulling one side only. It is pretty straightforward. One of our colleagues even rode a trike with push brakes down Pikes Peak, a 4,300m (14,100ft) mountain in Colorado, USA.



### High Seat Adapter

For some riders, the seat on our trikes is too low, and they have trouble getting on and off. That's why we offer an adapter that raises our seat by 6 cm / 2 inches. While this will slightly reduce the stability of the trike when cornering fast, it will significantly increase the comfort of getting on and off.

### Grab Handles

If you find getting on and off your trike difficult, the grab handles are one of your most essential aids, just like raising the seat is. They are located above the front wheels, and the rider can grip them firmly when getting on and off the trike.

### Shortening of Cranks

If a person has too short legs or has problems bending their legs at the knees or hips, cranks that are shorter than the standard 170 mm can often help.

### Pedals

We offer several different pedals. From very ordinary ones, over so-called SPD pedals, where you clip in a special cycling shoe to keep it from falling off the pedal to removable pedals in case the pedal sticks out when you get on and off the trike. We also offer a solution that ensures that one leg bends less than the other when pedaling. Some pedals keep the calf and knee in a straight line and don't allow it to buckle sideways.

### Headrest

One of the more unusual cycling accessories, but one that is quite popular and adds to the comfort of the ride. In some cases, it helps to keep the rider's head in the correct position.

### Other Modifications

As mentioned earlier, we have implemented countless modifications here at AZUB. Moreover, many have only been used once. Others were dead ends, and we have subsequently developed other solutions. In any case, there are modifications such as steering by tilting the rider's body, braking with the knee, using seat belts, or controlling the brakes by a person walking next to the tricycle that we have already successfully implemented and tested. Likewise, for example, the ability to quickly and easily change the side where the one-side-control-everything kit is mounted. This is needed, for example, in rehabilitation institutions where riders often take turns on one trike.

All these modifications started with an initial request from one of our customers, and we are ready to apply them in your case as well.





## Recumbent Trike Trail Riding with Hunter - The Fingerless Rider

Hunter calls himself a Fingerless Rider and although he is limited in his abilities, he still rides the AZUB Ti-FLY X and enjoys the challenging terrain. Our own Jan and Honza met him in Crested Butte, Colorado to ride the trails together. Watch them in action.



## Breaking Barriers: Adaptive Trike with e-assist & Enviolo Hub for One-Legged, Armless, Deaf Rider

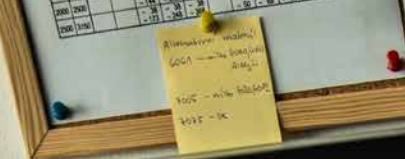
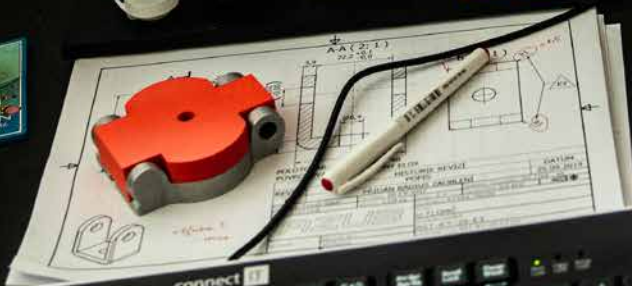
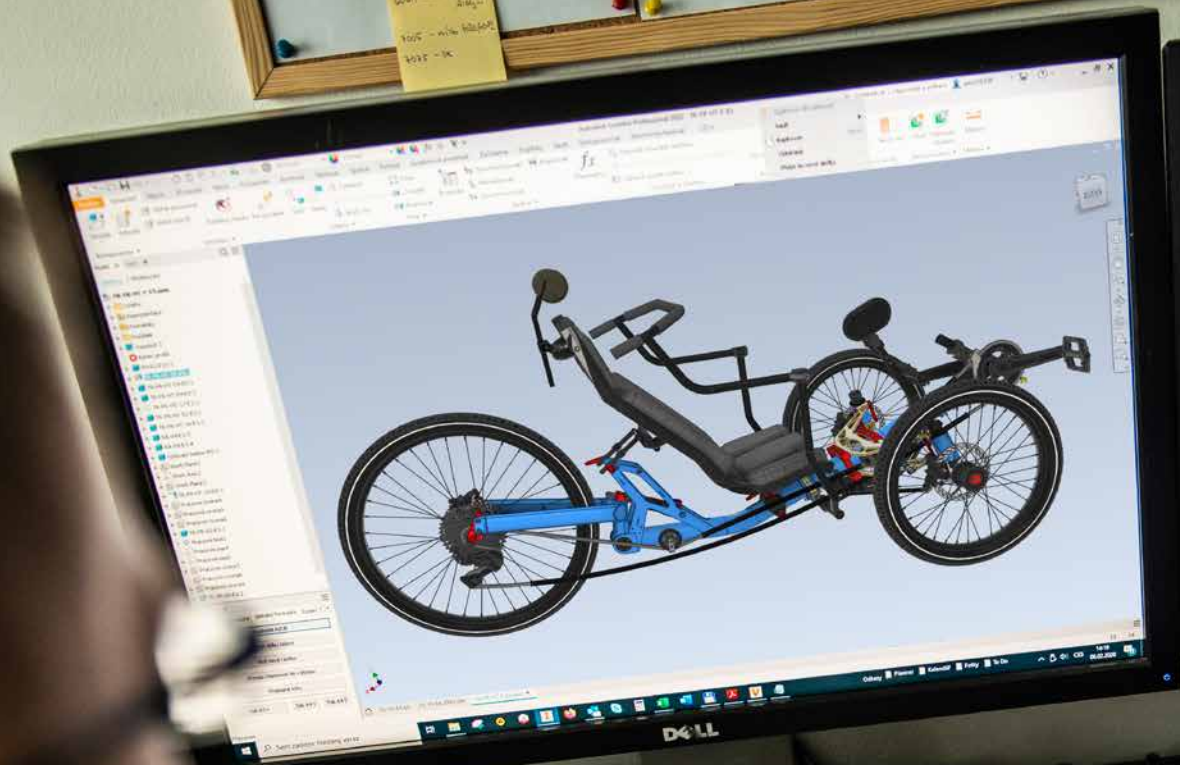
Want to know how you can ride a trike without arms and with just one leg? Watch Mr. Hos riding his Ti-FLY 26. The steering is controlled by tilting the body, the shifting is automatic, and the brakes are controlled by pushing the knee on a large 3D printed plate.



## Adaptive trike solutions for riders with limited abilities

Watch how easy it is to operate our push brakes and how simple the electronic shifting is. Both of these solutions also allow people with very weak hands or spasms to ride the trike.










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