

# PEDAL POWER

Braced for Success with a Custom Orthotic Device

By Emma Holmes

*From a rocky recovery after a cycling accident, to rocking the para-cycling world on her custom-made trike, SHELLEY GAUTIER IS GOING FOR PARALYMPIC GOLD IN TOKYO 2020.*

Shelley Gautier's road to becoming a renowned para-cycling champion began unexpectedly 17 years ago. An avid mountain biking racer, she crashed her bike while holidaying in Vermont, suffering a severe brain injury. She was in a coma for six weeks, which left her with hemiplegia, or one-sided paralysis, affecting the right side of her body.

An arduous six months in a rehab hospital followed, made all the more difficult by the fact that the staff at the hospital didn't quite know what to do with her. "I was wearing a brace from Shoppers, one designed for a sprained ankle, which hardly addressed my mobility issues," Gautier recalled. "Finally Pat McKee, an Associate Professor Emerita at the University of Toronto, referred me to Gordon Ruder, a certified orthotist at Boundless Biomechanical Bracing.



She said this was someone who could help me.”

It helped that Ruder was a competitive cyclist as well; it gave him a unique skill set, an understanding of the elements integral to both custom orthotics and competitive cycling.

The first step in Ruder’s treatment plan was to get Gautier back to independent living with an ankle-foot-orthosis (AFO). This is a brace that helps to control the position and motion of the ankle, and is one that Gautier still wears daily. With mobility on her right side partially restored, it was back to her dream of racing competitively.

Gautier returned to racing within a year of her accident, using a specially-modified tricycle designed to increase stability. Tricycle athletes are divided into two classes, T1 and T2. Gautier competes in the T1 class for athletes with more significant co-ordination difficulties and greater loss of muscle power than those in the T2 class. Since Gautier cannot use her right hand, her custom tricycle has been adapted so that the gears,

shifters and brakes are all on the left side of the trike. Although she has limited movement in her affected right leg, she can still use that leg to pedal the trike.

This is where her specially-designed orthotic device comes in. “My coach Eric Van den Eynde came up with what I needed in terms of an orthosis for racing,” she explained. “Using that knowledge, Gord took it from there.”

Ruder created a rigid racing ankle-foot-orthosis (AFO) that connects directly to the pedal so there is no unwanted leg movement. “This reduces inefficient movement in the leg as much as possible,” he explained. “So whatever power Shelley has in her affected leg can now be dedicated to moving herself forward.”

For Gautier, the rigid AFO allows her to produce a full circle all the way without stopping in her racing loop, which is essential to qualify for the trials. “With the AFO, I don’t stop, and that helps me shave milliseconds off of my time,” she enthused.

Another orthotic device that

Gautier uses for competition is a wrist-hand-orthosis (WHO), which allows her to steer with her affected right arm. This means she doesn’t have to rely solely on her left hand to brake and steer at the same time. “It keeps my wrist straight in competition,” she stated. “If I don’t bend my wrist, it makes it easier to grab the handlebar.”

With many wins behind her, Gautier has achieved international success, receiving major recognition in 2015 when she was nominated for the prestigious Laureus World Sports person of the Year with a Disability Award. A silver medalist at the Guadalajara 2011 Parapan American Games, she went on to win a bronze medal at the Rio 2016 Paralympic Games. Currently she is training for the 2020 Paralympic Games in Japan with a new tricycle, which will entail accommodations to her brace.

“I’m using a tricycle that’s two inches shorter than the one I used in the previous Paralympic Games. I’m riding without a cross bar. Gord is making the brace modifications to accommodate these changes,” says Gautier.

When not training for competitions, Gautier can be found wheeling around the city on her tricycle. She also launched the Shelley Gautier Foundation in 2014, and donates her time to different programs at the University of Toronto, including the anatomy and occupational therapy departments. And yet, while she is proud of her athletic achievements, she is also a person who fully embraces the smaller everyday pleasures in life.

“It’s really important that people understand what orthotic devices are,” she emphasized. “Yes, my braces allow me to win races, but they also allow me to get out of the house and interact with my community. People with mobility issues can become isolated, so we need to get out there, be social and do the things we love.”

