"THE JOURNEY OF A THOUSAND MILES BEGINS WITH One Step"

(LAU TZU)

NATE WHITE

After a paralyzing kayak injury, the hope of walking again seemed impossible. Then Amanda Boxtel of BRIDGING BIONICS reached out. The organization provides physical therapy and advanced technology for individuals with neurological mobility challenges. They bridge lives, offering freedom of movement – and a world of possibilities.

I DIDN'T EVEN KNOW A SINGLE PERSON WITH A SPINAL CORD INJURY.

In the spring of 2016, I was able-bodied and working as a high school English teacher at the CRMS when Amanda Boxtel came to my school to introduce her nonprofit organization, BRIDGING BIONICS, a community-funded program offering free therapy to individuals with spinal cord injuries and other neurological conditions.

Amanda's presentation was remarkable. She rolled onto the stage in a robotic exoskeleton, Bridging Bionics' core technology, and stood up with its assistance. The students and staff in the audience erupted in applause. Amanda, who had been paralyzed in a skiing accident at Snowmass in the '90s, explained how a robotic exoskeleton suit can retrain the central nervous system. She aspired to disrupt the traditional insurance-based healthcare system by providing free therapy through grants and community donations. At the end of Amanda's demonstration, the audience gave her a standing ovation.

As an able-bodied person, I felt inspired, but I must admit that my inspiration was tinged with pity and ableist thoughts: "Thank goodness I'm not paralyzed." At the time, I knew little about spinal cord injuries, only that they led to loss of movement and sensation below the injury site. I had no understanding of the hidden challenges such as bladder and bowel dysfunction, neuropathic pain, muscle spasms, and pressure sores.

OUR LIVES CAN CHANGE IN AN INSTANT.

A few months later, in June of 2016, my life took an unexpected turn. I was kayaking on Daisy Creek outside of Crested Butte. Having lived in Crested Butte a few years earlier, it was a run that I knew quite well. But the iconic waterfall, Big Woody Falls, had changed drastically in character since I had last paddled it. Earlier in the season, a high water event had flushed out a log jam, making the water in the pool below significantly shallower. I landed right on a rock that was barely concealed by the churning whitewater. Something like an electric shock coursed through my spine.

I IMMEDIATELY LOST ALL FEELING IN MY LEGS.
I couldn't even stay upright in the boat. As soon as I flipped over, I pulled my spray skirt and swam desperately towards the riverbank, with only my arms to propel me. Thankfully, my paddling partner, Alex Perkins, grabbed me and pulled me to shore, saving me from being swept into another class five rapid right below.

I vividly remember watching my legs drift aimlessly in the eddy water as Alex and another friend, Peter Benedict, held onto me until the first responders arrived. The physical pain was eclipsed by the overwhelming fear of losing my mobility. Much of my identity had revolved around activities like skiing, biking, hiking, and running, which I had taken for granted. It was a terror unlike any other.

I WAS SWIFTLY EVACUATED BY HELICOPTER.
The destination was Swedish Medical Center in Denver, CO, where I underwent two major spinal reconstructions. I was left with virtually no neurological activity below my second lumbar vertebra. Often referred to as "L2," this nerve is located in the low back and impacts sensation and control in the hips and thighs.

After three weeks in the ICU, I was transferred to Craig Hospital, a neurorehabilitation center in Englewood, CO, where I learned to adapt to my paralysis. I acquired essential skills like maneuvering a wheelchair, navigating curbs and stairs, preventing pressure sores, and managing bladder and bowel functions. These were skills I had never imagined needing before my injury.

RETURNING PARALYZED TO THE ABLE-BODIED WORLD WAS A STARK AND TERRIFYING REALITY.
In September, after three months in the hospital, I was discharged from Craig. The most challenging part of my journey was the return home. I had lost hope of ever walking again. Despite having a strong support network of friends and family, I felt utterly lost and isolated. At Craig Hospital, I was at least surrounded by fellow wheelchair users.

Bridging Bionics provided a lifeline. I had exhausted the ten outpatient physical therapy sessions my insurance covered, and I couldn't afford additional therapy on a teacher's salary. Amanda prioritized my inclusion in the program, emphasizing the urgency. To my relief, she informed me that the program was entirely free. It sounded like a fantasy, but I was desperate."

Amanda Boxtel had heard about my injury and promptly reached out to me. She visited my apartment a couple of weeks after my hospital discharge and invited me to join Bridging Bionics. At that point, I could lift my right foot about six inches above my wheelchair's footplate. Although lifting my foot had no functional benefit, Amanda convinced me that this small physical achievement held promise.

Ages 3-90

In 8 years: 420 clients & caregivers.

16,491 physical therapy sessions.

1,000,000+ robotic steps.

> "Rather than asking why, I found myself pondering, why not, and what if? I am not a victim of circumstance. Instead, I remove self-imposed limitations and take responsibility for choosing my own path."
>
> **AMANDA BOXTEL**
> Founder of Bridging Bionics

The author, learning to walk again using an Ekso exoskeleton. The machine senses how much work the patient is putting in and compensates for whatever deficit the patient has. So people with no function at all can use it. Even quadriplegics can walk in it, depending on their level of injury. The patient wears the machine like a backpack, with the motorized legs attached to the patient's legs. White worked with the device for two years. Even after learning to walk on his own, he continued using it to improve his gait.
PHOTO: BRENDA MEDLIN

> My relationship to outdoor recreation has changed drastically. It is no longer about paddling the hardest rapids, taking the biggest airs or achieving the fastest times.
>
> It is about appreciating the mobility that I have and feeling gratitude for everyone who has brought me to where I am."
>
> **NATE WHITE**

SHOWING UP

My mother, who had been making frequent trips from Maine to support me in my reentry into my life in the Roaring Fork Valley, drove me to the Snowmass Club a few days later. The setting was far from the clinical environments of hospital scrubs, linoleum floors, fluorescent lighting, and the pervasive scent of disinfectant I had grown accustomed to. The Bridging Bionics training center, nestled within the Snowmass Club, was anything but clinical. I was heartened to see Bridging Bionics participants working alongside able-bodied club members. This put me in the mindset that this was training, not just treatment.

I was warmly welcomed by Maria Grufstedt, a veteran physical therapist who conducted my initial evaluation. She exuded kindness and compassion but maintained a professional and determined demeanor. Her first question struck me: "What are your goals?" Until then, my rehabilitation goals had always been assigned to me. I told her I wanted to walk. Maria replied, "We can start today."

Maria and Tim Burr Sr., a dedicated Bridging Bionics volunteer, strapped me into the same exoskeleton that had amazed me on that high school stage before my accident.

A MIRACLE MACHINE

They affectionately referred to the machine as "Tucker," an anthropomorphic gesture that appealed to my sci-fi sensibilities. Maria explained that Tucker was originally designed for military use but had found its therapeutic application at Bridging Bionics.

After a few beeps, Tucker stood me up. The sensation of seeing the world again from six feet above the ground was nothing short of sublime. I felt a newfound sense of dignity. I hugged my mother, heart-to-heart for the first time in almost a year. Together, we cried.

As Tucker and I took our first steps together, it felt clunky and unnatural. I had assumed it would be like walking, but my central nervous system had forgotten the process. I stumbled multiple times but was caught by Tim Sr. or Brandon Martinez, who worked at that time as the program's athletic trainer. The challenge ignited a sense of purpose, resonating with the athlete within me.

After twenty or thirty minutes of walking, I finally felt like I was walking with Tucker rather than being walked by a machine. Since my paralysis, I had dreamed of walking, and here I was, moving my feet, knees, legs, and hips. I might as well have been flying.

Exoskeletons are intelligent machines, capable of sensing how much effort the human user is exerting and compensating for what the user cannot do. In my first session, Tucker did 100% of the work, but by my next session, it was down to 97%. This meant I was 3% of the way to walking on my own.

I attended three sessions per week, and each time, I made incremental progress, which filled me with hope. Amanda was a constant presence, cheering me on from the sidelines. I also worked with Bridging Bionics' other two phenomenal therapists Tami Cassidy and Debbie Weidemann, both of whom still work for the program today. Each therapist brought different perspectives to my recovery, but they collaborated as a team. There was nothing formulaic about their methodology. This is crucial because every spinal cord injury is unique. They treated me like a person, not a problem, and I continued to be in charge of goal setting.

The PTs, trainers, volunteers and the innovative machines were not my only teachers in the program. I also learned from my fellow Bridging Bionics athletes, a community that is still an integral part of my life. One of my mentors was Adam Lavender, a Roaring Fork Valley athlete who was injured in a mountain biking accident in 2012. He taught me about diet and alternative ways to control my nerve pain. Tim Burr Jr. (Tim Sr's son) taught me that I could still be an athlete. Adam and Tim, both quadriplegics, found purpose and meaning in their injuries, having both set up their own nonprofits to benefit people with disabilities.

And then, of course there was Amanda, who was not just the founder of Bridging Bionics, but was (and still is) a kind of maternal figure to all of us. Having gained this incredible community of injured athletes, I no longer felt alienated and lonely, as I had after being discharged from Craig.

Nate White, competing in the Screaming Quarter Mile race on Clear Creek outside of Golden, CO a few weeks before a paralizing kayaking accident. He began paddling again while still in recovery. "My friends would wheel me up and down the ramps at the put ins and takeouts. It felt so liberating to kayak again. I had to relearn how to maneuver the boat and roll with my limited mobility, but I was able to adapt," White said, adding, "To this day, being in my kayak is one of the few times I don't feel disabled."

PHOTO CREDIT: PETER BENEDICT

ABOUT THREE MONTHS LATER, I TOOK MY FIRST STEPS WITH TUCKER.

I finally reached the point where the machine was no longer walking me; I was doing the walking and the machine just offered stability. One day, I showed up to my appointment and Maria hadn't set up the exoskeleton.

"Today," she said, "let's see if you can't walk on your own." I was nervous, not sure if I was ready. But I had gained so much trust in all of my caregivers at Bridging Bionics, and so I consented. Brandon held onto one side of my training belt and Maria onto the other. I stood up and leaned into my crutches. After a few deep breaths I took my first steps on my own.

THE JOURNEY TO FULL MOBILITY.

I continued working with the therapists at Bridging Bionics for the next three years, setting and achieving numerous goals along the way. I progressed from walking with crutches to walking without them, and then without a cane. I learned how to negotiate curbs, climb stairs, and even get up from the ground. By the time I could jog on a treadmill, I no longer needed the program. I became one of the program's first graduates. While I still required ongoing physical therapy, Maria, Tami, and Debbie empowered me to be independent by teaching me how to manage most of my therapy on my own.

When I first joined Bridging Bionics, it was a fledgling organization with around 25 clients and one exoskeleton. By the time I left, the program had doubled in size and opened a second location in Glenwood Springs. Currently, Bridging Bionics serves more than 60 participants with various neurological conditions and is projected to provide some 3,300 sessions this year. Tucker has since been retired and replaced with other even more high-tech exoskeletons.

I HAVE RETURNED TO THE SPORTS I LOVE, THOUGH THEY LOOK A BIT DIFFERENT NOW.

I kayak with the help of good friends to carry my boat and assist with portages. I even completed a self-support kayak trip in the Grand Canyon last spring. I practice adaptive skiing with outriggers, thanks to the generous support of Challenge Aspen and the High Fives Foundation. I mountain bike with friends who are patient enough to wait for me on the climbs. My relationship to outdoor recreation has changed drastically. It is no longer about paddling the hardest rapids, taking the biggest airs or achieving the fastest times. It is about appreciating the mobility that I have and feeling gratitude for everyone who has brought me to where I am.

Even though I have graduated from the program, Bridging Bionics remains an integral part of my identity. I am still part of the community of dedicated athletes who work tirelessly to achieve their goals and keep pushing forward. I'm by no means fully recovered; nobody who suffers a spinal cord injury will ever be recovered, but I am more fulfilled now as I ever was before my accident. I have a wonderful family and a fulfilling career. I now teach at Glenwood Springs High School where I get to share my journey with hundreds of students each year.

My story has garnered attention in local and national media, but it's often been misconstrued as the tale of an individual overcoming odds. In reality, it's a story of the power of community and organizations like Bridging Bionics to affect real change in people's lives.

LEARN MORE

BridgingBionics.org