Using ZeroG with Multiple Sclerosis and Fibromyalgia

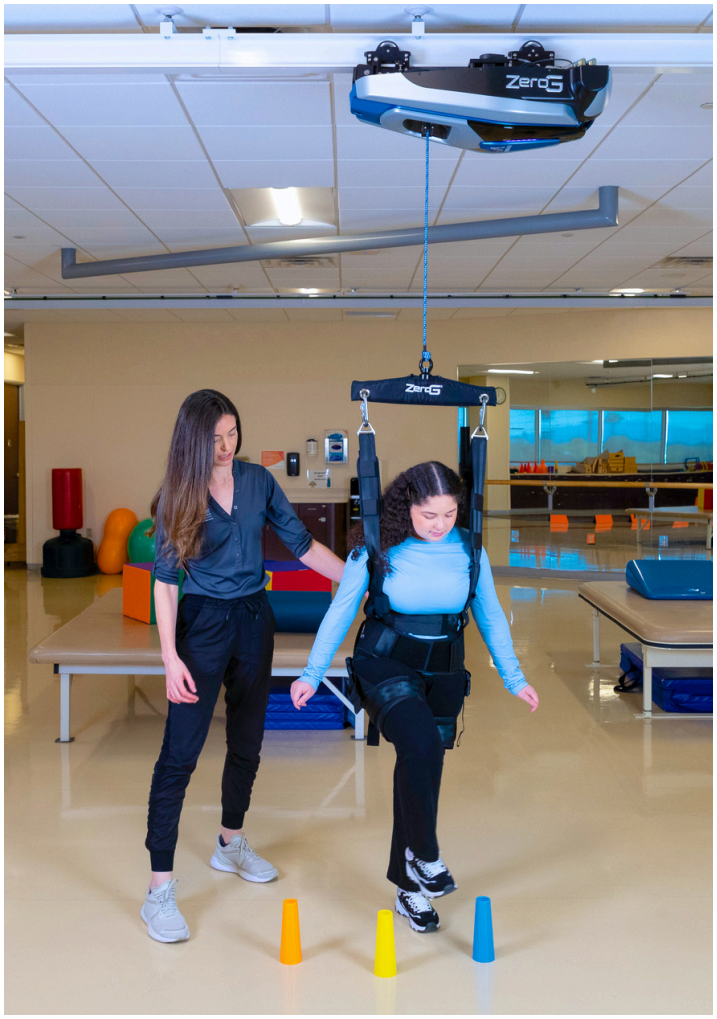
Maya's Story

When Maya Rodriguez was 13 years old, black spots began affecting her vision. Soon after, she began experiencing balance issues and unexpected weakness in her leg, causing her to fall. It was determined that her symptoms were a result of Multiple Sclerosis. Three years after her MS diagnosis, she was diagnosed with Fibromyalgia.

At the age of 17, Maya was having difficulty standing, walking, and participating in activities. She was using a transport wheelchair at home and in the community, because she had a fear of falling. Maya came to Barrow Neurological Institute's Movement Disorders Clinic in Phoenix, Arizona, where she began working with Whitney McGinn, PT, DPT, MSCS to improve her balance and strength. Per Whitney, "I wanted to improve her confidence and endurance with walking in the home and eventually, community distances, with an emphasis on dynamic balance."

To help her reach these goals, Whitney used Aretech's ZeroG Gait and Balance System as one piece of her intensive therapy. Whitney assured Maya that because ZeroG would protect her from falling, Maya would be safe to try unsupported activities on her own. "Being able to walk, learn how to function, and gain strength without the worry and fear, gave me so much confidence because I knew I wasn't going to fall," said Maya.

Due to the Fibromyalgia, her body was extremely sensitive to body-weight activities; she had significant pain with movement in general. In her first session with ZeroG, Whitney set the dynamic body-weight support to 25%, relieving Maya of her full weight and making it easier for her to participate in therapy. She was able to walk 172 feet.



A common issue with MS is proximal weakness. To work on overall strengthening of Maya's proximal stability, they worked on core, posture, and hip stabilizer musculature while harnessed in the ZeroG.

Some other activities Maya performed were walking overground, obstacle courses on uneven, compliant, and elevated surfaces. To help improve her walking speed and cadence, Whitney would set the ZeroG to Facilitation mode. On this setting, the robot stayed in front of Maya to encourage her to walk at a faster pace than she would normally be comfortable doing.

For advanced balance training, Whitney used the TRiP perturbations while Maya was standing, walking, turning, and seated on a compliant surface. The TRiP perturbations challenged her to adapt and learn how to prevent falls, while maintaining her postural stability.

See Maya using TRiP

By using ZeroG, Whitney was able to safely push the limits of what Maya could accomplish. When asked what one of the most challenging tasks she performed in ZeroG, Maya responded, “Tetris due to the squatting!” (To turn and move the pieces, the patient must squat while moving back and forth to control the movement of the pieces.)

As the sessions continued, the dynamic body-weight support was adjusted between 7% and 20%, depending on Maya’s capabilities that day. She also made progress in the distance she walked. At her fifth session, she walked 1,406 feet in ZeroG, which is over 1,200 feet more than her first session. Nearing her final sessions at Barrow, she was walking outside on uneven terrain with walking poles.

Now at the age of 21, Maya has made great progress. She enrolled in the East Valley Institute of Technology (EVIT) and completed an Aesthetics program, where she was voted student of the year. This was an enormous accomplishment, since she couldn’t complete high school in the traditional manner due to her health setbacks. Maya looks forward to becoming a practicing esthetician to provide clients a relaxing, stress free environment to help them feel better about themselves.