

Meet Our Members: Sebastián Correa

Sebastián Correa is a PhD Candidate in Biomedical Engineering at Case Western Reserve University performing research in the Rewire Lab with Dr. James Sulzer in the Department of Physical Medicine and Rehabilitation at Case Western Reserve University and The MetroHealth Medical System Center for Rehabilitation Research. He joined ASNR because it is a very welcoming community of scientists from diverse backgrounds dedicated to advancing the field of neurorehabilitation. As an aspiring scientist in this field, Sebastián wanted to be part of our organization because it is a collaborative and constructive environment where he can grow his career while contributing to the community as a scientist and an individual.



1) How did you get interested in science, and what steps did you take to get to your current role?

I was first introduced to science by my mamá, a biologist who worked in the Amazon Rainforest and the Galápagos Islands of Ecuador. Growing up, I was captivated by her stories of the incredible animals she encountered. Before my senior year of high school, while deciding my future path, I had the chance to visit the Galápagos Islands myself and instantly fell in love with the islands. I was so happy there that I didn't want to leave. When my parents finally convinced me to return home, I promised myself that I would return one day as a scientist.

This inspiration led me to study bioengineering at the University of Pittsburgh where I dove straight into research. Over the next four years, I worked under Douglas Weber, PhD, and Jordyn Ting, PhD, on a project aimed at decoding intended hand gestures from muscle activity in individuals with spinal cord injuries. This experience transformed my perspective and passion for biomedical research by revealing its potential to have a meaningful impact on the lives of people living with neurological impairments today.

As I planned my next steps after graduation, my experiences in research and involvement with service-oriented organizations like the Society for Hispanic Professional Engineers (SHPE) played a key role in shaping my future. I ultimately chose to pursue graduate school with the goal of building a career that would allow me to advance research supporting individuals with neurological impairments while also engaging in meaningful community outreach. This decision led me to my current role as a PhD Candidate and graduate researcher in the lab of James Sulzer, PhD, at Case Western Reserve University.

2) What is the focus of your current research, and what are some of your findings?

My current research focuses on understanding the spinal neurophysiology underlying gait impairments following stroke. This work builds on prior studies that showed lower limb spinal reflexes can become hyperactive after stroke. One mechanism thought to contribute is the facilitated modulation from both synergistic and antagonistic muscles. However, these spinal pathways have only been examined under static conditions. My work investigates lower limb spinal reflex modulation in individuals after stroke while they walk to determine if hyperactive reflex pathways contribute to abnormal gait. To investigate this, I utilize peripheral nerve stimulation to probe spinal circuits while recording electromyography to measure reflex excitability. My preliminary results indicate input from both the synergistic vastus lateralis and the antagonistic tibialis anterior do not modulate soleus spinal reflex excitability during the loading or unloading phases of gait. These findings suggest spinal reflex modulation may play a limited role during gait and is unlikely to contribute to walking impairments following stroke. Going forward, I plan to explore patterns within my results to determine if reflex modulation plays a role in specific subgroups of individuals after stroke, potentially depending on impairment type or severity.

3) How have you benefited from your membership in ASNR and receipt of the Diversity Fellowship Award?

Participating in ASNR and receiving the Diversity Fellowship Award have significantly benefitted both my immediate and future career. I joined ASNR to attend the 2024 meeting and gratefully received the award to support my attendance in 2025. These experiences provided valuable opportunities to present my research and receive constructive feedback that has greatly supported my growth as a PhD student. As a member of ASNR I have also connected with many inspiring researchers and been exposed to a wide range of innovative neurorehabilitation research. Building this network and broadening my perspective have laid a strong foundation for my professional development that I can rely on throughout my career.

4) What are your longer term career goals?

My long-term goal is to become a researcher dedicated to advancing neurorehabilitation by bridging scientific discovery with community impact. Following completion of my PhD and an eventual postdoctoral fellowship, I aspire to become a faculty member at a research-intensive institution. There, I aim to lead a laboratory focused on improving targeted neuromodulation therapies in addition to addressing the cultural and social factors that shape rehabilitation. Beyond research, I hope to make a lasting impact as a mentor and educator for the next generation of scientists, as well as to support my broader community by helping bridge the gap to academia.

[Connect with Sebastián on LinkedIn](#) or [send him an email](#) for more information.