



Topic of the Speech:

Effects of Ankle Brace Stiffness on Post-Stroke Gait Biomechanics: A Case Report

Dr. Qiuqiong Shi

School of Fashion and Textiles, The Hong Kong Polytechnic University
Hong Kong, China



Dr. Qiuqiong Shi is a Research Assistant Professor in the School of Fashion and Textiles at The Hong Kong Polytechnic University (PolyU). She specializes in activewear design and human biomechanics, with a focus on data-driven optimization of footwear, legwear, and performance apparel to enhance movement efficiency, comfort, and safety in sport and rehabilitation. Dr. Shi earned her PhD in Activewear and Human Biomechanics from PolyU in 2020, following an MA and BA in Fashion & Textile Design and Technology from Wuhan Textile University. Currently, she is also the member of Research Institute for Sports Science and Technology (RISports), and member of Research Centre of Textiles for Future Fashion (RCTFF). Before her current appointment, she completed postdoctoral fellowships at PolyU across the School of Fashion and Textiles, the Department of Rehabilitation Sciences, and the Laboratory for Artificial Intelligence in Design, which shaped her interdisciplinary approach integrating biomechanics, wearable technology, and textile engineering.

As Principal Investigator, Dr. Shi has led high-impact projects and secured several external and internal competitive grants within two years, including Innovation and Technology Fund. Her projects span age- and population-specific footwear and apparel innovations, using AI and advanced biomechanics to tailor designs for active population, and clinical populations. She develops performance legwear that optimizes lower-limb mechanics and power output, textile-based assistive devices that improve proprioception and mobility after neurological injury, and high-impact support garments engineered for better thermal comfort. She also advances foot-orthotic solutions that modulate arch support and enhance functional movements such as jumping, with an emphasis on translating laboratory insights into user-centered, real-world performance. These projects integrate advanced biomechanical studies, machine learning-driven analytics, and textile engineering to enhance user comfort, performance, and prevent injury.

Her publications advance a coherent research fields at the intersection of biomechanics and performance textiles, translating lab-based evidence into wearable solutions for sport and rehabilitation. She has published novel insights on how footwear, orthoses, compression garments, and prosthetic components modulate lower-limb mechanics, symmetry, and comfort, using rigorous experimental designs and data-driven analyses. Collectively, her work demonstrates measurable improvements in movement efficiency, load management, and user experience across athletic and clinical populations. Dr. Shi is also Guest Editor of the Biomimetics special issue “Biomechanics, Wearable Technology, and Data-Driven Decision Making for the Future Sports.