Exponent®
Engineering & Scientific Consulting

Eryn Gerber, Ph.D.

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Professional Profile

Dr. Gerber uses her expertise in anatomy, physiology, and engineering to answer questions pertaining to human biomechanics. She specializes in analyses related to balance and postural stability with extensive experience investigating the influence of sensation, including vision, vestibular sense, and touch to better understand fall mechanisms in older adults.

Dr. Gerber has conducted numerous human subject experiments utilizing a myriad of biomechanical tools, including motion capture systems, force plates, instrumented treadmills, electromyography, and dynamic mechanical testing systems. At Exponent, she uses this experience to critically evaluate injury potential in motor vehicle, occupational, and recreational accidents.

Prior to joining Exponent, Dr. Gerber worked as a Graduate Research Assistant in the Biodynamics Research Lab at the University of Kansas. She was awarded the prestigious, merit-based Madison & Lila Self Graduate Fellowship, which funded her Ph.D. education and fall risk research. Dr. Gerber also has experience in running biomechanics and sportswear product development, having previously worked in Research & Development at Brooks Running.

Academic Credentials & Professional Honors

Ph.D., Bioengineering, University of Kansas, 2022

M.S., Bioengineering, The University of Kansas, 2020

B.S., Biomedical Engineering, University of Delaware, 2018

Tau Beta Pi Honor Society (TBP)

Alpha Omega Epsilon Professional Engineering Sorority (AOE)

Licenses and Certifications

Certified XL Tribometrist (CXLT)

Prior Experience

Run Research Team - Innovation, Brooks Running

Research Assistant, University of Kansas Biodynamics Research Lab

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Professional Affiliations

ASTM International, Committee F13 (Pedestrian/Walkway Safety and Footwear), Member

American Society of Biomechanics (ASB), Member

Publications

Gerber, E. D., Huang, C. K., Giraldo, C., Nichols, P., & Luchies, C. W. Predictability of postural sway: unraveling the impact of simulated somatosensory deficits using a rambling-trembling approach. Frontiers in Bioengineering and Biotechnology 2025, 13:1572309.

Gerber ED, Huang CK, Moon S, Devos H, Luchies, CW. Sensory reweighting of postural control requires distinct rambling and trembling sway adaptations. Gait & Posture 2024; 112:16-21

Gerber ED, Giraldo C, Whorley B, Nichols P, Ring S, Luchies CW. Subthreshold white noise vibration alters trembling sway in older adults. Human Movement Science 2023; 90:103119

Gerber ED, Nichols P, Giraldo C, Sidener L, Huang CK, Luchies CW. Rambling-trembling center-of-pressure decomposition reveals distinct sway responses to simulated somatosensory deficit. Gait & Posture 2022; 91:276-283

Presentations

Balmaceda, J, Gerber, ED, Arnold MJ, Williams DA, Snyder K, Pandya SM. Racial bias in pulse oximetry in acute hypoxemic respiratory failure. Podium presentation, American College of Chest Physicians Annual Meeting, Nashville, TN, 2022

Gerber ED, Nichols P, Giraldo C, Huang CK, Luchies CW. Predictability of rambling-trembling sway may improve sensitivity of fall risk assessment. Poster presentation, North American Congress on Biomechanics, Ottawa, Canada, 2022

Gerber ED, Nichols P, Giraldo C, Huang CK, Luchies CW. An investigation of rambling-trembling sway trajectories under simulated somatosensory deficit. Podium presentation, Annual Meeting of the Biomedical Engineering Society, San Diego, CA, 2020

Gerber ED, Nichols P, Giraldo C, Huang CK, Luchies CW. Rambling-trembling trajectories show high sensitivity to sensory challenges during quiet standing. Poster presentation, 44th Meeting of the American Society of Biomechanics, Atlanta, GA, 2020