

Exponent®
Engineering & Scientific Consulting

Abby Swenson, Ph.D.

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Professional Profile

Dr. Swenson is a trained neuroscientist with expertise in cognitive and motor function having conducted research spanning attentional control, visual motor processing, visual and verbal memory, and postural control. She has also conducted research supporting our understanding of individual-level and environmental factors contributing to safety risk in real-world environments. Dr. Swenson applies her expertise to understand human factors in scenarios including motor vehicle collisions, workplace accidents, slip-trip-and-fall incidents, and consumer product use and testing.

Prior to joining Exponent, Dr. Swenson completed her Ph.D. in Neuroscience at Wake Forest University. Her doctoral research integrated cognitive neuroscience and injury risk and kinematics to investigate intrinsic and extrinsic factors contributing to injury risk in sports. She has additional expertise in evaluating changes in neurobehavioral and motor function as an outcome of injurious and non-injurious head trauma.

Dr. Swenson has extensive experience in study design, human subjects testing, data analysis, and scientific communication. Her interdisciplinary background allows her to provide unique insights into human factors underlying injury risk and safety.

Academic Credentials & Professional Honors

Ph.D., Neuroscience, Wake Forest University, 2025

M.S., Neuroscience, Wake Forest University, 2021

B.S., Biology, Providence College, 2018

National Institute of Neurological Disorders and Stroke Predoctoral National Research Service Award (NIH F31), 2022-2024

Gordon A. Melson Outstanding Master's Student Award (nominee), 2021

Margaret H. Hines Travel Award, 2021

Professional Affiliations

Human Factors and Ergonomics Society, 2025-present

Publications

Swenson AG, Pritchard NS, Miller LE, Urban JE, Stitzel JD. Characterization of head impact exposure in boys' youth ice hockey. Research in sports medicine 2023; 31(4):440-450.

Swenson AG, Schunicht BA, Pritchard NS, Miller LE, Urban JE, Stitzel JD. Head kinematics in youth ice hockey by player speed and impact direction. Journal of applied biomechanics 2022; 38(4):201-209.

Presentations

Marks ME, Holcomb TD, **Swenson AG**, Moessbauer MW, Moore JB, Miles CM, Stitzel JD, Bullock GS, Espeland MA, Flashman LA, Chapman LA, Urban JE. Evaluating the effects of an evidence-based practice intervention on athlete neurocognitive outcomes in youth football. Poster presentation, National Neurotrauma Society Annual Meeting, Philadelphia, PA, 2025.

Swenson AG, Romero GA, Pritchard NS, Bullock GS, Miles CM, Mihalik JP, Urban JE, Stitzel JD. Relationships between athletic performance and head acceleration event exposure in boys' youth ice hockey. Poster presentation, Traumatic Brain Injury Conference Annual Meeting, Washington DC, 2024.

Swenson AG, Pritchard NS, Miller LE, Chapman LA, Flashman LA, Urban JE, Stitzel JD. Cognitive outcomes of head impact exposure in youth ice hockey. Poster presentation, Society for Neuroscience Annual Meeting, San Diego, CA, 2022.

Swenson AG, Pritchard NS, Miller LE, Oravec CS, Mihalik JP, Urban JE, Stitzel JD. Relationships between athletic performance measures and head kinematics in youth ice hockey. Symposium presentation, Summer Biomechanics, Bioengineering and Biotransport Conference Annual Meeting, Eastern Shore, MD, 2022.

Swenson AG, Pritchard NS, Miller LE, Chapman LA, Flashman LA, Urban JE, Stitzel JD. Cognitive outcomes of head impact exposure in youth ice hockey. Poster presentation. National Neurotrauma Symposium Annual Meeting, Atlanta, GA, 2022.

Swenson AG, Schunicht BA, Pritchard NS, Miller LE, Urban JE, Stitzel JD. Head kinematics and associated impact speeds and directions in youth ice hockey. Symposium presentation, Biomedical Engineering Society Annual Meeting, Orlando, FL, 2021.

Swenson AG, Pritchard NS, Miller LE, Urban JE, Stitzel JD. Head impact biomechanics by ice zone and athlete role in youth ice hockey. Symposium presentation, The Ohio State University Injury Biomechanics Symposium Annual Meeting, Virtual, 2021.

Swenson AG, Miller LE, Urban JE, Stitzel JD. Head kinematics in youth ice hockey quantified with an instrumented mouthpiece. Symposium presentation, Biomedical Engineering Society Annual Meeting, Virtual, 2020.

Swenson AG, Pritchard NS, Miller LE, Urban JE, Stitzel JD. Head impact exposure in youth ice hockey. Symposium presentation, Virginia Tech – Wake Forest School of Biomedical Engineering and Sciences Annual Meeting. Virtual, 2020.

Swenson AG, Miller LE, Urban JE, Stitzel JD. Head kinematics by contact scenario in youth ice hockey. Poster presentation, American Academy of Neurology Sports Concussion Conference Annual Meeting, Virtual, 2020.

Swenson AG, Miller LE, Urban JE, Stitzel JD. Head impact exposure in youth ice hockey. Poster presentation, American Society of Biomechanics Annual Meeting, Virtual, 2020.

Swenson AG, Urban JE, Stitzel JD. Measuring head impact exposure in youth ice hockey using an

instrumented mouthpiece. Poster presentation, Biomedical Engineering Society Annual Meeting, Philadelphia, PA, 2019.

Peer Reviews

Sports Biomechanics, Neuroimage: Reports, Archives of Clinical Neuropsychology