BRC
OBJECTIVE ANALYSIS

PATRICK FISCHER, PHD

CURRICULUM VITAE

Education

PhD	Mechanical Engineering Montana State University Bozeman, Montana	2021
MS*	Mechanical Engineering Montana State University Bozeman, Montana	2021
BS	Mechanical Engineering Montana State University Bozeman, Montana	2017

***Degree earned concurrently with doctorate**

Professional Experience

PhD Consultant — 2024-Present
Biodynamic Research Corporation
San Antonio, Texas

System MAC Engineer — 2023-2024
Shriners Children's Network
Sacramento, California

MAC Engineer — 2022-2023
Shriners Children's – Northern California
Sacramento, California

NSF Graduate Research Fellow — 2019-2021
Montana State University
Bozeman, Montana

Graduate Research Assistant — 2018-2019
Montana State University
Bozeman, Montana

Professional Affiliations

American Society of Biomechanics — 2018-2022, 2024-Present

SAE International — 2024-Present

The Accreditation Commission for Traffic Accident Reconstruction (ACTAR #5125) — 2025-Present

Association for the Advancement of Automotive Medicine (AAAM) — 2025-Present

Appointments

Member, Pediatric Research in Sports Medicine Motion Analysis Research Interest Group — 2022-2024

Guest Instructor — 2024, 2026
USAF School of Aerospace Medicine

Member, Global Child and Youth Road Safety Special Interest Group (AAAM) — 2025-Present

Teaching Experience

Graduate Teaching Assistant, Advanced Mechanics of Materials — 2019
Montana State University
Bozeman, Montana

Graduate Teaching Assistant, Thermodynamics I — 2018
Montana State University
Bozeman, Montana

Undergraduate Teaching Assistant, Thermodynamics I 2015-2017
Montana State University
Bozeman, Montana

Honors and Awards

National Science Foundation Graduate Research Fellowship, Awarded 2019-2021

David Winter Young Investigator Award, Nominated 2019

Publications

Fischer, Patrick D., Cormier, Joseph M., Watson, Richard A. (2026) A Large-Scale Characterization of PyCrash Collision Model Behavior Using Real-World Collision Data. *SAE Automotive Technical Papers*. Online. DOI: 10.4271/2026-01-5004.

Aflatounian, Fatemeh, Fischer, Patrick D., Becker, James N., Hutchison, Keith A., Simon, Janet A., Grooms, Dustin R., and Monfort, Scott M. (2025) Cognitive-Motor Function and Anterior Cruciate Ligament Injury Risk: Exploring Relationships Between Clinical and Lab-Based Assessments. *Journal of Sports Rehabilitation*. Online ahead of print. DOI: 10.1123/jsr.2024-0382.

Gall, Jessica A., Scott, William R., Bonugli, Enrique J., Watson, Richard A., Fischer, Patrick D. (2025) Validation of the Use of Quasistatic Force Deformation Measurements for Determining Collision Force in Low-Speed Override/Underride Collisions. *SAE Automotive Technical Papers*. Online. DOI: 10.4271/2025-01-5018.

Monfort, Scott M., Aflatounian, Fatemah, Fischer, Patrick D., Becker, James N., Hutchison, Keith A., Simon, Janet E., Grooms, Dustin R. (2024) Relationships between Patient-Reported Outcomes and Predictors of Second ACL Injuries during Unanticipated Jump Landings. *Medicine and Science in Sports and Exercise*, 57(4): 840-848. DOI: 10.1249/MSS.0000000000003603.

Kruger, Karen M., Fischer, Patrick D., Augsburger, Sam, Feng, Jing, Girouard, Jean-Francois, Gregory, Dan L, Johnson, Logan, MacWilliams, Bruce A., McMulkin, Mark L., Nelson, Bradley, Warshauer, Spencer, Saraswat, Prabhav, & Chafetz, Ross S. (2024) Shriners Standard Gait Model: 1st Edition. *Gait & Posture*. DOI: 10.1016/j.gaitpost.2024.03.006.

Bertozzi, Filippo, Fischer, Patrick D., Aflatounian, Fatemeh, Hutchison, Keith A., Sforza, Chiarella, & Monfort, Scott M. (2023) Influence of Fatigue on Cognitive-Motor Function During Unanticipated Landings. *American Journal of Sports Medicine*, 51(10): 2740-2747. DOI: 10.1177/03635465231180612.

Bertozzi, Filippo, Fischer, Patrick D., Hutchison, Keith A., Zago, Matteo, Sforza, Chiarella, & Monfort, Scott M. (2023) Associations Between Cognitive Function and ACL Injury-Related Biomechanics: A Systematic Review. *Sports Health: A Multidisciplinary Approach*. Online ahead of print. DOI: 10.1177/19417381221146557

Ulman, Sophia M., Chafetz, Ross S., Wren, Tishya A.L., Lowen, Alex M., Erdman, Ashley L., Fischer, Patrick D., Giampetruzzi, Nicholas G., Kania, Susan K., Katzel, Mia J., Mcmulkin, Mark L., Õunpuu, Sylvia, Rhodes, Jason T., Saraswat, Prabhav, Tulchin-Francis, Kirsten, Veilleux, Louis-Nicolas, Warshauer, Spencer (2022) PRiSM Motion Analysis Research Interest Group's Sports Protocol: Knee Emphasis, Standard Operating Procedures. *Pediatr Res Sports Med Soc*. Online. https://www.prismsports.org/UserFiles/file/PRiSMMARIG_SportsProtocolSOP_v2.2.pdf.

Fischer, Patrick D., Hutchison, Keith A., Becker, James N., & Monfort, Scott M. (2021) Evaluating the Spectrum of Cognitive-Motor Relationships During Dual-Task Jump-Landing. *Journal of Applied Biomechanics*, 37(4): 388-395. DOI: 10.1123/jab.2020-0388.

Donahue, Seth, Fischer, Patrick, Hoegberg, Zachary, & Major, Matthew J. Computational Gait Retraining from a Single Wearable Sensor: Composite Trajectory Feedback and Multiscale Lower-Limb Adaptation. Submitted for review in *Computers in Biology and Medicine*.

Fischer, Patrick D., Hutchison, Keith A., Becker, James N., Monfort, & Scott M. Does Dual-Task Ability Generalize Across Movement Tasks? (Manuscript in preparation for *Frontiers in Bioengineering and Biotechnology)*.

Fischer, Patrick D., Hutchison, Keith A., Becker, James N., & Monfort, Scott M. Decoupling Visual Constraint from Rapid Decision-Making Tasks in an Open-Skill Movement (Manuscript in preparation for *PLOS One*).

Scientific Presentations

10th World Congress of Biomechanics
Vancouver, BC, July 11-15, 2026
Contextualizing Head Accelerations During Rear-End Collisions: A Pilot Study
Poster Presentation

45th Annual Meeting of the American Society of Biomechanics
Online, August 10-13, 2021
Decoupling Visual Constraint from Unanticipated Directional Cues in a Jump-Landing Task
Virtual Podium Presentation

45th Annual Meeting of the American Society of Biomechanics
Online, August 10-13, 2021
How Visual and Auditory Cognitive Performance Relate to Landing Mechanics
Virtual Poster Presentation

44th Annual Meeting of the American Society of Biomechanics
Online, August 4-7, 2020
Effects of Movement Type on Dual Task Costs during Recall Tests
Virtual Poster Presentation

44th Annual Meeting of the American Society of Biomechanics
Online, August 4-7, 2020
Influences of Cognitive Distractors on Knee Mechanics during a Sidestep Cut Virtual Poster Presentation

2020 American Society of Sports Medicine Annual Meeting
Online, May 26-30, 2020
Correlations Between Dual-Task Costs in Clinic Versus Laboratory Movement Tests
Virtual Poster Presentation

43rd Annual Meeting of the American Society of Biomechanics
Calgary, AB, July 31-August 4, 2019
Visually-Demanding Secondary Tasks Associate with Decreased Knee Flexion during a Jump Landing Task
Podium Presentation

NATA 70th Clinical Symposia and AT Expo
Las Vegas, NV, June 24-27, 2019
Cognitive Effects of Varying Types of Distractions on Athletic Performance and their Associations with Cognitive Abilities
Poster Presentation

42nd Annual Meeting of the American Society of Biomechanics
Rochester, MN, August 8-11, 2018
An Initial Look at Gait Stability During Over-Ground Walking in Cancer Patients
Poster Presentation

Co-Authored Conference Abstracts

Scurlock AM, Fischer PD, Abercrombie JF, and Watson RA (2026) Timing and Dominant Components of Peak Linear and Angular Head Accelerations in Low-Speed Rear End Collisions: A Study of Human Responses. 10th World Congress of Biomechanics; Vancouver, British Columbia, Canada.

Bertozzi F, Fischer PD, Aflatounian F, Hutchison KA, Galli M, Tarabini M, Sforza C, and Monfort SM (2022) Do fatigue-induced changes in cognitive performance relate to changes in knee mechanics?, 27th Congress of the European Society of Biomechanics; Porto, Portugal.

Davis J, Fischer PD, Monfort SM (2021) Do Cognitive Dual-Tasks Have Limb-Dependent Effects on Landing Mechanics?, 45th Annual Meeting of the American Society of Biomechanics; virtual.

Aflatounian, F, Fischer PD, Monfort SM (2021) Do the Effects of Cognitive Tasks on Landing Mechanics depend on Jump Direction?, 45th Annual Meeting of the American Society of Biomechanics; virtual.

Monfort SM, Fischer PD, Hutchison KA, and Becker JN (2020) Influence of Baseline Cognitive Function on Knee Mechanics during Dual-Task Sidestep Cutting, 44th Annual Meeting of the American Society of Biomechanics; virtual.

Monfort SM, Fischer PD, Hutchison KA (2019) Multitasking Strategy Associates with Knee Abduction Angle during Cognitively-Challenging Jump Landing. 43rd Annual Meeting of the American Society of Biomechanics; Calgary, AB.

Peer Review Activity

Gait and Posture
Journal of Biomechanical Engineering
Sports Health: A Multidisciplinary Approach
The Knee
Sports Biomechanics
BMC Sports Science, Medicine, and Rehabilitation
Scientific Reports

Continuing Education

Applied Vehicle Dynamics — 2026
SAE International
Greer, South Carolina

ACTAR Test Preparation – Comprehensive (Online) — 2024
Institute of Police Technology and Management
Jacksonville, Florida

Traffic Crash Reconstruction II (Online) — 2024
Northwestern Center for Public Safety
Evanston, Illinois

Traffic Crash Reconstruction I (Online) — 2024
Northwestern Center for Public Safety
Evanston, Illinois