

Dustin A. Bruening, Ph.D.

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EDUCATION

Ph.D. Biomechanics and Movement Science, 2009, University of Delaware

Advisor: James Richards. Dissertation: "A Kinetic Multi-Segment Foot Model with Preliminary Applications in Clinical Gait Analysis" ([Link](#))

M.S. Exercise Science (Biomechanics), 2005, University of Delaware

Advisor: James Richards. Thesis: "The Development and Testing of an Articulated Figure Skating Boot"

B.S. Mechanical Engineering, 2000, University of Utah

Senior Capstone: "Measuring Infant Lung Volume during High Frequency ventilation"

PROFESSIONAL EMPLOYMENT

Brigham Young University, Provo, UT

Associate Professor, Department of Exercise Sciences, 2021 – present

Assistant Professor, Department of Exercise Sciences, 2015 – 2021

Air Force Research Laboratories, Dayton, OH

Director, 3D Human Signatures Laboratory, 2011 – 2015

Biomechanical Engineer, US Air Force, 2012-2015

Biomechanical Engineer, Infoscitex Corp., 2011-2012

Shriners Hospitals for Children, Erie, PA

Manager, Movement Analysis Laboratory, 2010 - 2011

Engineer, Movement Analysis Laboratory, 2006 - 2010

TEACHING EXPERIENCE

Brigham Young University, Provo UT (2015-present)

EXSC 362 – Kinesiology and Biomechanics

EXSC 664 – Biomechanical Modeling

EXSC 693R – Readings Seminar

Mercyhurst College, Erie PA (Adjunct Faculty, 2010)

SPMD 365 - Kinesiology

University of Delaware, Newark DE (Graduate assistant, 2002-2006)

HESC 690 – Biomechanical Methods

HESC 426 – Biomechanics Lab

HESC 120 – Basketball, Volleyball, Strength Training

SCIENTIFIC PUBLICATIONS

Manuscripts in Review

1. Henderson AD, **Bruening DA**, Arch ES. "The motor in the foot: changes in shod foot energetics with increasing walking velocity." *Journal of Foot and Ankle Research*, in review.
2. Ridge ST, Wagstaff T, Sponbeck J, Hunter I, **Bruening DA**, Johnson W. "Variability among individual male runners influences cumulative loading more than foot strike type." *Sports Health: A Multidisciplinary Approach*, in review (2nd round).

Peer-Reviewed Journal Publications

1. Ridge ST, McLean D, Garner KR, Olsen MT, **Bruening DA**, Johnson AW. "Sticking the landing: A comparison of shod vs barefoot landing kinetics and foot muscle characteristics in gymnasts, cheerleaders, and non-athletes." *Plos One*, October 2024, 19(10): e0309157. [Doi: 10.1371/journal.pone.0309157](https://doi.org/10.1371/journal.pone.0309157)
2. Oh M, Lee H, Han S, **Bruening D**, Seeley M, Hopkins T. "Effects of chronic pain on static and dynamic postural control in chronic ankle instability." *Clinical Journal of Sport Medicine*, July 2024, 10.1097. [Doi: 10.1097/JSM.0000000000001248](https://doi.org/10.1097/JSM.0000000000001248).
3. Lee H, Clinger D, Oh M, Han S, Allen S, Page G, **Bruening D**, Hyldahl R, Hopkins T, Seeley M. "Relationships between running biomechanics and femoral articular cartilage thickness and composition in anterior cruciate ligament reconstruction patients." *Scandinavian Journal of Medicine & Science in Sports*, June 2024, 34(6): e14675. [Doi: 10.1111/sms.14675](https://doi.org/10.1111/sms.14675)
4. **Bruening DA**, Petersen SR, Ridge ST. "New perspectives on foot segment forces and joint kinetics - integrating plantar shear stresses and pressures with multi-segment foot modeling." *Annals of Biomedical Engineering*, March 2024, 52:1719-1731. [Doi: 10.1007/s10439-024-03484-2](https://doi.org/10.1007/s10439-024-03484-2)
5. Jones M, Caminita M, Klemm E, **Bruening D**, Ridge S. "Training, children and parents: coach perspectives on wearable sensor data in sub-elite figure skating in the United States." *International Journal of Human-Computer Studies*, March 2024: 103184. [Doi: 10.1016/j.ijhcs.2023.103184](https://doi.org/10.1016/j.ijhcs.2023.103184).
6. **Bruening DA**, Messick CL, Waid DC, Krupp TD, Stringer JR, Parry DJ, Berry LJ. "For plantar taping, direction of elasticity matters." *Scientific Reports*, December 2023, 13(1): 22811. [Doi: 10.1038/s41598-023-50169-2](https://doi.org/10.1038/s41598-023-50169-2).
7. Bassett KE, Charles SK, **Bruening DA**. "The signed helical angle: a technique for characterizing midfoot motion during gait." *Journal of Biomechanics*, October 2023: 159:111791. [Doi: 10.1016/j.jbiomech.2023.111791](https://doi.org/10.1016/j.jbiomech.2023.111791).
8. Larson RE, Johnson AW, **Bruening DA**, Ridge ST, Mitchell UH. "The influence of bed height as a percentage of participant height on low back forces when boosting a patient up in bed." *Work*, August 2023, 74(4): 1351-1359. [Doi: 10.3233/WOR-220260](https://doi.org/10.3233/WOR-220260)
9. Williams LR, Arch ES, **Bruening DA**. "Kinetic Coupling in Distal Foot Joints During Walking." *Journal of Foot and Ankle Research*, July 2023: 16:44. [Doi: 10.1186/s13047-023-00643-x](https://doi.org/10.1186/s13047-023-00643-x)
10. Banks BP, Frei JS, Spencer A, Renninger KD, Grover JK, Abbott K, Carlson BJ, **Bruening DA**. "Low-cost prosthetic feet for underserved populations: a comparison of gait analysis and mechanical stiffness." *Prosthetics and Orthotics International*, November 2022: 10-1097. [Doi: 10.1097/PXR.000000000000184](https://doi.org/10.1097/PXR.000000000000184).

11. **Bruening DA**, Huber SC, Parry DJ, Hillier AR, Mitchell Hayward AE, Grover JK. "The Effect of Existing and Novel Walker Boot Designs on Offloading and Gait Mechanics." *Medical Engineering & Physics*, October 2022, 108: 103890. [Doi: 10.1016/j.medengphy.2022.103890](https://doi.org/10.1016/j.medengphy.2022.103890)
12. Ridge ST, McLean D, **Bruening DA**, Richards J. "Up in the Air: the Efficacy of Weighted Gloves in Figure Skating Jumps." *Sports Biomechanics*, March 2022: 1-12. [Doi: 10.1080/14763141.2022.2046844](https://doi.org/10.1080/14763141.2022.2046844).
13. Larson R, Johnson A, **Bruening D**, Ridge S, Mitchell U. "Healthcare Worker Choice and Low Back Force Between Self-Chosen and Highest Bed Height When Boosting a Patient Up in Bed." *Ergonomics*, 2022, 65(10): 1373-1379. [Doi: 10.1080/00140139.2022.2034985](https://doi.org/10.1080/00140139.2022.2034985)
14. Williams L, Ridge ST, Johnson AW, Arch E, **Bruening DA**. "The Influence of the Windlass Mechanism on Kinematic and Kinetic Foot Joint Coupling." *Journal of Foot and Ankle Research*, March 2022, 15(1):1-11. [Doi: 10.1186/s13047-022-00520-z](https://doi.org/10.1186/s13047-022-00520-z)
15. Larson R, Johnson A, **Bruening D**, Ridge S, Mitchell U. "Low Back Pain and Lumbar Multifidus Cross-sectional Area, Multifidus Activation, and Low Back Force in Healthcare Workers." *International Journal of Industrial Ergonomics*, March 2022, 88:103279. [Doi: 10.1016/j.ergon.2022.103279](https://doi.org/10.1016/j.ergon.2022.103279)
16. Lee H, Han S, **Bruening D**, Seeley M, and Hopkins T. "Effects of Balance Training with Stroboscopic Glasses on Postural Control in Chronic Ankle Instability Patients. A Randomized Controlled trial." *Scandinavian Journal of Medicine and Science in Sports*, March 2022, 32(3):576-587. [Doi: 10.1111/sms.14098](https://doi.org/10.1111/sms.14098).
17. Henderson A, Hulcher T, Koller C, **Bruening DA**, Arch E. "Deformable Foot Orthoses Redistribute Power from the Ankle to the Distal Foot During Walking." *Journal of Biomechanics*, November 2021; 128: 110728. [Doi: 10.1016/j.jbiomech.2021.110728](https://doi.org/10.1016/j.jbiomech.2021.110728)
18. Jeong H, Johnson W, Feland B, Petersen S, Staten J, **Bruening DA**. "Added Body Mass Alters Plantar Shear Stresses, Postural Control, and Gait Kinetics: Implications for Obesity." *Plos One*, February 2021, 16(2):e0246605. [Doi:10.1371/journal.pone.0246605](https://doi.org/10.1371/journal.pone.0246605)
19. Ridge ST, **Bruening DA**, Charles S, Stahl C, Smith D, Reynolds R, Adamo B, Harper B, Adair C, Mawaring P, King D. "IceSense Proof of Concept: Calibrating an Instrumented Figure Skating Blade for Measuring On-ice Forces." *Sensors*, December 2020; 20(24). [Doi: 10.3390/s20247082](https://doi.org/10.3390/s20247082)
20. **Bruening DA**, Baird AR, Weaver KJ, Rasmussen AT. "Whole Body Kinematic Sex Differences Persist Across Non-Dimensional Gait Speeds." *Plos One*, August 2020, 15(8): e0237449. [Doi: 10.1371/journal.pone.0237449](https://doi.org/10.1371/journal.pone.0237449).
21. Johnson AW, **Bruening DA**, Violette V, Perkins K, Thompson C, Ridge ST. "Ultrasound Imaging is Reliable for Tibialis Posterior Size Measurements." *Journal of Ultrasound in Medicine*, May 2020. [Doi: 10.1002/jum.15340](https://doi.org/10.1002/jum.15340)
22. Henderson AD, Johnson AW, Rasmussen LG, Peine WP, Symons SH, Curtis KP, Scoresby KA, Ridge ST, **Bruening DA**. "Early Stage Diabetic Neuropathy Reduces Foot Strength and Intrinsic but not Extrinsic Foot Muscle Size." *Journal of Diabetes Research*, March 2020, 9536362. [Doi: 10.1155/2020/9536362](https://doi.org/10.1155/2020/9536362).
23. McLeod AR, **Bruening DA**, Johnson AW, Ward J, Hunter I. "Improving Running Economy through Altered Shoe Bending Stiffness across Speeds." *Footwear Science*, March 2020; 12(2):79-89. [Doi: 10.1080/19424280.2020.1734870](https://doi.org/10.1080/19424280.2020.1734870).

24. Kwon S, **Bruening DA**, Morrin S, Kunz D, Hopkins JT, Seeley M. "Simultaneous Ice and Transcutaneous Electrical Nerve Stimulation Decrease Anterior Knee Pain During Running But Do Not Affect Running Kinematics or Associated Muscle Inhibition." *Clinical Biomechanics*, February 2020; 72:1-7. [Doi:10.1016/j.clinbiomech.2019.11.011](https://doi.org/10.1016/j.clinbiomech.2019.11.011).
25. Johnson AW, Stoneman P, McClung M, Van Wagoner N, Corey T, **Bruening DA**, Hunter T, Myrer J, Ridge S. "Use of Cine-loops and Structural Landmarks in Ultrasound Image Processing Improves Reliability and Reduces Error in the Assessment of Foot and Leg Muscles." *Journal of Ultrasound in Medicine*, December 2019. [Doi: 10.1002/jum.15192](https://doi.org/10.1002/jum.15192).
26. **Bruening DA**, Ridge ST, Jacobs JL, Olsen MT, Griffin DW, Ferguson DH, Bassett KE, Johnson AW. "Functional assessments of foot strength: a comparative and repeatability study." *BMC Musculoskeletal Disorders*, December 2019; 20, 608. [Doi: 10.1186/s12891-019-2981-6](https://doi.org/10.1186/s12891-019-2981-6)
27. Jacobs JL, Ridge ST, **Bruening DA**, Brewerton KA, Gifford JR, Hoopes DM, Johnson AW. "Passive Hallux Adduction Decreases Lateral Plantar Artery Blood Flow in Low Arch Feet." *Journal of Foot and Ankle Research*, December 2019, 12(1):1-9. [Doi: 10.1186/s13047-019-0361-y](https://doi.org/10.1186/s13047-019-0361-y).
28. Henderson A, Johnson AW, Ridge ST, Egbert JS, Curtis KP, Berry L, **Bruening DA**. "Diabetic Gait is Not Just Slow Gait: Gait Compensations in Diabetic Neuropathy." *Journal of Diabetes Research*, November 2019, 4512501. [Doi: 10.1155/2019/4512501](https://doi.org/10.1155/2019/4512501).
29. Kern AM, Papachatzis N, Patterson JM, **Bruening DA**, Takahashi KZ. "Ankle and Midtarsal Joint and Quasi-Stiffness during Walking with Added Mass." *Peer J*, September 19 2019, 7:e7487. [Doi: 10.7717/peerj.7487](https://doi.org/10.7717/peerj.7487).
30. Olsen M, **Bruening DA**, Johnson AW, Ridge ST. "The Role of the Midfoot in Drop Landings." *Medicine and Science in Sports and Exercise*, January 2019; 51(1):114-122. [Doi:10.1249/MSS.0000000000001765](https://doi.org/10.1249/MSS.0000000000001765)
31. Ridge ST, Olsen MT, **Bruening DA**, Jurgensmeier K, Griffin D, Davis I, Johnson AW. "Walking in minimalist shoes is effective for strengthening foot muscles." *Medicine and Science in Sports and Exercise*, January 2019; 51(1):104-113. [Doi:10.1249/MSS.0000000000001751](https://doi.org/10.1249/MSS.0000000000001751)
32. **Bruening DA**, Reynolds R, Adair C, Zapolo P, Ridge ST. "Sport Specific Wearables: a Jump Monitor for Figure Skating." *Plos One*, November 2018; 13(11):e0206162. [Doi:10.1371/journal.pone.0206162](https://doi.org/10.1371/journal.pone.0206162)
33. **Bruening DA**, Pohl MB, Takahashi KZ, Barrios JA. "Midtarsal locking, the Windlass Mechanism, and Running Strike Pattern: A Kinematic and Kinetic Assessment." *Journal of Biomechanics*, May 2018: 73, 185-191. [Doi:10.1016/j.jbiomech.2018.04.010](https://doi.org/10.1016/j.jbiomech.2018.04.010)
34. **Bruening DA**, Takahashi KZ. "Partitioning Ground Reaction Forces for Multi-Segment Foot Joint Kinetics." *Gait and Posture*, May 2018: 62, 111-116. [Doi:10.1016/j.gaitpost.2018.03.001](https://doi.org/10.1016/j.gaitpost.2018.03.001)
35. Takahashi KZ, Worster K, **Bruening DA**. "Energy Neutral: the Human Foot and Ankle Subsections Combine to Produce near Zero Net Mechanical Work during Walking." *Scientific Reports*, November 2017: 7(1), 15404. [Link](#)
36. **Bruening DA**, Cooney TE, Ray MS, Daut GA, Cooney KM, Galey SM. "Multi-Segment Foot Kinematic and Kinetic Compensations in Level and Uphill Walking Following Tibiotalar Arthrodesis." *Foot and Ankle International*, October 2016: 37(10), 1119-1129. [Doi: 10.1177/1071100716655205](https://doi.org/10.1177/1071100716655205)

37. Frimenko R, **Bruening D**, Goodyear C, Bowden D. "Predictive Ability of Anthropomorphic Metrics in Determining Age and Sex of Children." *IET Biometrics*, September 2016: 5(3), 181-189. [Doi: 10.1049/iet-bmt.2014.0103](https://doi.org/10.1049/iet-bmt.2014.0103)
38. Schmitz A, Buczek FL, **Bruening DA**, Rainbow MJ, Cooney KM, Thelen, DG. "Comparison of Hierarchical and Six Degree of Freedom Marker Sets in Analyzing Gait Kinematics." *Computer Methods in Biomechanics and Biomedical Engineering (CMBBE)*, February 2016: 19(2), 199-207. [Doi:10.1080/10255842.2015.1006208](https://doi.org/10.1080/10255842.2015.1006208)
39. **Bruening DA**, Goodyear CD, Bowden DR, Barone RE. "Gender Recognition from Biologically Guided Anthropometric Features." *International Journal of Biometrics*, 4th quarter 2015: 7(4), 354-372. [Doi: 10.1504/IJBM.2015.076137](https://doi.org/10.1504/IJBM.2015.076137)
40. Frimenko R, Whitehead C, Goodyear C, **Bruening D**. "Interactions of Sex and Aging on Spatiotemporal Metrics in Non-Pathological Gait: A Descriptive Meta-Analysis." *Physiotherapy*, September 2015: 101(3), 266-272. [Doi:10.1016/j.physio.2015.01.003](https://doi.org/10.1016/j.physio.2015.01.003)
41. Flora J, Lochtefeld D, **Bruening D**, Iftexharuddin K. "Improved Gender Classification Using Non-Pathological Gait Kinematics in Full Motion Video." *IEEE Transactions on Human-Machine Systems*, June 2015: 45(3), 304-314. [Doi:10.1109/THMS.2015.2398732](https://doi.org/10.1109/THMS.2015.2398732)
42. **Bruening DA**, Frimenko RE, Goodyear CD, Fullenkamp AM. "Sex Differences in Whole Body Gait Kinematics at Preferred Speeds." *Gait and Posture*, February 2015: 41(2), 540-545. [Doi:10.1016/j.gaitpost.2014.12.011](https://doi.org/10.1016/j.gaitpost.2014.12.011)
43. Jacobson B, Cendoma M, Gdovin J, Cooney K, **Bruening D**. "Cervical Spine Motion during Football Equipment Removal Protocols: A Challenge to the All-or-None Principle." *Journal of Athletic Training*, Jan-Feb 2014: 49(1), 42-48. [Doi:org/10.4085/1062-6050-48.6.11](https://doi.org/10.4085/1062-6050-48.6.11). Winner of the JAT Kenneth L. Knight outstanding research manuscript award.
44. **Bruening DA**, Ridge ST. "Comparison of Automated Event Detection Algorithms in Pathological Gait." *Gait and Posture*, January 2014: 39(1), 472-477. [Doi:10.1016/j.gaitpost.2013.08.023](https://doi.org/10.1016/j.gaitpost.2013.08.023)
45. **Bruening DA**, Cooney KM, Buczek FL. "Analysis of a Kinetic Multi-Segment Foot Model. Part I: Model Repeatability and Kinematic Validity." *Gait and Posture*, April 2012: 35(4), 529-534. [Doi:10.1016/j.gaitpost.2011.10.363](https://doi.org/10.1016/j.gaitpost.2011.10.363)
46. **Bruening DA**, Cooney KM, Buczek FL. "Analysis of a Kinetic Multi-Segment Foot Model. Part II: Kinetics and Clinical Implications." *Gait and Posture*, April 2012: 35(4), 535-540. [Doi:10.1016/j.gaitpost.2011.11.012](https://doi.org/10.1016/j.gaitpost.2011.11.012)
47. **Bruening DA**, Cooney KM, Buczek FL, Richards JR. "Measured and Estimated Ground Reaction Forces for Multi-Segment Foot Models." *Journal of Biomechanics*, Dec 2010: 43(16), 3222-3226. [Doi:10.1016/j.jbiomech.2010.08.003](https://doi.org/10.1016/j.jbiomech.2010.08.003)
48. **Bruening DA**, Crewe A, Buczek FL. "A Simple, Anatomically Based Correction to the Conventional Ankle Joint Center." *Clinical Biomechanics*, Dec 2008; 23(10), 1299-1302. [Doi:10.1016/j.clinbiomech.2008.08.005](https://doi.org/10.1016/j.clinbiomech.2008.08.005)
49. **Bruening D** and Richards J. "The Effects of Articulated Figure Skates on Jump Landing Forces." *Journal of Applied Biomechanics*, Nov 2006; 22(4), 285-295. [Link: JAB](#)
50. **Bruening D** and Richards J. "Optimal Ankle Axis Position for Articulated Footwear." *Sports Biomechanics*, July 2005; 4(2), 215-225. [Doi:10.1080/14763140508522864](https://doi.org/10.1080/14763140508522864)

Other Publications and Patents

1. Bruening D, Ridge S, Caminita M. "Why Isn't There More Scientific Research and Innovation in Figure Skating?" Professional Skater Magazine, March 2023 pg. 28-29. [Link](#)
2. Ridge ST, Bruening DA, Jones, MD. "Jump Counter and Classifier for Sports Training". US Patent Application 63/397, 689. August 12, 2022.
3. Frimenko R, Goodyear C, **Bruening DA**. "Changes in Spatiotemporal Differences Between the Sexes due to Paired Walking." Infoscitex Corp. technical report, June 2016. [Link: DTIC](#).
4. Frimenko R, Whitehead C, **Bruening DA**. "Do Men and Women Walk Differently? A Review and Meta Analysis of Sex Differences in Non-Pathological Gait Kinematics." AFRL technical report, Jan 2014. [Link: DTIC](#).
5. Reed J, Palmer J, Selee T, Hersey R, Bowden D, **Bruening D**, Westbrook L. "Human Characterization and Discrimination Using High-Range Resolution Pulse-Doppler Waveforms." AFRL technical report, July 2013.
6. Loveridge M., **Bruening D**, and Richards J. "Articulated Boot". US Patent No. D517290. March 21, 2006.
7. **Dustin Bruening**, James Richards, and Angela Smith. "Are Skating Boot Heels Too High?" Professional Skater Magazine, Nov/Dec 2006.
8. **Dustin Bruening**, James Richards, and Angela Smith. "The Articulated Figure Skate." Professional Skater Magazine, May/June 2005.

REFEREED CONFERENCES

(For brevity, list includes only recent conferences with substantial contributions)

1. Ridge ST, Moessing T, **Bruening DA**, Caminita M, Klemm E, Jones M. "Automated Classification of Figure Skating Jumps Using Wearable Sensors." Abstract submitted to the *American College of Sports Medicine Annual Meeting*, Atlanta, GA, May 27-30, 2025.
2. MacCabe M, Krupp T, Sponbeck J, Johnson W, **Bruening D**. "The Effect of Ankle and Hallux Positioning on Hallux Force Production." Poster presentation at the *American College of Sports Medicine Southwest Regional Meeting*, Irvine, CA, October 25-26, 2024.
3. Henderson A, **Bruening D**, Arch E. "Minimalist and athletic shoes with and without deformable foot orthoses affect healthy foot energetics." Podium presentation at the *American Society of Biomechanics Annual Meeting*, Madison, WI, August 5-8, 2024.
4. Vankeersbilck L, Steele J, Hunter I, **Bruening D**. "Biomechanical and metabolic responses to walking in advanced footwear technology." Poster presentation at the *American Society of Biomechanics Annual Meeting*, Madison, WI, August 5-8, 2024.
5. MacCabe M, Krupp T, Sponbeck J, **Bruening D**. "The Effect of Ankle and Hallux Positioning on Hallux Force Production." Poster presentation at *Rocky Mountain regional meeting of the American Society of Biomechanics*, Estes Park, CO, April 5-6, 2024.
6. Stringer J, Williams L, Sandberg E, **Bruening D**. "Stepping into Motherhood: A Case Study of Midfoot Stiffness during Pregnancy." Poster presentation at *Rocky Mountain regional meeting of the American Society of Biomechanics*, Estes Park, CO, April 5-6, 2024. Winner of best undergraduate poster award.
7. Sandberg E, Williams L, Stringer J, **Bruening D**. "Altered Foot Mechanics in Pregnancy: A Case Study." Poster presentation at *Rocky Mountain regional meeting of the American Society of Biomechanics*, Estes Park, CO, April 5-6, 2024.

8. Williams L, Tucker K, Trythall S, **Bruening D**. "Foot Spreading Forces During Pregnancy: A Case Study." Poster presentation at *Rocky Mountain regional meeting of the American Society of Biomechanics*, Estes Park, CO, April 5-6, 2024.
9. **Bruening DA**, Bassett KE, Ridge ST. "A Fresh Technical Look at Foot Posture vs. Dynamic Foot Function in Healthy Gait." Podium presentation at the *American Society of Biomechanics Annual Meeting*, Knoxville, TN, August 8-11, 2023.
10. Henderson AD, Williams LR, **Bruening DA**, Arch ES. "Foot Power Decreases with Restricted First Metatarsophalangeal Joint Range of Motion." Podium presentation at the *American Society of Biomechanics Annual Meeting*, Knoxville, TN, August 8-11, 2023.
11. Trotter T, **Bruening DA**, Ridge ST. "Does Foot Strike Type Influence Cumulative Load During Running." Podium presentation at the *American Society of Biomechanics Annual Meeting*, Knoxville, TN, August 8-11, 2023.
12. **Bruening DA**. "New Perspectives On Foot Segment Forces And Joint Kinetics - Integrating Plantar Shear Stresses And Pressures With Multi-Segment Foot Modeling." Podium presentation at the *International Foot and Ankle Biomechanics Meeting*, Bordeaux, France, April 19-22, 2023.
13. Williams LR, Arch ES, **Bruening DA**. "Energetic coupling of the MTP and Midtarsal Joints during Walking." Podium presentation at the *International Foot and Ankle Biomechanics Meeting*, Bordeaux, France, April 19-22, 2023.
14. Renninger K, Banks B, **Bruening DA**. "Gait Analysis of Low-Cost Prosthetic Feet for Underserved Populations." Poster presentation at the *North American Congress on Biomechanics*, Ottawa, Canada, August 21-25, 2022.
15. Jones M, Ridge S, Caminita M, Bassett K, **Bruening D**. "Automatic Classification of Take-Off Type in Figure Skating Jumps Using a Wearable Sensor." *International Sports Engineering Association Conference*, West Lafayette, IN, June 6-10, 2022. [Link](#)
16. Williams LR, Weaver K, Bassett K, Gill M, **Bruening DA**. "Investigating the windlass: kinematic coupling within the foot." Thematic poster presentation at the *American Society of Biomechanics Annual Meeting*, Virtual Meeting, August 10-13, 2021.
17. Henderson A, Egbert J, **Bruening DA**. "Gait changes vs tissue changes in diabetic plantar pressure." Poster presentation at the *American Society of Biomechanics Annual Meeting*, Virtual Meeting, August 10-13, 2021.
18. Bassett K, **Bruening D**, McLean D, Barker K, Ridge ST. "Effect of footwear on arch rise and drop when walking: a preliminary analysis." Podium presentation at the *Footwear Biomechanics Symposium*, Virtual Meeting, July 21-23, 2021. [Doi: 10.1080/19424280.2021.1916616](https://doi.org/10.1080/19424280.2021.1916616)
19. Williams LR, Petersen S, **Bruening DA**. "The foot becomes less spring-like as speed increases." Podium presentation at the *International Foot and Ankle Biomechanics Meeting*, Virtual Meeting, April 11-14, 2021. Winner of best oral presentation.
20. Williams LR, **Bruening DA**. "Investigating Energy Transfer Due to the Windlass Mechanism: A Pilot Study." Poster presentation at the *American Society of Biomechanics Annual Meeting*, Virtual Meeting, August 4-7, 2020.
21. Jeong H, **Bruening DA**. "Plantar Shear Stress Increases with Added Body Mass." Poster presentation at the *American Society of Biomechanics Annual Meeting*, Virtual Meeting, August 4-7, 2020.

22. **Bruening DA**, Petersen SR, Ridge ST. "Assessing Plantar Foot Energetics Using Integrated Shear Stress and Motion Capture." Podium presentation at the *American Society of Biomechanics Annual Meeting*, Calgary, CA, July 31 - August 4, 2019.
23. Petersen SR, Ridge ST, **Bruening DA**. "First Metatarsal Phalangeal Energetics and Walking Speed." Poster presentation at the *American Society of Biomechanics Annual Meeting*, Calgary, CA, July 31 - August 4, 2019.
24. McLeod A, Hunter I, **Bruening D**, Johnson A, Remund K. "Running shoe optimal stiffness and speed." Podium presentation at the *Footwear Biomechanics Symposium*, Kananaskis, CA, July 28 - 30, 2019.
25. Tuttle N, Ridge S, **Bruening D**, Seeley M, Avalos M. "Influence of Generalized Joint Laxity on Landing Ground Reaction Force in Ballet and Modern Dancers." Podium presentation at the *Congress of the European Society of Biomechanics*, Vienna, Austria, July 7-10.
26. Henderson AD, Egbert J, Curtis K, Symons S, Ridge ST, Johnson AW, **Bruening DA**. "Diabetic Gait Is Not Just Slow Gait." Podium presentation at the *Gait and Clinical Movement Analysis Society Annual Meeting*, Frisco, TX, March 26-29, 2019.
27. Baird AR, **Bruening DA**. "Upper Body Sex Differences Increase Across Gait Speeds." Podium presentation at the *Gait and Clinical Movement Analysis Society Annual Meeting*, Frisco, TX, March 26-29, 2019.
28. Petersen S, Ridge ST, **Bruening DA**. "Integrated Motion Capture and Plantar Pressure/Shear Sensor for Multi-Segment Foot Kinetics." Podium presentation at the *Gait and Clinical Movement Analysis Society Annual Meeting*, Frisco, TX, March 26-29, 2019.
29. Curtis K, Egbert J, MacFarlane N, Henderson A, **Bruening DA**. "Diabetic Gait is Not Just Slow Gait." Poster presentation at three undergraduate conferences: 1- *Roseman Annual Research Symposium*, 2-*BYU HBLL & College of Life Sciences Poster Competition*, 3- *BYU Gerontology Conference*. Provo and Salt Lake City, UT, March-April 2019.
30. **Bruening D**, Baird A, Weaver K, Bassett K, Peine W, Macfarlane N, Ridge S. "Sex Differences Persist Across Gait Speeds." Poster presentation at the *American Society of Biomechanics Annual Meeting*, Rochester, MN, August 8-11, 2018.
31. Ridge ST, Reynolds R, Adair C, Zapolo P, **Bruening D**. "Sport-Specific Wearable: A Jump Monitor for Figure Skating." Thematic poster presentation at the *American Society of Biomechanics Annual Meeting*, Rochester, MN, August 8-11, 2018.
32. Kern A, **Bruening D**, Takahashi K. "Walking with Added Mass Influences Ankle and Mid-Tarsal Quasi-Stiffness." Poster presentation at the *American Society of Biomechanics Annual Meeting*, Rochester, MN, August 8-11, 2018.
33. Ridge ST, **Bruening DA**, Jurgensmeier K, Olsen M, Griffin D, Johnson AW, Davis I. "A Comparison of Foot Strengthening Versus Minimal Footwear Use on intrinsic Muscle Size and Strength." Podium presentation at the American Orthopaedic Foot and Ankle Society Annual Meeting, Boston, MA, July 11-14, 2018.
34. Ridge ST, Henderson A, **Bruening DA**, Jurgensmeier K, Olsen M, Griffin D, Johnson AW, Davis I. "Midfoot Angle Changes During Running After an 8-Week Intervention Program." Podium presentation at the American Orthopaedic Foot and Ankle Society Annual Meeting, Boston, MA, July 11-14, 2018.

35. Son SJ, **Bruening DA**, Feland JB, Seeley MK, Hopkins JT. "Biomechanical and Clinical Risk Factors for Recurrent Ankle Sprains in Chronic Ankle Instability: A 6-month Follow-up." Podium presentation at the *NATA annual meeting*, New Orleans, LA, June 26-29, 2018.
36. Christian K, **Bruening D**, Merryweather A. "Foot Characteristics Defined Using a Three-Segment Foot Model during the Stance Phase of Normal Gait as Seen in the Sagittal Plane." Poster presentation at the *Gait and Clinical Movement Analysis Society Annual Meeting*, Indianapolis, IN, May 22-25, 2018.
37. **Bruening D**, Olsen M, Johnson W, Ridge S. "Foot Mechanics in Drop Landings." Podium presentation at the *International Foot and Ankle Biomechanics Meeting*, New York, NY, April 8-11, 2018.
38. Dunbar J, Hoopes D, Ridge ST, **Bruening DA**, Johnson AW. "Great Toe Adduction Decreases Blood Flow to the Plantar Fascia." Podium presentation at the *International Foot and Ankle Biomechanics Meeting*, New York, NY, April 8-11, 2018.
39. Ridge ST, Johnson AW, Dunbar J, Griffin D, Ferguson D, Olsen M, **Bruening DA**. "Measurement of Foot Muscle Strength and Activation." Podium presentation at the *International Foot and Ankle Biomechanics Meeting*, New York, NY, April 8-11, 2018.
40. Olsen M, **Bruening DA**, Johnson AW, Ridge ST. "Static Foot Structure May Predict Midfoot Mechanics." Podium presentation at the *International Foot and Ankle Biomechanics Meeting*, New York, NY, April 8-11, 2018.
41. Johnson AW, Garner K, Olsen M, Dunbar J, **Bruening DA**, Ridge ST. "The Differences in Time to Stability, Foot Muscle Size, and Toe Flexor Strength Between Gymnasts, Cheerleaders, and Non-Athletes." Podium presentation at the *International Foot and Ankle Biomechanics Meeting*, New York, NY, April 8-11, 2018.
42. Jacobson B, Cooney K, Kelly D, Burgess D, Cendoma M, **Bruening D**. "Cervical Spine Movement during American Football Equipment Removal: Supine Versus Torso Tilt, Spine Board Versus Turf." Podium presentation at the *Pennsylvania Academy of Science Annual Meeting*, Indiana, PA, March 23-25, 2018
43. **Bruening D**, Pohl M, Takahashi K, Barrios J. "Running Strike Pattern, Midtarsal Locking, and the Windlass Mechanism." Podium presentation at the *American Society of Biomechanics Annual Meeting*, Boulder, CO, August 8-11, 2017.
44. Henderson A, **Bruening D**. "Arch Structure and Loading Pattern may Predict Running Foot Mechanics." Poster presentation at the *American Society of Biomechanics Annual Meeting*, Boulder, CO, August 8-11, 2017 and at the *Regional Rocky Mountain American Society of Biomechanics Annual Meeting*, Estes Park, CO, April 7-8, 2017.
45. **Bruening D**, Olsen M, Johnson W, Ridge S. "The Role of the Midtarsal Joint in Drop Landings." Thematic Poster presentation at the *American College of Sports Medicine Annual Meeting*, Denver, CO, May 30 – June 3, 2017. Winner of Biomechanics Interest Group (BIG) best abstract award.
46. Martineau A, Tracy J, Collins G, Rosquist P, **Bruening D**, Seeley M, Fullwood D, Bowden A. "A Mobile, Low Profile, and Inexpensive Knee Joint Angle Sensor." Poster presentation at the *American College of Sports Medicine Annual Meeting*, Denver, CO, May 30 – June 3, 2017.
47. **Bruening D**, Takahashi K. "Partitioning Ground Reaction Forces for Multi-Segment Foot Kinetics." Podium presentation at the *Gait and Clinical Movement Analysis Society Annual Meeting*, SLC, UT, May 23-26, 2017. Winner of the best podium award.

48. Cooney T, Jacobson B, Cooney K, Jacobson Z, Lai V, **Bruening D**, Rial C, Diffendaffer A. "Changes in COMP, Shoulder Strength, and Pitching Kinematics Following a Doubling of Consecutive Throws." Poster presentation at the *Orthopaedic Research Society Annual Meeting*, San Diego, CA, March 19-22, 2017.
49. Henderson A, **Bruening D**. "Choosing a multi-segment foot model for sports applications." Poster presentation at the *American College of Sports Medicine Southwest Regional Meeting*, Costa Mesa, CA, October 21-22, 2016.
50. Worster K, **Bruening D**, Takahashi K. "Deconstructing Ankle and Foot Power during Human Walking: A Segment by Segment Approach." Podium Presentation at the *American Society of Biomechanics Annual Meeting*, Raleigh, NC, August 2-5, 2016.

RESEARCH AWARDS

1. Mentored student awards:
 - a. Mickelle McCabe – 2024 BYU CURA poster competition, 1st place: "The Effect of Ankle and Hallux Positioning on Hallux Force Production."
 - b. Jessica Stringer – 2024 Rocky Mountain regional meeting of the American Society of Biomechanics, best undergraduate poster award: "Stepping into Motherhood: A Case Study of Midfoot Stiffness during Pregnancy."
 - c. Brevin Banks – 2022 BYU Biomedical conference winner: "Low-cost prosthetic feet for underserved populations: a comparison of gait analysis and mechanical stiffness."
 - d. Andrew Hillier- 2021 BYU CURA poster competition department winner: "Walking Boot Design Influences Offloading."
 - e. Lauren Williams –2021 International Foot and Ankle Biomechanics Meeting best oral presentation: "The foot becomes less spring-like as speed increases."
2. Best podium award at the 2017 Gait and Clinical Movement Analysis Society Annual Meeting.
3. Biomechanics Interest Group (BIG) best abstract award at the 2017 American College of Sports Medicine Annual Meeting.
4. Journal of Athletic Training Kenneth L. Knight award for most outstanding research manuscript, 2014.

GRANT ACTIVITY

External

1. Hamstring Injury Risk (HAMIR) Index: A Framework for Injury Mitigation Strategies through Innovative Imaging, Biomechanics, and Data Analytics (2021). Source: National Football League. Status = Funded for 3 years, \$100,000. Role: Co-Investigator.
2. Don't Forget the Foot! Exposing Foot Energetics to Enhance Foot Orthoses and Gait Rehabilitation (2020). Source: National Science Foundation, DARE program. Status = Funded for 3 years, \$200,000 (\$600,000 total between 2 schools). Role: Co Principal Investigator.
3. Quantifying Jump Training Volume and Efficiency in Figure Skating (2019). Source: International Olympic Committee Medical and Scientific Research Fund. Not funded (amount requested = \$90,000). Role: Principal Investigator.

4. Cervical Spine Movement during American Football Equipment Removal: ER vs. On-Field (2016-2017). Source: National Athletic Training Association grant. Not funded (Amount requested = \$32,000). Role: Principal Investigator.
5. A Device to Monitor Jump Count, Jump Height, and Rotation Speed in Figure Skating (2016). Source: United States Figure Skating Association. Funded for \$2,500. Role: Principal Investigator.
6. The effect of a new figure skate blade design on impact forces (2016). Source: HD Sports Limited. Funded for \$11,475. Role: Co-investigator.
7. Data Driven Dynamic Methods in Human Activity Characterization for Persistent Surveillance (2014). Source: National Science Foundation EAGER grant. Not funded (Amount requested = \$300,000). Role: Co-investigator.
8. Human Biosignatures and Modeling for Automated Recognition of Human Based Threats (2012). Funding Source: U.S. Air Force Broad Agency Announcement (BAA) contract. Funded for \$47,000,000 total contract value. Role: Co-investigator.
9. Development and Testing of an Articulated Skating Boot (2003). Source: Jackson Ultima, Inc. Funded for \$50,000. Role: Student co-investigator.

Internal

1. Can Super Shoes Provide a Mechanical and Metabolic Benefit During Walking? (2024). Source: BYU CURA grant. Funded for \$4,000. Role: Supervisor. Applicants: Thomas Andersen, Troy Bills.
2. The Effect of Ankle and Hallux Positioning on Hallux Force Production (2024). Source: BYU CURA grant. Funded for \$4,000. Role: Co-Supervisor with Josh Sponbeck. Applicants: Mickelle MacCabe, Tanner Krupp.
3. Don't Forget the Foot! Exposing Foot Energetics to Enhance Foot Orthoses and Gait Rehabilitation (2023). Source: BYU College Mentoring (CEMENT) Award. Funded for \$5,000. Role: Primary Investigator and Mentor.
4. Walking Boot Design Influences Offloading (2021). Source: BYU CURA grant. Funded for \$3,000. Role: Supervisor. Applicant: Andrew Hillier.
5. Converting IMU Sensor Data into Coaching Tools for Figure Skating (2020). Source: BYU Computer Science CHIRP funding. Funded for \$25,000. Role: Co-investigator.
6. Complex Movements Made Simple: Turning Wearable Sensor Data into Effective Coaching Tools (2020). Source: BYU Interdisciplinary Research Grant. Not funded (Amount requested = \$60,000). Role: Co Principal Investigator.
7. Gait Compensations and Asymmetries in Amputees wearing low-cost prostheses (2020). Source: BYU CURA grant. Funded for \$3,000. Role: Supervisor. Applicants: Jordan Grover, Joshua Frei, Dallin Swanson, Brayden Mayo.
8. 3rd Rocker Compliance and Metabolic Efficiency of Low-End Prostheses (2020). Source: BYU CURA grant. Funded for \$3,000. Role: Supervisor. Applicants: Amaya Merrill, Dallin Jacobs, Mikayla Komer, Jeff Bednar, Jonathan Lindsey.
9. Influence of activity level on foot/ankle structure and neuromuscular function: Implications for aging and associated pathologies (2019). Source: BYU Gerontology Research Grants. Funded for \$7,500. Role: Principal Investigator.

10. Comparative Analysis of Low and High End Prosthetic Feet (2019). Source: BYU CURA grant. Funded for \$3,000. Role: Supervisor. Applicants: Kaitlin Abbot, Brevin Banks, Zach Bons, Alyssa Spencer.
11. Examining Differences in Gait between Low-Cost and Traditional Below Knee Prosthetic Leg Designs (2015). Source: BYU ORCA grant. Funded for \$3,000. Role: Supervisor. Applicants: Kelly Bickham and Cheryl Woo.
12. A Mobile Biomechanics Laboratory for Problem Based Learning in EXSC 362 (2015). Source: BYU Teaching Enhancement Grant. Funded for \$5,300. Role: Principal Investigator.
13. Multi-modal Deceptive Behavior Detection (2013). Source: Air Force Office of Scientific Research Grant. Amount Requested: \$1,000,000; not funded. Role: Co-investigator.
14. Mobile Motion Capture for Human Skeletal Modeling in Natural Environments. Air Force Small Business Initiative Grant. Funded for \$1,000,000. Role: Grant Manager.
15. Muscle Length-Tension Relationships in Children with Cerebral Palsy (2008). Source: Shriners Hospitals Research Advisory Board. Funded for \$50,000. Role: Co-investigator.

MENTORING

Committee chair

| | | |
|----------------------------|-------------------------|---------------------|
| Lauren Williams | PhD (Exercise Sciences) | Graduation Jun 2025 |
| Tamarie Trotter | MS (Exercise Sciences) | Graduated Jun 2023 |
| Kirk Bassett | MS (Mech. Engineering) | Graduated Jun 2022 |
| Lauren Williams | MS (Exercise Sciences) | Graduated Jun 2021 |
| Hwigeum Jeong | MS (Exercise Sciences) | Graduated Aug 2020 |
| Spencer Petersen | MS (Exercise Sciences) | Graduated Jun 2020 |
| Adrienne Henderson | MS (Exercise Sciences) | Graduated Aug 2018 |
| Sunku Kwon (interim chair) | MS (Exercise Sciences) | Graduated Aug 2018 |

Committee member

| | | |
|------------------------|-----------------------------|---------------------|
| Luke Johnston | MS (Kinesiology) | Graduation Jun 2026 |
| Adam Rose | PhD (Mech. Engineering) | Graduation Jun 2028 |
| Annalise Olsen Wihongi | MS (Kinesiology) | Graduation Jun 2026 |
| Natalie Schwarz | MS (Kinesiology) | Graduation Jun 2025 |
| Minsub Oh | PhD (Exercise Sciences) | Graduation Jun 2026 |
| Luke VanKeersbilck | MS (Exercise Sciences) | Graduation Jun 2025 |
| Jared Steele | PhD (Exercise Sciences) | Graduated Aug 2024 |
| Adrienne Henderson | PhD (Kinesiology – U. Del.) | Graduated Apr 2024 |
| Minsub Oh | MS (Exercise Sciences) | Graduated Aug 2023 |
| Lindsey Wensel | MS (Exercise Sciences) | Graduated Aug 2023 |
| Hyunwook Lee | PhD (Physical Med & Rehab) | Graduated Aug 2023 |
| Miki Jauhiainen | MS (Computer Science) | Graduated Aug 2022 |
| Kelsey Clark | MS (Exercise Sciences) | Graduated Aug 2022 |
| Taylor McKenna | MS (Exercise Sciences) | Graduated Jun 2022 |
| Seunguk Han | PhD (Physical Med & Rehab) | Graduated Jun 2022 |
| Jaysen Hatch | MS (Exercise Sciences) | Graduated Dec 2020 |
| Robert Larson | PhD (Physical Med & Rehab) | Graduated Jun 2020 |

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|------------------|-------------------------------|--------------------|
| Hyunwook Lee | MS (Exercise Sciences) | Graduated Aug 2020 |
| Aubree McLeod | MS (Exercise Sciences) | Graduated Apr 2020 |
| Thomas Hulcher | MS (Kinesiology – U. Del.) | Graduated Dec 2019 |
| Kyle Christian | MS (Mech. Engineering – UofU) | Graduated Dec 2019 |
| Adin Martineau | MS (Mech. Engineering) | Graduated Dec 2018 |
| Julia Dunbar | MS (Exercise Sciences) | Graduated Aug 2018 |
| Melissa Frixione | MS (Exercise Sciences) | Graduated Aug 2018 |
| Mark Olsen | MS (Exercise Sciences) | Graduated Dec 2017 |
| Jun Son | PhD (Physical Med & Rehab) | Graduated Dec 2017 |
| Noelle Tuttle | MS (Exercise Sciences) | Graduated Aug 2017 |
| Kendall Ross | MS (Exercise Sciences) | Graduated Aug 2014 |

Undergraduate research assistants

2024: Jessica Stringer (MEEN), Ethan Sandberg (MEEN), Thomas Andersen (EXSC), Troy Bills (EXSC), Mickelle MacCabe (EXSC), Tanner Krupp (EXSC), Bethany Esplin (EXSC), Nate Jacobsen (EXSC)

2023: Jessica Stringer (MEEN), Ethan Sandberg (MEEN), Steve Trythall (EXSC), Kylie Tucker (EXSC), Thomas Andersen (EXSC), Troy Bills (EXSC), Mickelle MacCabe (EXSC), Tanner Krupp (EXSC)

2022: Cody Messick (MEEN), Braydon Butler (EXSC), Tanner Krupp (EXSC), Davis Waid (FIN), David Phair (MEEN), Dylan Parry (EXSC)

2021: Andrew Hillier (HLTH), Dylan Parry (EXSC), Amy Mitchell Hayward (EXSC), Seth Huber (MFGEN), Jordan Grover (EXSC), Nick Hays (MEEN), Kaleigh Renninger (MEED), Brevin Ba (MEEN), Alyssa Spencer (MEEN), Jordan Grover (EXSC), Jared Staten (EXSC), Amaya Merrill (EXSC), Dallin Jacobs (MEEN), Nick Hays (MEEN)

2020: Jonathan Egbert (EXSC), Kade Scoresby (EXSC), Jordan Grover (EXSC), Jared Staten (EXSC), Amaya Merrill (EXSC), Bradley Shawen (EXSC), Dallin Jacobs (MEEN), Jonathan Lindsay (MEEN), Makayla Komer (MEEN), Jeff Bednar (MEEN), Joshua Frei (MEEN), Brayden Mayo (MEEN), Nick Hays (MEEN)

2019: Weston Peine (EXSC), Andrew Baird (MEEN), Kelsey Weaver (EXSC), Kevin Curtis (EXSC), Sydney Symons (EXSC), Kade Scoresby (EXSC), Riley Reynolds (MEEN), Andrew Taggart (MEEN), Kaitlin Abbott (EXSC), Brevin Ba (MEEN), Zach Bons (MEEN), Alyssa Spencer (MEEN), Parker King (MEEN), Valerie Smith (MEEN), Luke Dean (MEEN)

2018: Weston Peine (EXSC), Austin Rasmussen (EXSC), Andrew Baird (MEEN), Kelsey Weaver (EXSC), Riley Reynolds (MEEN), Rebecca Crowley (MEEN), Logan Nielsen (NEURO), Kevin Curtis (EXSC)

2017: Drew Ferguson (EXSC), Abbey Jensen (EXSC), Kirk Bassett (EXSC), Chris Adair (MEEN)

2016: Adrienne Henderson (EXSC), Drew Ferguson (EXSC), Cole Gardner (EXSC)

PROFESSIONAL SERVICE

Society Memberships:

American Society of Biomechanics (ASB, current)

International Foot and Ankle Biomechanics Community (iFAB, current)

Gait and Clinical Movement Analysis Society (GCMAS, prior)

American College of Sports Medicine (ACSM, prior)

Society Service:

American Society of Biomechanics (ASB)

- Session Chair, 2021 annual meeting
- Education Committee member (2019 - present)
 - Regional meeting application reviews (2022-present)
 - Submitted lead proposal for a teaching symposium (2024, not accepted)
 - Assist on teaching tutorial (2024)
 - Assist on outreach symposium (2025)

BYU Academic Committees:

BYU Interim graduate coordinator (winter 2024)

BYU EXSC Scientific Review Chair (2023-present)

BYU EXSC Rank and Status Committee (2022-present)

BYU EXSC Graduate Council (2018 - present)

BYU LS College Computer Users Council (2018)

Ad Hoc Journal Reviewer:

ASME Journal of Biomechanical Engineering

BMC Musculoskeletal Disorders

British Medical Bulletin

Computer Methods in Biomechanics and Biomedical Engineering

Gait and Posture

Journal of Applied Biomechanics

Journal of Athletic Training

Journal of Biomechanical Engineering

Journal of Biomechanics

Journal of Foot and Ankle Research

Journal of Neuroengineering and Rehabilitation

Journal of the Royal Society Interface

Medicine & Science in Sports & Exercise

Perceptual and Motor Skills

PLOS one

Research in Developmental Disabilities

Scientific Data (Nature)

Scientific Reports (Nature)

Journal of Science and Medicine in Sport

Other Reviews:

External NSERC grant review, 2024

External tenure applicant review, 2022

BYU CURA grant poster judge, 2019

BYU John A. Widtsoe grant applications, 2015, 2018, 2019

BYU Eliza R. Snow grant applications, 2016

ASB conference, 2016, 2018, 2020

GCMAS conference, 2011

JEGM conference, 2010

Invited Lectures:

1. "Foot Energetics." University of Delaware BIOMS seminar. Newark, DE, September 14, 2022.
2. "Foot and Ankle Mechanics." BYU Exercise Sciences Department Seminar. Provo, UT, January 25, 2018.
3. "Biofidelic Human Modeling." *Air Force Research Laboratory Branch meeting*. Dayton, OH, March 15, 2012.
4. "The Role of Clinical Gait Analysis in Treatment Decision Making." *Erie County Medical Center Resident Conference*. Buffalo, NY, October 8, 2008.
5. "The Use of Technology in Figure Skating." *Professional Skaters Association Workshop*. Newark, DE, July 2006.
6. "Biomechanics in Figure Skating." *University of Delaware Coaches Workshop*. Newark, DE, September 2003.

Miscellaneous:

Organizer, Visual 3D Users Group Meeting at the Annual Meeting of the Gait and Clinical Motion Analysis Society, Bethesda, MD, April 2011.

Assistant Investigator, United States Figure Skating Association High Performance Testing, Atlanta, GA and Lake Placid, NY, 2004.