

## CURRICULUM VITAE

# Kenzie B. Friesen, Ph.D., CSCS, CEP

updated:01/08/2024

---

Address: 2500 University Dr. NW, Calgary AB, Canada T2N 1N4

Mobile: (306) 370-8343

e-mail: [kenzie.friesen@ucalgary.ca](mailto:kenzie.friesen@ucalgary.ca)

web: <http://www.kenziefriesen.wixsite.com/kenziefriesen>

### SECTION I. EDUCATION

---

**Doctor of Philosophy** – Kinesiology: Specialization in Biomechanics

Auburn University, Auburn, Alabama, USA, December 2020

*Dissertation Title: The effects of body composition on female softball pitching biomechanics*

**Master of Science** – Exercise Science: Human Performance Cognate

Liberty University, Lynchburg, Virginia, USA, August 2017

**Bachelor of Science** – Exercise Science: Pre-Professional Cognate

Liberty University, Lynchburg, Virginia, USA, May 2016

### SECTION II. SCHOLARLY WORK

---

#### PUBLICATIONS

##### Refereed Journals

##### Published Manuscripts:

1. **Friesen KB**, Oliver GD. Biomechanical analyses of selected body girths during softball pitching reveal varied body positions at ball release. *Medicine and Science in Sports and Exercise*. 2023; 55(8):1481-1486. DOI: 10.1249/mss.0000000000003167
2. **Friesen KB**, Wu LZ, Waslen A, Lang AE. Defining repeatability for scapulothoracic and thoracohumeral motion during the Work-Related Activities and Functional Task (WRAFT) protocol. *Journal of Biomechanics*. [published online ahead of print, April 25, 2023]. DOI: 10.1016/j.jbiomech.2023.111596.
3. **Friesen KB**, Sigurdson A, Lang AE. Comparison of scapular kinematics from optical motion capture and inertial measurement units during a work-related and functional task protocol. *International Federation for Medical and Biological Engineering*. [published online ahead of print, February 14, 2023]. DOI: <https://doi.org/10.1007/s11517-023-02794-2>
4. **Friesen KB**, Saper MG, Oliver GD. Biomechanics related to increased softball pitcher shoulder stress: implications for injury prevention. *American Journal of Sports Medicine*. 2022; 50(1), 216-223. DOI: 10.1177/03635465211055141

**K. Friesen**

5. **Friesen KB**, Oliver GD. Softball pitching propulsion and performance differences according to body fat percentage. *International Journal of Sports Medicine*. 2022; 43(10), 895-901. DOI: 10.1055/a-1778-4359
6. **Friesen KB**, Oliver GD, Aguinaldo AL. Athlete body composition influences timing during sporting tasks: An analysis of softball pitchers' segmental angular velocities. [published online ahead of print, April 11, 2022]. *Sports Biomechanics*. 2022, 1-14. DOI: 10.1080/14763141.2022.2060853
7. **Friesen KB**, Lanovaz JL, Moraes R, Oates A. Don't get tripped up: Haptic modalities alter gait characteristics while obstacle crossing. *Human Movement Science*. 2022; 82:102935. DOI: 10.1016/j.humov.2022.102935
8. **Friesen KB**, Lang AE, Chad KE, Oliver GD. An investigation of bilateral symmetry in softball pitchers according to body composition. *Frontiers in Sports and Active Living*. 2022; 4, 868518. DOI: 10.3389/fspor.2022.868518
9. **Friesen KB**, Lang AE. Do musculoskeletal disorders affect work tasks in farmers: A study of rural Saskatchewan. *Journal of Occupational and Environmental Medicine*. 2022; 64(9), e591-596. DOI: 10.1097/JOM.0000000000002637
10. **Friesen KB**, Oliver GD. Predicting shoulder force to prevent injury: Body fat mass increases shoulder stress among pitchers. *Medicine and Science in Sports and Exercise*. 2022; 54(3): 432-437. DOI: 10.1249/MSS.0000000000002803
11. **Friesen KB**, Shaw RE, Shannon D, Oliver GD. Single-leg squat compensations are associated with softball pitching pathomechanics in adolescent softball pitchers. *Orthopaedic Journal of Sports Medicine*. 2021; 9(3):232596712199092. DOI: 0.1177/2325967121990920
12. **Friesen KB**, Barfield JW, Murrah WM, Dugas JR, Andrews JR, Oliver GD. The association of upper-body kinematics and earned run average of national collegiate athletic association division I softball pitchers. *Journal of Strength and Conditioning Research*. 2021; 35(11), 3145-3150. DOI: 10.1519/jsc.0000000000003287
13. **Friesen KB**, Zhang Z, Monaghan PG, Oliver GD, Roper JA. All eyes on you: how researcher presence changes the way you walk. *Scientific Reports*. 2020; 10:17159. DOI: <https://doi.org/10.1038/s41598-020-73734-5>
14. **Friesen KB**, Anz AW, Dugas JR, Andrews JR, Oliver GD. The effects of body mass index on softball pitchers' hip and shoulder range of motion. *Sports Medicine International Open*. 2020; 4, E8–E13. DOI: 10.1055/a-1244-1621
15. **Friesen KB**, Downs JL, Wasserberger KW, Shannon D, Oliver GD. Glenohumeral and hip range of motion in youth softball athletes. *International Journal of Sports Medicine*. 2019; 41(1), 59-64. DOI: 10.1055/a-1019-7742
16. JLD Talmage, **KB Friesen**, AW Fava, Everhart K, GD Oliver. Effects of increasing pitch count on pitch type ball metrics and release height in high school softball pitchers. *Sports Health*. [published online ahead of print, December 27th, 2023]. DOI: 10.1177/19417381231217668
17. JLD Talmage, AW Fava, **KB Friesen**, NM Bordelon, GD Oliver. Range of motion adaptations during a simulated game exposure in softball pitchers. *International Journal of Sports Medicine*. [published online ahead of print, October 6, 2023]. DOI: 10.1055/a-2134-3456

18. Waslen A, **Friesen KB**, Lang AE. Do sex and age influence scapular and thoracohumeral kinematics during a functional task protocol? *Journal of Applied Biomechanics*. [published online ahead of print, October 11, 2023]. DOI: 10.1123/jab.2023-0085
19. Lang AE, **Friesen KB**. Defining humeral axial rotation with optical motion capture and inertial measurement units during functional task assessment. *Medical & Biological Engineering & Computing*. [published online ahead of print, August 3, 2023]. DOI: <https://doi.org/10.1007/s11517-023-02894-z>
20. Everhart KM, **Friesen KB**, Bordelon NM, Fava A, Oliver GD. Single leg squat and reported pain in collegiate softball players. *Orthopaedic Journal of Sports Medicine*. 2023; 11(1), 23259671221144757. DOI: 10.1177/23259671221144757
21. Fava A, Giordano KA, **Friesen KB**, Nguyen A, Oliver GD. Comparison of trunk and pelvic kinematics in youth baseball pitchers with and without upper extremity pain: A cross-sectional study. *Orthopaedic Journal of Sports Medicine*. 2023; 11(1), 23259671221145679. DOI: <https://doi.org/10.1177/23259671221145679>
22. Bordelon NM, Wasserberger KW, Downs Talmage JL, **Friesen KB**, Dugas JR, Oliver GD. Pelvis and trunk energy flow in collegiate softball pitchers with and without upper extremity pain. *American Journal of Sports Medicine*. 2022; 50(11), 3083-3089. DOI: <https://doi.org/10.1177/03635465221114476>
23. Bordelon NM, **Friesen KB**, Plummer H, Fava A, Oliver GD. Peak elbow flexion does not influence peak shoulder distraction force or ball velocity in NCAA division I softball pitchers. *Orthopaedic Journal of Sports Medicine*. 2022; 10(1): 23259671211067828. DOI: 10.1177/23259671211067828
24. Bordelon NM, Wasserberger KW, Downs Talmage JL, **Friesen KB**, Washington JK, Oliver GD. Segment power analysis of collegiate softball hitting. [published online ahead of print, December 28, 2021]. *Sports Biomechanics*. 2021. DOI: 10.1080/14763141.2021.2011391
25. Oliver GD, Downs JL, **Friesen KB**, Saper MG, Dugas JR. Decreased shoulder and elbow joint loads during the changeup compared with the fastball and curveball in NCAA division I collegiate softball pitchers. [published online ahead of print, September 8, 2021]. *Orthopaedic Journal of Sports Medicine*. 2021; 9(9). DOI: <https://doi.org/10.1177/23259671211026625>
26. Wasserberger KW, **Friesen KB**, Bordelon NM, Downs JL, Oliver GD. Comparison of pelvis and trunk kinematics between youth and collegiate windmill softball pitchers. *Orthopaedic Journal of Sports Medicine*. 2020; 9(8). DOI: <https://doi.org/10.1177/23259671211021826>
27. Pletcher E, **Friesen KB**, Oliver GD, Lovalekar M, Gorse K, Nagai T, Connaboy C. Drive leg ground reaction forces and rate of force development over consecutive softball windmill pitches. [published online ahead of print, July 28, 2021]. *The Journal of Sports Medicine and Physical Fitness*. DOI: 10.23736/S0022-4707.21.12644-1
28. Downs JL, Bordelon NM, **Friesen KB**, Oliver GD. Kinematic differences exist between the fastball, changeup, curveball, and dropball pitch types in collegiate softball pitchers. *American Journal of Sports Medicine*. 2021; 49(4): 036354652098817. DOI: 10.1177/0363546520988172
29. Oliver GD, Wasserberger KW, de Swart A, **Friesen KB**, Downs JL, Bordelon NM. Effects of hip range of motion and isometric strength on energy flow during windmill softball pitching. [published online ahead of print, January 25, 2021]. *Journal of Athletic Training*. DOI: 10.4085/145-20
30. Oliver GD, Downs JL, **Friesen KB**, Saper MG, Anz AW, Andrews JR. Biceps tendon changes and pitching mechanics in youth softball pitchers. *International Journal of Sports Medicine*. 2020, 42(03): 277-282. DOI: 10.1055/a-1236-3855

## K. Friesen

31. Oliver GD, **Friesen KB**, Barfield JW, Giordano KA, Bordelon NM, Anz A, Goodlett MD, Andrews JR. Lower extremity pain and pitching kinematics and kinetics in collegiate softball pitchers. *International Journal of Sports Medicine*. 2020, 42(6):544-549. DOI: 10.1055/a-1263-0938
32. Downs JL, **Friesen KB**, Dugas JR, Andrews JR, Oliver GD. Effects of a simulated game on pitching kinematics in youth softball pitchers. *International Journal of Sports Medicine*. 2019; 41(3), 189-195. DOI: 10.1055/a-1062-6475
33. Oliver GD, Downs JL, **Friesen KB**, Anz Aw, Dugas JR, Andrews JR. Effects of a simulated game on pitching kinematics in youth female softball pitchers. *Orthopaedic Journal of Sports Medicine*. 2020; 8(4).
34. Oliver GD, **Friesen KB**, Barfield JW, Giordano KA, Anz A, Dugas JR, Andrews JR. Association of upper extremity pain with softball pitching kinematics and kinetics. [published online ahead of print, August 21, 2019]. *Orthopaedic Journal of Sports Medicine*. DOI: org/10.1177/2325967119865171
35. Brittain AR, **Friesen KB**, Wasserberger KW, Barfield JW, Oliver GD. Single-leg squat performance and reported pain within youth softball players. *Journal of Applied Sciences*. 2020; 10(5), 1648-1657. DOI: 10.3390/app10051648
36. Oliver GD, Gilmer GG, **Friesen KB**, Plummer HA, Anz AW, Andrews JR. Functional differences in softball pitchers with and without upper extremity pain. *Journal of Science and Medicine in Sport*. 2019; 22(10), 1079-1083. DOI: org/10.1016/j.jsams.2019.06.001
37. Oliver GD, Washington JK, **Friesen KB**, Anz AW, Dugas JR. The effects of a pre-throwing program on collegiate NCAA Division I softball pitchers' biomechanical measures of hip and shoulder range of motion. *Journal of Orthopaedic Therapy*. 2018; (2). DOI: 10.29011/2575-8241.000081
38. Oliver GD, Gilmer GG, Anz AW, **Friesen KB**, Brittain AR, Goodlett MD, Dugas JR, Andrews JR. Upper extremity pain and pitching mechanics in National Collegiate Athletic Association Division I softball. *International Journal of Sports Medicine*. 2018; 39(12), 929-935. DOI: 10.1055/a-0658-1546

In Review:

39. **Friesen KB**, Giordano KA, Oliver GD. Principal components and waveform analyses to identify biomechanical differences between softball pitchers with and without pain. *Sports Health*. (Revisions October 2023)
40. **Friesen KB**, Heming E, Dennison C, Ferber R, Emery C. Head acceleration events using instrumented mouthguards in female ringette players. *Journal of Applied Biomechanics*. (Submitted July 2023)
41. Bordelon NM, Fava A, **Friesen KB**, Oliver GD. Kinematic comparison between tee and front toss hitting in youth baseball athletes. *Sports Biomechanics*. (Revisions Submitted January 2023)

**Abstracts and Conference Presentations** (\*denotes mentorship)

Published/Presented

1. **Friesen KB**, Galarneau JM, Olapade E, Wu L, Dennison C, Ferber R, Emery CA. (2023). Head acceleration events in female high school: An attempt to “take down” concussion in wrestling. *Alberta Children's Hospital Research Institute Retreat*. Banff, AB. Poster Presentation.

**K. Friesen**

2. **Friesen KB**, Heming E, Dennison C, Ferber R, Emery CA. (2023). Head acceleration events using instrumented mouthguards in female ringette players. *International Society of Biomechanics in Sport*. Milwaukee, MI. Oral Presentation.
3. **Friesen KB**, Dennison C, Ferber R, Emery CA. Instrumented mouthguards (iMGs) to guard against injury?: An “inside” look at the current SHRed iMG data and plans for future research. *Community and Research Engagement Symposium*. Calgary, AB. Podium.
4. **Friesen KB**, Heming E, Ferber R, Emery CA. (2023). Comparison of direct and indirect head acceleration in youth ringette female players using instrumented mouthguards. *Canadian Concussion Network*. Calgary, AB. Poster Presentation.
5. **Friesen KB**, Shill I, West S, Price T, Ferber R, Dennison C, Emery C. (2023). Sex differences exist in high school rugby players’ head acceleration events: An analysis of acceleration magnitude, pulse duration, and impact location. *Canadian Academy of Sport and Exercise Medicine*. Banff, AB. Podium Presentation- Published in Proceedings.
6. **Friesen KB**, Emery CA. (2023). Use of functional near-infrared spectroscopy and instrumented mouthguards to assess impact of cumulative head acceleration affects on brain oxygenation in high school wrestlers. *Canadian Traumatic Brain Injury Research Consortium*. Lake Louise, AB. Oral Presentation.
7. **Friesen KB**, Lanovaz J, Moraes R, Oates A. (2022). Examination of the utility of haptic modalities during obstacle crossing. *Canadian Injury Prevention Conference*. Vancouver, BC. Oral Presentation.
8. **Friesen KB**, Emery CA. Body Fat May Place Softball Pitchers Behind the “Weight” Ball. (2022). *SHRed Concussions Research and Community Engagement (RACE) Symposium*. Calgary, AB. Podium Presentation- Published in Proceedings.
9. **Friesen KB**, Lang AE. (2022). Validation of a work-related and functional task protocol to assess scapular motion. *International Shoulder Group*. Delft, Netherlands. Oral Presentation.
10. **Friesen KB**, Lang AE, Chad K, Oliver GD. (2022). Does body fat percentage influence movement asymmetry in softball pitchers? *North American Congress on Biomechanics*. Ottawa, ON. Poster.
11. **Friesen KB**. The Saskatoon Try-Sport League: A multisport experience in the wake of single sport stardom. *USask College of Kinesiology Research Showcase*. Oral Presentation.
12. **Friesen KB**, Bordelon NM, Talmage Downs JL, Wasserberger KW, Oliver GD. High body fat alters throwing shoulder kinetics in softball pitchers: implications for injury prevention. *British Journal of Sports Medicine International: Olympic Committee World Conference on Injury and Illness Prevention*. Poster.
13. **Friesen KB**, Oliver GD. (2021). Body composition influences segmental sequencing in trained softball athletes. *International Society of Biomechanics*. Virtual Poster.
14. **Friesen KB**, Shaw RE, Brittain, AR, Oliver GD. (2021). Comparison of the single leg squat and softball kinematics. *Canadian Society of Biomechanics*. Montreal, QC. Virtual Poster.
15. **Friesen KB**. (2021). Is softball pitching variability associated with athlete body composition? *USask Research Symposium Showcase*. Saskatoon, SK. Presentation.

## K. Friesen

16. **Friesen KB**, Zhaotong ZZ, Monaghan P, Oliver GD, Roper JR. (2020). The influence of audience on spatiotemporal parameters during laboratory gait analyses. *Mid-South American Society of Biomechanics*. Memphis, TN. Presentation.
17. **Friesen KB**, Downs JL, Wasserberger KW, Giordano KA, Bordelon NM, Brittain, AR, Oliver GD. (2020). Body mass index affects kinematic and kinetic parameters during the windmill softball pitch. *Southeast American College of Sports Medicine*. Jacksonville, FL. Poster.
18. **Friesen KB**, Barfield JW, Giordano KA, Oliver GD. (2019). Kinematic predictors of upper extremity pain in National Collegiate Athletic Association Division I softball pitchers. *International Society of Biomechanics*. Calgary, AB. Poster.
19. **Friesen KB**, Barfield JW, Brittain AR, Oliver GD. (2019). A regression model predicting NCAA Division I softball pitchers' ERA based on upper extremity kinematics. *Southeast American College of Sports Medicine*. Greenville, SC. Presentation.
20. **Friesen KB**, Wasserberger KW, Downs JL, Washington JK, Williams T, Oliver GD. (2018). A comparison of total body band-resisted exercises on gluteus medius activation. *American Society of Biomechanics*. Rochester, MN. Poster.
21. Fletcher E\*, **Friesen KB**, Burma JS, Smirl JD. Reliability of frequency domain near-infrared spectroscopy assessing cortical oxygenation. *Hotchkiss Brain Institute Symposium*. Calgary, AB. Poster.
22. Allard M\*, Eliason P, Agius M, Cairo AL, Critchley M, **Friesen KB**, Heming E, Kolstad A, Shill IJ, Mosher D, Barnabe C, Emery CA. Youth sport participation and injury rates in rural and Indigenous communities in Alberta. *Alberta Children's Hospital Research Institute Trainee Day*. Calgary, AB. Poster.
23. Jamison R\*, Eliason P, Agius M, **Friesen KB**, Critchley M, Kolstad A, Shill IJ, Heming E, Barnabe C, Mosher D, Emery CA. Cross-sectional concussion survey in rural communities in Alberta. *Alberta Children's Hospital Research Institute Trainee Day*. Calgary, AB. Poster.
24. Bordelon NM, Wasserberger KW, Talmage JD, Nebel AR, **Friesen KB**, Giordano KA, Oliver GD. The relationship between trunk energy flow and collegiate softball hitting performance. *International Society of Biomechanics in Sport*. Milwaukee, MI. Poster Presentation.
25. Scott PA\*, **Friesen KB**, Lipinski J, Lanovaz JL, Farthing JP. The relationship between isometric strength tests and dynamic performance: a comparison of two bar types. *National Strength and Conditioning Association*. Las Vegas, NV. Poster Presentation.
26. Scott PA\*, **Friesen KB**, Lipinski J, Lanovaz JL, Farthing JP. The relationship between novel unilateral isometric strength tests and dynamic performance. *National Strength and Conditioning Association*. Las Vegas, NV. Oral Presentation.
27. Chad KE, **Friesen KB**, Humbert L, Sandimorsky D. (2022). Understanding the importance of high school sports: When it wasn't there. *International Physical Education and Sport Science Conference*. London, UK. Poster Presentation.
28. Chad KE, **Friesen KB**, Humbert L, Sandimorsky D. (2022). Time out: The experiences of high school sports participants one year after the pandemic. *The International Physical Literacy Conference*. New York, NY. Poster Presentation.

## K. Friesen

29. Chad KE, Humbert L, **Friesen KB**, Sandimorsky D. (2022). The effect of the pandemic on high school sports and lessons for the future. *International Conference on Education*. Honolulu, HI. Poster.
30. Lang AE, **Friesen KB**. (2022). Effects of inertial measurement unit placement on scapular kinematics. *International Shoulder Group*. Delft, Netherlands. Oral Presentation.
31. Skinner M, Giordano KA, **Friesen KB**, Wasserberger KW, Downs JL, Oliver GD. (2019). Association of upper extremity pain and softball pitch kinematics during the preparatory phase. *Southeast American College of Sports Medicine*. Greenville, SC.
32. Bordelon NM, Wasserberger KW, Downs JL, **Friesen KB**, Giordano KA, Fava A, Oliver GD. (2019). Bilateral upper extremity and pelvis segment energy flow differences during the softball swing. *Southeast American College of Sports Medicine*. Greenville, SC. Poster.
33. Downs JL, **Friesen KB**, Giordano KA, Cramer A, Oliver GD. (2019). Prior athletes report better scores on the musculoskeletal health questionnaire than non-prior athletes. *Southeast American College of Sports Medicine*. Greenville, SC. Poster.
34. Oliver GD, **Friesen KB**, Shaw RE, Shannon D, Dugas J, Andrews J. (2020). Comparison of single-leg squat and softball pitch mechanics. *Pediatric Research in Sport Medicine*. Virtual Poster.
35. Monaghan PG, **Friesen KB**, Zhang Z, Roper JA. (2020). The influence of an expert audience on spatiotemporal parameters during laboratory analyses. *Mid-South American Society of Biomechanics*. Memphis, TN. Presentation.
36. Bordelon NM, Wasserberger KW, Downs JL, **Friesen KB**, Washington JK, Oliver GD. (2020). The relationship between humeral segment energy and hand angular velocity in softball hitting. *American Society of Biomechanics*. Atlanta, GA. Poster.
37. Downs JL, Bordelon NM, **Friesen KB**, Oliver GD. (2020). Low batted ball velocity hitters have increased back hip internal rotation range of motion. *American Society of Biomechanics*. Atlanta, GA. Poster.
38. Monaghan PG, **Friesen KB**, Zhang Z, Roper JA. (2020). The influence of an expert audience on gait initiation performance. *American Society of Biomechanics*. Atlanta, GA. Poster.
39. Bordelon NM, Cassidy MM, Wasserberger KW, Downs JL, **Friesen KB**, Brittain AR, Giordano KA, Oliver GD. (2020). The effect of load magnitude on muscle activation during unilateral front racked dumbbell carries. *Southeast American College of Sports Medicine*. Jacksonville, FL. Poster.
40. Downs JL, **Friesen KB**, Wasserberger KW, Giordano KA, Brittain AR, Bordelon NM, Oliver GD. (2020). Association between pitching a simulated game and pitching performance in youth softball pitchers. *Southeast American College of Sports Medicine*. Jacksonville, FL. Poster.
41. Brittain AR, **Friesen KB**, Wasserberger KW, Downs JL, Giordano KA, Bordelon NM, Oliver GD. (2020). Associations between single leg squat stability and overhead throwing kinetics in youth softball athletes. *Southeast American College of Sports Medicine*. Jacksonville, FL. Poster.
42. Kirkham CH, Brittain AR, **Friesen KB**, Downs JL, Oliver GD. (2020). Association between long head bicep tendon and shoulder range of motion and isometric strength. *Southeast American College of Sports Medicine*. Jacksonville, FL. Poster.

## K. Friesen

43. Watterson MC, Giordano KA, Wasserberger KW, **Friesen KB**, Downs JL, Oliver GD. (2020). Impact of hip internal and external rotation on shoulder kinetics during a baseball pitch. *Southeast American College of Sports Medicine*. Jacksonville, FL. Presentation.
44. Phan JA\*, **Friesen KB**, Downs JL, Oliver GD. (2020). Body anthropometrics affect hitting performance in baseball hitters. *Auburn Student Symposium*. Auburn, AL. Poster.
45. Shaw RE\*, **Friesen KB**, Brittain AR, Oliver GD. (2020). Comparison of knee valgus during the single leg squat and softball pitch. *Auburn Student Symposium*. Auburn, AL. Poster.
46. Brittain AR, **Friesen KB**, Gascon SS, Oliver GD. (2019). A quantitative analysis of sport specialization among youth baseball and softball athletes. *National College of Strength and Conditioning*. Washington, DC. Poster.
47. Brittain AR, Barfield JW, **Friesen KB**, Oliver GD. (2019). The role of single leg squats in predicting pain among youth softball players. *Southeast American College of Sports Medicine*. Greenville, SC. Poster.
48. Williams PT, Barfield JW, Downs JL, Wasserberger KW, **Friesen KB**, Brittain AR, Oliver GD. (2019). Relationship of lumbopelvic-hip stability on ball speed in female windmill softball players. *Southeast American College of Sports Medicine*. Greenville, SC. Poster.
49. Phan JA\*, **Friesen KB**, Downs JL, Oliver GD. (2019). The relationship between athlete anthropometrics and hitting performance. *Auburn University Research Symposium*. Auburn, AL. Presentation.
50. Oliver GD, Gilmer GG, **Friesen KB**, Brittain AR, Anz A, Goodlett M, Andrews JR. (2018). Pain history and pitching mechanics in collegiate softball pitchers. *International Society of Biomechanics in Sports*. Auckland, New Zealand. Poster.
51. Oliver GD, Gilmer GG, **Friesen KB**, Plummer H, Anz A, Dugas J, Andrews JR. (2018). Functional characteristics of softball pitchers with and without pain. *International Shoulder Group*. Rochester, MN. Presentation.
52. Downs JL & **Friesen KB**, Washington JK, Gilmer GG, Oliver GD. (2018). Correlation of pelvis kinematics to ground reaction force in softball hitting: a pilot study. *Southeast American College of Sports Medicine*. Chattanooga, TN. Poster.
53. Barfield JW, Washington JK, Hanks MM, Gascon SS, Gilmer GG, Brittain AR, Williams P, **Friesen KB**, Oliver GD. (2018). Baseball pitcher's glove arm influence on elbow and shoulder kinetics. *Southeast American College of Sports Medicine*. Chattanooga, TN. Poster.
54. Hanks MM, Brewer LE, Gilmer GG, Washington JK, Gascon SS, Barfield JW, **Friesen KB**, Oliver GD. (2018). The influence of self-selected protective equipment on kinematics in youth lacrosse players. *Southeast American College of Sports Medicine*. Chattanooga, TN. Poster.
55. Williams P, Washington JK, Hanks MM, Barfield JW, Gilmer GG, Gascon SS, **Friesen KB**, Oliver GD. (2018). Examination of proximal and distal muscle activation: an EMG study. *Southeast American College of Sports Medicine*. Chattanooga, TN. Poster.
56. Washington JK, Hanks MM, Gascon SS, Barfield JW, Williams PT, **Friesen KB**, Gilmer GG, Brittain AR, Oliver GD. (2018). Correlation of lumbopelvic-hip complex kinematics to hand angular velocity in softball hitting: a pilot study. *Southeast American College of Sports Medicine*. Chattanooga, TN. Poster.

## K. Friesen



57. Feister J, **Friesen KB**, Albert A, Armbrust M, Kappler E, Schoffstall J. (2016). Effects of hot or cold hydrotherapy on subsequent power output following a wingate protocol. *Mid-Atlantic American College of Sports Medicine*. Hershey, PA. Poster.

#### In Progress/Review

1. **Friesen KB**, Dennison C, Ferber R, Emery CA. Description of head acceleration events in high school wrestlers using instrumented mouthguards: An attempt to takedown injury in wrestling. *International Olympic Committee Conference on Injury and Illness Prevention*. (Accepted)
2. **Friesen KB**, Shill I, Ferber R, Emery CA. Epidemiology of high school wrestling injuries in high school Canadian youth. *International Olympic Committee Conference on Injury and Illness Prevention*. (Accepted)

#### GRANT PARTICIPATION

1. Emery CA, **Friesen KB**, Jones B, Tooby J, Ferber R, Heyward O, Dennison C, West S, Stokes K. Instrumented mouthguards, video analysis, and epidemiology to examine rugby injuries among Canadian youth: A multi-method approach for injury prevention. *UCalgary Connector Grant*. (Funded) Co-PI. Amount: \$12,750 CAD
2. **Friesen KB**, Ferber R, Emery CA. (2022). Head acceleration events in female high school: An attempt to “take down” concussion in wrestling *Canadian Institute of Health Research Travel Grant*. (Funded) PI. Amount \$1,500 CAD
3. **Friesen KB**, Ferber R, Emery CA. (2022). A multi-disciplinary approach for assessing risk-factors of concussion in youth sports: Concussion injury identification with use of instrumented mouthguards, injury surveillance, video observation, and frequency domain near-infrared spectroscopy. *Canadian Institute of Health Research Fellowship*. (In Review)
4. **Friesen KB**, Ferber R, Emery CA. (2023). The use of impact monitoring mouthguards to measure head biomechanics in youth female team sport athletes. *Eyes High Postdoctoral Fund-Matching Program at UCalgary*. (Funded) Amount: \$25,000 CAD
5. **Friesen KB**. (2023). Saskatoon’s Try-Sport League. A league designed to allow children from lower income families the opportunity to compete in multiple sports. *Canadian Tire Jumpstart Program*. (Funded) Amount: \$7,427 CAD
6. Scott PA, **Friesen KB**, Lipinski J, Lanovaz JL, Farthing JP. Validity and reliability of a novel alternative to force plate technology for position specific isometric strength tests and their relationship to dynamic performance in collegiate athletes. *Mitacs Accelerate*. (Funded) Amount: \$75,000 CAD
7. Lang AE, Koehnche N, **Friesen KB**. (2022). Shoulder function measurement for everyone: a validation study of wearable sensors for community-driven research. *University of Saskatchewan College of Medicine Research Award*. (Funded) Amount: \$30,000 CAD
8. **Friesen KB**, Ferber R, Emery CA. (2022). A multi-disciplinary approach for assessing risk-factors of concussion in youth sports: Concussion injury identification with use of instrumented mouthguards, injury surveillance, and video observation. *Canadian Institute of Health Research Fellowship*. (Not funded)

9. **Friesen KB**, Ferber R, Emery CA. (2022). The use of impact monitoring mouthguards to measure head biomechanics in youth female team sport athletes. *Eyes High Postdoctoral Fund-Matching Program at UCalgary*. (Funded) Amount: \$25,000 CAD
10. **Friesen KB**, Emery CA. (2022). The use of impact monitoring mouthguards to measure head biomechanics in youth female team sport athletes. *O'Brien Institute Postdoctoral Scholarship at UCalgary*. (Funded) Amount: \$12,500 CAD
11. **Friesen KB**, Lang AE, Chad K. (2022). Saskatoon's Try-Sport League. A league designed to allow children from lower income families the opportunity to compete in multiple sports. *Canadian Tire Jumpstart Program*. (Funded) Amount: \$7,966 CAD
12. **Friesen KB**. (2021). Sports Science Outreach Event. *NSERC Student Ambassadors Grant*. (Funded) Amount: \$1,000 CAD
13. **Friesen KB**, Chad K. (2021). Saskatoon's Try-Sport League. A league designed to allow children from lower income families the opportunity to compete in multiple sports. *Canadian Tire Jumpstart Program*. (Funded) Amount: \$8,303 CAD
14. **Friesen KB**, Chad K. (2021). "What the Heck is Biomech?!" An outreach event for underrepresented youth in STEM focused on combining sports and science to introduce minority youth groups to the unique possibilities in STEM. *Saskatoon Community Foundation*. (Not funded)
15. **Friesen KB**, Oliver GD. (2019). Examination of the bicep tendon following an acute bout of pitching in female youth softball pitchers with upper extremity pain. *American Society of Biomechanics*. (Not funded)
16. Scott A, **Friesen KB**. (2017). Effect of diclofenac on elbow tendinopathy. *Worksafe BC*. (Not funded)

## HONOURS AND AWARDS

Canadian Traumatic Brain Injury Research Consortium Postdoc Student Travel Award, UCalgary (2023)  
 Postdoctoral Slam Finalist, UCalgary (2023)  
 College of Medicine Travel Award, USask (2022)  
 Conference Travel Award, The Association of Commonwealth Universities, USask (2021)  
 School of Kinesiology Outstanding Graduate Nominee, Auburn University (2020)  
 National Strength and Conditioning Foundation Scholarship Award Winner (2020)  
 Merriwether Fellowship Nominee, Auburn University (2020)  
 Student Travel Award, School of Kinesiology, Auburn University (2020)  
 Student Travel Award, College of Education, Auburn University (2020)  
 Auburn Graduate School: Three Minute Thesis People's Choice Award (2019)  
 Student Travel Award, School of Kinesiology, Auburn University (2019)  
 Graduate Teaching Assistant, Auburn University, School of Kinesiology (2018-2020)  
 Student Travel Award, College of Education, Auburn University (2018)  
 Student Travel Award, School of Kinesiology, Auburn University (2018)  
 Graduate Assistant Softball Coach, Auburn University Department of Athletics (2018)  
 Scholar Athlete, Liberty Flames Softball, Liberty University Department of Athletics (2013-2017)

## **SECTION III. PROFESSIONAL, TEACHING, AND MENTORSHIP EXPERIENCE**

---

### **PROFESSIONAL EXPERIENCE**

#### **Postdoctorate Fellow (2022 - present)**

Faculty of Kinesiology

University of Calgary, Calgary, Alberta

- *Implementation of instrumented mouthguards to track head acceleration and concussion events in high school sport athletes*
- *Assisting with injury surveillance projects within the Sports Injury Prevention Research Centre*

#### **Consulting Biomechanist (2021-present)**

Sports Medicine and Science Council of Saskatchewan

- *Host information sessions and one-on-one consulting for improving sporting technique for athletes in Saskatchewan*

#### **Postdoctorate Fellow (2021-2022)**

College of Kinesiology and College of Medicine (Joint Position/Co-supervised)

University of Saskatchewan, Saskatoon, Saskatchewan

- *Using camera motion capture and inertial measuring units to validate a work-related and functional task protocol, understand scapular motion using accelerometers, and build a database to understand healthy shoulder mobility*
- *Research devoted to biomechanics, sports injury prevention, experiences of women in coaching, impacts of COVID-19 on athlete wellness and high school sports*

#### **Guest Coach (2021)**

Tommy Douglas High School Softball Academy

- *Provided mentorship, encouragement, and softball specific instruction to high school students*
- *Organized and conducted practice sessions for 70+ students*

#### **Graduate Research Assistant (2017-2020)**

Sports Medicine and Movement Laboratory

Auburn University, Auburn, Alabama

- *Research design, data processing and analysis, statistics, data collection, presentation, outreach*

#### **Graduate Teaching Assistant (2018-2020)**

Department of Kinesiology

Auburn University, Auburn, Alabama

- *Taught 7 different undergraduate courses (see teaching experience section)*

#### **Graduate Assistant Softball Coach (2017-2018)**

Women's Collegiate Softball Team

Auburn University, Auburn, Alabama

- *Statistics, data analysis, athlete preparation, administration, scouting reports*

#### **Sports Biomechanics Intern (2017)**

Canadian Institute of Sport, Calgary, AB, Canada

- *Assisted in the design of a research study (Perception of Comfort of Running Shoes), Industry funded project - Adidas*

**K. Friesen**

### **Exercise Physiologist (2016)**

Craven Sport Services, Saskatoon, SK, Canada

- *Exercise program design for elite athletes, athletes with a disability, and older adults with osteoarthritis*
- *Concussion testing for the provincial soccer academy*

## **TEACHING EXPERIENCE**

*"The function of education is to teach one to think intensively and to think critically. Intelligence plus character - that is the goal of true education." – Martin Luther King Jr.*

### **Sessional Lecturer (Spring 2021/Fall 2021/Spring 2022/Spring 2023)**

KIN 222: Biomechanics I

College of Kinesiology, University of Saskatchewan, Saskatoon, SK

- *Taught 4 undergraduate biomechanics courses and labs (300+ students total)*

### **Guest Lecturer (2022)**

KNES 611: Research Methods in Kinesiology

Faculty of Kinesiology, University of Calgary, Calgary, Alberta

- *Taught 20 graduate students on various sampling techniques including probability and non-probability sampling*

### **Guest Lecturer (2021)**

KIN 442: Biomechanics II

College of Kinesiology, University of Saskatchewan, Saskatoon, SK

- *Taught a sports biomechanics lecture to graduate level biomechanics students*

### **Instructor (Fall 2020)**

KINE 4563: Sport Technique and Movement Analysis

School of Kinesiology, Auburn University, Auburn, Alabama

### **Instructor (Spring 2019/Fall 2019/Spring 2020)**

KINE 3621: Biomechanical Analysis of Human Movement Lab

School of Kinesiology, Auburn University, Auburn, Alabama

### **Instructor (Summer 2019)**

KINE 3823: Principles of Sport Coaching

School of Kinesiology, Auburn University, Auburn, Alabama

### **Instructor (Spring 2019/Fall 2019/Spring 2020/Summer 2020)**

KINE 1103: Wellness

School of Kinesiology, Auburn University, Auburn, Alabama

### **Instructor (Fall 2018)**

PHED 1220: Cardiorespiratory: Circuit Training

School of Kinesiology, Auburn University, Auburn, Alabama

### **Instructor (Fall 2018)**

PHED 1640: Performance Activity Yoga

School of Kinesiology, Auburn University, Auburn, Alabama

### **Instructor (Fall 2018/Fall 2020)**

**K. Friesen**

PHED 1003: Active Auburn  
School of Kinesiology, Auburn University, Auburn, Alabama

**Guest Lecturer (Sept 2019/February 2020)**

KINE 4640: Physical Conditioning and Speed  
School of Kinesiology, Auburn University, Auburn, Alabama

**INVITED TALKS/PRESENTATIONS**

**Guest Speaker (September 2023) - From the Field to the Lab and back to the Field: How my Passion for Sport has Led to my Research in Sports Injury Prevention**

Human Performance Lab  
Calgary, AB

**Guest Speaker (April 2023) – Multi-Method Approach to Understand Injury Risk in High School Wrestlers: An Attempt to Takedown Concussion in Wrestlers**

Bath University Research Group  
Virtual presentation

**Guest Speaker (June 2022) – The Windmill Softball Pitch: Is the Motion Really More Natural?**

Canadian Biomechanics and Performance Analysis Group  
Virtual presentation

**Guest Speaker (May 2022) – From the Field to the Lab and back to the Field: How my Passion for Sport has Led to a Career in Sports Injury Prevention**

Sports Injury Prevention Research Centre  
Calgary, AB

**Guest Speaker (May 2020) – A Career Path in Academia**

Career Development High School Class in Beijing, China  
Virtual presentation

**Guest Speaker (December 2019)**

Coaching Symposium  
High-Performance Softball Camp  
Saskatoon, Saskatchewan

**Guest Speaker (December 2017)**

Athletes in Action Event  
University of Saskatchewan  
Saskatoon, Saskatchewan

**Guest Speaker (December 2017)**

Athletes in Action Event  
University of Regina  
Regina, Saskatchewan

**Guest Speaker (December 2017)**

Career Development  
Centennial Highschool  
Saskatoon, Saskatchewan

## **MENTORSHIP EXPERIENCE**

Matthias Scheid-Wiltshire  
Graduate Master's Student (2023)  
Faculty of Kinesiology  
University of Calgary, Calgary, AB

Parker Scott  
Graduate Master's Student (2023)  
College of Kinesiology  
University of Saskatchewan, Saskatoon, SK

Sydney Donaldson  
Graduate Master's Student (2023)  
College of Engineering  
California Polytechnic State University, San Luis Obispo, CA

Ryan Bench  
Graduate Master's Student (2022)  
Faculty of Applied Health Sciences  
Brock University, St. Catharines, Ontario

Katherine Everhart  
Graduate Doctoral Student (2022-2021)  
Department of Kinesiology  
Auburn University, Auburn, Alabama

Peyton Gober  
Undergraduate Student (Fall 2020)  
Department of Kinesiology  
Auburn University, Auburn, Alabama

Johann Phan  
Undergraduate Student (Fall 2018 – Spr 20)  
Department of Kinesiology  
Auburn University, Auburn, Alabama  
(Awarded undergraduate research fellowship)

Regan Shaw  
Undergraduate Student (Fall 2019 – Spr 20)  
Department of Kinesiology  
Auburn University, Auburn, Alabama  
(Completed honour's thesis & awarded 1st place at the Student Symposium)

Sydney Stewart  
Undergraduate Student (2019)  
Department of Kinesiology  
Auburn University, Auburn, Alabama

Nicole Dunlap  
Undergraduate Student (Spring 2019)  
Department of Kinesiology  
Auburn University, Auburn, Alabama

Sally Moultrie

**K. Friesen**

Undergraduate Student (Fall 2018)  
Department of Kinesiology  
Auburn University, Auburn, Alabama

Jordan George  
Undergraduate Student (Fall 2018 – Spr 19)  
Department of Kinesiology  
Auburn University, Auburn, Alabama

## **SECTION IV. PROFESSIONAL INVOLVEMENT, CERTIFICATIONS, OTHER**

---

### **PROFESSIONAL SOCIETIES**

Canadian Society of Biomechanics  
International Shoulder Group  
International Society of Biomechanics in Sport  
Canadian Association of Post Docs  
American College of Sports Medicine  
National Strength and Conditioning Association

### **PROFESSIONAL SERVICE**

Research Advisory Council Postdoctoral Representative (2023)  
Faculty of Kinesiology  
University of Calgary, Calgary, AB

Co-lead, Pan-Canadian SHRed Concussions Project Weekly Operations Meeting (2023)  
Faculty of Kinesiology  
University of Calgary, Calgary, AB

Moderator, Community and Research Engagement Symposium (2023)  
University of Calgary, Calgary, AB

Biomechanics Lead (2023)  
Softball Pitching Advisory Committee

Co-chair, Pitching Session (2023)  
International Society of Biomechanics in Sport  
ISBS Conference, Milwaukee, WI

Postdoctoral Representative (2023)  
National Football League SHRed Concussions Executive Committee

Moderator, Canadian Concussion Network Symposium (2023)  
*“Easy as 1,2,3: Considering primary, secondary, and tertiary concussion prevention strategies”*  
Virtual

Panel Speaker: What Kin I Do with My Degree (2023)  
Kinesiology Graduate Student’s Association  
University of Calgary, Calgary, AB

### **K. Friesen**

Moderator: Biomechanics and Performance Analysis Presentation (2023)  
Women in Biomechanics Presentation/Panel

External Reviewer: Ryan Bench Master's Thesis (2022)  
*"Determining relationships between kinematic sequencing and baseball pitch velocity using pitchAI"*  
Brock University

Research Advisory Council: Postdoctorate Representative (2021)  
College of Kinesiology  
University of Saskatchewan, Saskatoon, SK

Student Undergraduate Research Experience Symposium Judge (2021)  
Office of the Vice-President Research  
University of Saskatchewan, Saskatoon, SK

Three Minute Thesis Judge (2021)  
Graduate Student's Association  
University of Saskatchewan, Saskatoon, SK

People Around the World Conference Judge (2021)  
Graduate Student's Association  
University of Saskatchewan, Saskatoon, SK

Roundtable Discussion Leader, Making the Most of Graduate School (2020)  
American Society of Biomechanics  
Mid-south Biomechanics Conference, Memphis, TN

Research Symposium Judge (2020)  
Undergraduate Research Symposium  
Auburn University, Auburn, AL

Co-chair, Baseball Pitching Session (2019)  
International Society of Biomechanics  
ISB/ASB Conference, Calgary, AB, Canada

Moderator, Undergraduate Student Symposium (2018)  
Auburn University, Auburn, AL

## **REVIEWS**

### **Journals**

Frontiers in Sports and Active Living (February 2023 – present)  
Physical Medicine and Rehabilitation (February 2022 – present)  
Medicine and Science in Sports and Exercise (March 2022 – present)  
American Journal of Sports Medicine (March 2021 – present)  
Gait and Posture (April 2021 – present)  
Sports Biomechanics (October 2021 – present)

### **Conference Abstracts**

Canadian Concussion Network Abstracts (March 2023 – present)

## **CERTIFICATIONS**

NSCA Certified Strength and Conditioning Specialist

**K. Friesen**



ACSM Certified Exercise Physiologist  
Red Cross First Aid/AED/CPR  
Dartfish Certificate of Competency: Biomechanical Analysis of Movement

## **OTHER SERVICE**

### **Women in Sports Biomechanics Webinar Host (2022)**

- Created and organized three guest lecturers and moderated a session dedicated to increasing the presence of women in sports biomechanics research

### **Sports Science Outreach Initiative (2021)**

- Created an interactive video outlining the use of biomechanical analysis in various everyday activities: slack lining, basketball shooting, hoop dancing

### **Social Media Outreach (2020)**

- Organized and distributed content related to outlining, “A Week in the Life of a Sports Biomechanist” with the goal of increasing visibility of women in biomechanics and increasing accessibility to biomechanics research in sport
- Completed with the International Women in Biomechanics Group

### **Health Fairs Alabama (2019)**

- Presented peer pressure and time management techniques to junior high school girls at three schools in Alabama

### **Team Canada Softball Camps (2017-2019)**

- Provided instructional lessons for young softball pitcher athletes

### **Liberty University Softball Camps (2012-2017)**

- Organized and led player development camps to high school softball athletes

### **Blue Ridge Autism and Achievement Center (2017)**

- Prepared lesson plans and taught basic gross motor movement progressions to students with autism

## **EQUITY, DIVERSITY, INCLUSION, ACCESSIBILITY**

### **MobilizeU Research Impact Canada Knowledge Translation Course (2023)**

- Completed a 10-module training program dedicated to learning new ways of appropriate integration and dissemination of research to impact a variety of community populations

### **Four Seasons of Reconciliation Professional Development Course (2021)**

- Completed a 10-module personal and professional learning opportunity
- Learned about the truths needed to guide contribution to a just and inclusive society

### **Unconscious Bias Seminar (2021)**

- Information session hosted by the University of Saskatchewan

### **Safe Auburn Training (2019)**

## **K. Friesen**

- Completed a 4-hour training session to improve LGBTQIA2S+ literacy and inclusion

## **PROFESSIONAL, TEACHING, VIRTUAL ENGAGEMENT EDUCATION**

Blended and Online Learning Pedagogy and Practice – UCalgary (2023)  
 Mitacs: Career Planning Course (2023)  
 Virtual Presentation Skills: Association of Commonwealth Universities (2021)  
 Launching & Navigating an Academic Career (2021)  
 Student to Professional – Becoming a Sport Scientist (2021)  
 Learning about Virtual Classroom Capabilities: Top Hat Webinar (2020)  
 Effective Strategies for Online Teaching: NASPSPA Workshop (2020)  
 Information Technology Seminar: Auburn University (2020)  
 Blackboard Digital Teaching Symposium (2020)

## **OTHER**

### **Avid amateur hiker, x-country skier, skater, softball pitcher, and pickleball player (present)**

- Enthusiastic appreciation for the beautiful outdoors and nature
- Advocate for multisport involvement and daily physical activity

### **High performance athlete (2012-2020)**

- Softball pitcher, Team Canada Player Pool (2017-2020)
- Past professional softball player, Canadian Wild of Southern Illinois (2019)
- Past NCAA DI athlete, Liberty University (2012-2017)

## **REFERENCES**

---

- |  |  |
|--|--|
| <p>Dr. Carolyn Emery<br/> <a href="mailto:caemery@ucalgary.ca">caemery@ucalgary.ca</a></p>                                   | <ul style="list-style-type: none"> <li>• Professor (with Tenure), Faculty of Kinesiology, University of Calgary</li> <li>• CIHR Canada Research Chair Tier 1 in Concussion</li> <li>• Current Postdoctoral supervisor</li> </ul> |
| <p>Dr. Karen Chad<br/> <a href="mailto:karen.chad@usask.ca">karen.chad@usask.ca</a><br/>         (306) 966-8514</p>          | <ul style="list-style-type: none"> <li>• Past Vice President of Research, USask</li> <li>• Top 100 of Canada's Most Powerful Women</li> <li>• Past Postdoctorate supervisor</li> </ul>   |
| <p>Dr. Angelica Lang<br/> <a href="mailto:angelica.lang@usask.ca">angelica.lang@usask.ca</a><br/>         (306) 966-5544</p> | <ul style="list-style-type: none"> <li>• Assistant Professor in the College of Medicine</li> <li>• Director of the Musculoskeletal Health and Ergonomics Lab</li> <li>• Past Postdoctoral supervisor</li> </ul>                  |