

## *Curriculum Vitae*

Jocelyn F. Hafer, PhD

Assistant Professor  
Department of Kinesiology and Applied Physiology  
University of Delaware  
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### **EDUCATION**

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- Ph.D.** Kinesiology, University of Massachusetts Amherst, Amherst, MA, 2017  
Advisor: Katherine A. Boyer, PhD
- M.A.** Applied Exercise Physiology, Columbia University Teachers College, NY, NY, 2012  
Advisor: Carol Ewing Garber, PhD
- B.S.** Physiology, Michigan State University, East Lansing, MI, 2008  
Member of the Honors College; High Honor, College of Natural Sciences

### **PROFESSIONAL EXPERIENCE**

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- 2019-present Assistant Professor, Department of Kinesiology and Applied Physiology,  
University of Delaware
- 2017-2019 Postdoctoral Research Fellow, Michigan Performance Research Laboratory,  
School of Kinesiology, University of Michigan
- 2015-2017 Teaching Assistant, Department of Kinesiology, UMass Amherst  
See "Teaching Experience" below for specific course information
- 2013-2017 Graduate Research Assistant, Musculoskeletal and Orthopedic Biomechanics  
Laboratory, UMass Amherst
- 2009-2013 Senior Research Technician, Leon Root, MD Motion Analysis Laboratory,  
Hospital for Special Surgery
- 2007-2008 Undergraduate Research Assistant, Center for Physical Activity and Health,  
Michigan State University
- 2006-2008 Undergraduate Lab Assistant, Human Energy Research Laboratory, Michigan  
State University

### **HONORS/AWARDS**

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- 2017 International Society of Biomechanics Student Conference Travel Grant
- 2017 Force and Motion Foundation Travel Scholarship
- 2017 De Luca Foundation Student Travel Grant

2016 Priscilla M. Clarkson Graduate Scholarship in Kinesiology  
 2016 NEACSM David N. Camaione Doctoral Scholarship Award  
 2016 NEACSM Doctoral Presentation Competition Finalist  
 2015 University of Massachusetts Amherst Kinesiology Department Travel Award  
 2015 NEACSM President's Cup Doctoral Presentation Competition Finalist  
 2013-2015 University of Massachusetts Amherst School of Public Health and Health Sciences Dean's PhD Fellowship  
 2014 Gait and Clinical Movement Analysis Society Student Travel Scholarship  
 2014 University of Massachusetts Amherst Graduate School Travel Award  
 2013-2014 University of Massachusetts Amherst Graduate School Dean's Fellowship  
 2008 Michigan State University Board of Trustees Scholarship Award  
 2005 Michigan State University Distinguished Freshman Scholarship  
 2005 Michigan State University Professorial Assistantship Program

## **PUBLICATIONS**

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1. **Hafer JF**, Zernicke RF. Adults with knee osteoarthritis use different coordinative strategies to transition from swing to stance compared to young asymptomatic adults. *Gait Posture*. 2021 May 88:72-77.
2. Hillstrom HJ, Soeters R, Miranda M, Backus SI, **Hafer JF**, Gibbons M, Thaqi I, Lenhoff M, Hannan M, Endo Y, Sculco T, Lane J. Effect of increased serum 25(OH)D on structure and function of post-menopausal women. *Arch Osteoporos*. 2020 Oct 3; 15(1):154.
3. Reimann H, Ramadan R, **Hafer JF**, Fettrow T, Geyer H, Jeka J. Interactions between different age-related factors affecting balance control in walking. *Front Sports Act Living*. 2020 July 31; 2:94.
4. **Hafer JF**, Zernicke RF. Propulsive joint powers track with sensor-derived angular velocity: A potential tool for lab-less gait retraining. *J Biomech*. 2020 Jun 9;106:109821.
5. **Hafer JF**, Boyer KA. Comparisons of Knee Extensor Functional Demand During Gait by Age, Physical Activity Level, and the Impact of Acute Exercise and Walking Speed. *J Appl Biomech*. 2020 Apr 25:1-8.
6. Johnson RT, **Hafer JF**, Wedge RD, Boyer KA. Comparison of measurement protocols to estimate preferred walking speed between sites. *Gait Posture*. 2020 Mar;77:171-174.
7. **Hafer JF**, Provenzano SG, Kern KL, Agresta CE, Grant JA, Zernicke RF. Measuring markers of aging and knee osteoarthritis gait using inertial measurement units. *J Biomech*. 2020 Jan 23; 99:109567.
8. Chen TL, Agresta CE, Lipps DB, Provenzano SG, **Hafer JF**, Wong DW, Zhang M, Zernicke RF. Ultrasound elastographic assessment of plantar fascia in runners using rearfoot and forefoot strike. *J Biomech*. 2019 May 24; 89:65-71

9. **Hafer JF**, Miller MS, Kent JA, Boyer KA. The roles of sex and physical activity in gait and knee extensor function with age. *J Appl Biomech.* 2019 Aug 1;35(4):263-271
10. Provenzano SG\*, **Hafer JF**, Peacock J, Kempner S, Zandler JD, Agresta CE. Restriction in pelvis and trunk motion in postpartum runners compared to pre-pregnancy. *J Womens Health Phys Therap.* 2019 July/Sept 43(3) 119-126  
\*Undergraduate mentee
11. **Hafer JF**, Peacock J, Zernicke RF, Agresta CE. Segment coordination variability differs by years of running experience. *Med Sci Sports Exerc.* 2019 Jul;51(7):1438-1443
12. **Hafer JF**, Kent JA, Boyer KA. Physical activity and age-related biomechanical risk factors for knee osteoarthritis. *Gait Posture.* 2019 May;70:24-29
13. Boyer KA, **Hafer JF**. Gait mechanics contribute to exercise induced pain flare magnitude in knee osteoarthritis. *BMC Musculoskelet Disord.* 2019 Mar;20(1):107
14. **Hafer JF**, Boyer KA. Age related differences in segment coordination and its variability during gait. *Gait Posture.* 2018 May;62:92-98
15. **Hafer JF**, Brown AM, Boyer KA. Exertion and pain do not alter coordination variability in runners with iliotibial band syndrome. *Clin Biomech.* 2017 Aug;47:73-78
16. Boyer KA, Johnson RT, Banks JJ, Jewell C, **Hafer JF**. Systematic review and meta-analysis of gait mechanics in young and older adults. *Exp Geront.* 2017 Sep;95:63-70
17. Shultz SP, Song J, Kraszewski AP, **Hafer JF**, Rao S, Backus SI, Mootanah R, Hillstrom HJ. An investigation of structure, flexibility and function variables that discriminate asymptomatic foot types. *J Appl Biomech.* 2017 Jul;33(3):203-210
18. **Hafer JF**, Boyer KA. Variability of segment coordination using a vector coding technique: Reliability analysis for treadmill walking and running. *Gait Posture.* 2017 Jan;51(1):222-7
19. **Hafer JF**, Freedman Silvernail J, Hillstrom HJ, Boyer KA. Changes in coordination with an increase in running cadence. *J Sports Sci.* 2016 Aug;34(15):1388-95
20. Drefus LC, **Hafer JF**, Scher DM. Simulated ankle equinus affects knee kinematics during gait. *HSS J.* 2016;Feb;12(1):39-43
21. Wolff A, Garg R, Kraszewski AP, Hillstrom HJ, **Hafer JF**, Backus SI, Lenhoff MW, Wolfe S. Surgical treatments for SLAC wrist: kinematics and functional performance. *J Hand Surg.* 2015;Aug;40(8):1547-53
22. **Hafer JF**, Brown AM, deMille P, Hillstrom HJ, Garber CE. The effect of a cadence retraining protocol on running biomechanics and efficiency: a pilot study. *J Sports Sci.* 2015;33(7):724-31

23. Buckland MA, Slevin CM, Root LM, Backus SI, Kraszewski AP, **Hafer JF**, Whitney KA, Scher DM, Song J, Furmato J, Choate CS, Scherer PR, Hillstrom HJ. The effect of torsional shoe flexibility on gait and stability in children learning to walk. *Pediatr Phys Ther.* 2014;Winter;26(4):411-7
24. Hillstrom HJ, Buckland MA, Slevin CM, **Hafer JF**, Root LM, Backus SI, Kraszewski AP, Whitney KA, Scher DM, Song J, Furmato J, Choate CS, Scherer PR. Effect of shoe flexibility on plantar loading in children who are learning to walk. *J Am Podiatr Med Assoc.* 2013;103(4):297-305
25. **Hafer JF**, Lenhoff MW, Song J, Jordan JM, Hannan MT, Hillstrom HJ. Reliability of plantar pressure platforms. *Gait Posture.* 2013;38(3):544-8
26. Hillstrom HJ, Song J, Kraszewski AP, **Hafer JF**, Mootonah R, Dufour AB, Chow BS, Deland JT. Foot type biomechanics part 1: Structure and function of the asymptomatic foot. *Gait Posture.* 2013;37(3):445-51
27. Mootonah R, Song J, Lenhoff MW, **Hafer JF**, Backus SI, Gagnon D, Deland JT, Hillstrom HJ. Foot type biomechanics part 2: Are structure and anthropometrics related to function? *Gait Posture.* 2013;37(3):452-6

## **FUNDING**

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### *Pending:*

NIH/NIA R21 (PI: Hafer). Understanding how age, knee osteoarthritis, and symptoms influence the structure and variance of real-world gait mechanics. Direct costs: \$275,000  
 Role: Principal investigator

### *Completed:*

University of Massachusetts Amherst Graduate School Dissertation Research Grant (PI: Hafer). Physical activity and age-related mechanical risk factors for knee osteoarthritis. Direct costs: \$1,000  
 Role: Student principal investigator

American Society of Biomechanics Graduate Student Grant-in-Aid (PI: Hafer). The effect of age and physical activity status on inter-segment coordination. Direct costs: \$2,000  
 Role: Student principal investigator

American College of Sports Medicine Foundation (PI: Hafer). Physical activity: A mediator of muscle power, knee mechanics, and fatigue? Direct costs: \$5,000  
 Role: Student principal investigator

Institute for Sports Medicine Research, Hospital for Special Surgery (PI: Hafer). Effects of altering cadence and shoe wear on the mechanics of healthy runners: A

pilot study. Direct costs: \$6,344  
Role: Principal investigator

## **INVITED PRESENTATIONS/SYMPOSIA**

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**Hafer JF.** Identifying determinants of aging gait. Biomechanics and Movement Science Seminar, University of Delaware, Newark, DE, 2019.

Boyer KA, **Hafer JF.** Running through the lifespan: Benefits and risks for female runners. Run Like a Woman: The Biomechanics of Female Runners symposium session, International Society of Biomechanics, Calgary, Canada, 2019

**Hafer JF.** Coordination and movement variability differ by runners' years of experience. Orthopaedics Research Laboratory Seminar Series, University of Michigan, Ann Arbor, MI, 2018.

Backus SI, **Hafer JF.** Shoulder Kinematics in the Pitcher: Tools to Evaluate Performance. Current Concepts in Sports Medicine, Hospital for Special Surgery, New York, NY, 2013.

Backus SI, **Hafer JF.** 3D Motion Analysis. Tools to Evaluate Performance. Current Concepts in Sports Medicine, Hospital for Special Surgery, New York, NY, 2012.

**Hafer JF,** Plack LA. 3D Motion Analysis: Barefoot Through Motion Control. Treating the Multisport and Endurance Athlete, Hospital for Special Surgery, New York, NY, 2012.

**Hafer JF.** Biomechanics of Running Injury. Treating the Multisport and Endurance Athlete, Hospital for Special Surgery, New York, NY, 2011.

## **TEACHING EXPERIENCE**

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Instructor:

KAAP 440 Topics in Exercise Science: Gait analysis applications. Upper-level undergraduate elective course.  
University of Delaware. Fall 2019 - current

KAAP 627 Biomechanical methods. Graduate level course in kinematic and kinetic biomechanics computations and theory.  
University of Delaware. Spring 2020 - current

KIN 191KIN3 Understanding running mechanics: Improving performance and preventing injury. Freshman seminar course.  
University of Massachusetts Amherst. Fall 2015

Guest Lecture:

KAAP 617 Biomechanical lab instrumentation. Two-week guest lecturer for graduate biomechanics course. Topic: Inertial measurement units.

- KINE 616 Professional Skills for Research Scientists. Panel member for graduate professional development course. Topic: Post-Doc Fellows Career Paths. University of Michigan. Winter 2018.
- MVS 110 Biological and Behavioral Bases of Human Movement. Introductory lecture for biomechanical analysis of human movement for lower-level undergraduate movement sciences course. Topic: The use of motion analysis in biomechanics. University of Michigan. Winter 2018.
- KIN 430 Biomechanics. Guest lecturer for senior-level undergraduate biomechanics course. Topic: Friction. University of Massachusetts Amherst. Fall 2016, Spring 2017.

## **MENTORING EXPERIENCE**

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Graduate students – Committee chair

Julien Mihy (*PhD expected 2024*, University of Delaware)

Mayumi Wagatsuma (*PhD expected 2025*, University of Delaware)

Graduate students – Committee member

Katherine Hunzinger (*PhD expected 2022*, University of Delaware)

James Tracy (*PhD expected 2022*, University of Delaware)

Undergraduate:

Fernanda Argudo (2021 INBRE Summer Scholar)

Andrew Hunt (2020-2021, University of Delaware; 2020 INBRE Summer Scholar)

Seraphina Provenzano (2017-2019, University of Michigan)

Matthew M. MacLean (2016-2017, University of Massachusetts, Honors Thesis)

Luke Arney (2016-2017, University of Massachusetts, Undergraduate Research Conference project)

Brian Friscia (2016-2017, University of Massachusetts, Undergraduate Research Conference project)

## **PROFESSIONAL SERVICE**

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Manuscript review (Ad Hoc)

Archives of Physical Medicine and Rehabilitation

BMC Musculoskeletal Disorders

Clinical Biomechanics

European Journal of Applied Physiology

Experimental Gerontology

Gait & Posture

Human Movement Science

International Journal of Sports Medicine

Journal of Applied Biomechanics

Journal of Biomechanics

Journal of Orthopaedic Research

Journal of Sports Sciences

Medicine and Science in Sports and Exercise  
PeerJ  
Physical Therapy in Sport  
Scandinavian Journal of Medicine and Science in Sports  
Sensors  
Transactions on Neural Systems & Rehabilitation Engineering

Grant review

2019 Canada Foundation for Innovation  
2020 International Society of Biomechanics, graduate student grants

Conference abstract review

2013-2015 Gait and Clinical Movement Analysis Society  
2017 International Foot and Ankle Biomechanics  
2020 American Society of Biomechanics

Conference moderator

2016 American Society of Biomechanics, Variability: Gait podium session  
2019 International Society of Biomechanics, Walking – Elderly 2 session  
2021 American Society of Biomechanics, Disease & Rehabilitation session

## PROFESSIONAL MEMBERSHIPS

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2009-present Gait and Clinical Movement Analysis Society  
2011-present American Society of Biomechanics  
2012-present American College of Sports Medicine  
2015-present Osteoarthritis Research Society International  
2016-present International Society of Biomechanics

## OTHER RELEVANT TRAINING

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2021 NIH Proposal Academy, University of Delaware  
2021 LEAD Ally Certificate, Office of Equity and Inclusion, University of Delaware  
2020 Developing Learning Experiences Online (DLEO), Academic Technology Services, University of Delaware  
2019 Mentoring Undergraduate and Graduate Student Research, Center for Research on Learning and Teaching, University of Michigan  
2018 Research-Based Practices for College Teaching, Center for Research on Learning and Teaching, University of Michigan  
2015 Certificate in Business Foundations for Scientists and Engineers, Isenberg School of Management, University of Massachusetts Amherst

## CONFERENCE ABSTRACTS (PEER-REVIEWED)

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<sup>+</sup>Indicates graduate student advisee

<sup>\*</sup>Indicates undergraduate student advisee

1. **Hafer JF**, Hunt AJ, Mihiy JA, Johnson RT. Comparison of joint angles derived from markers and IMUs using OpenSim. Annual Conference of the American Society of Biomechanics, 2021 (virtual)

2. Wagatsuma M<sup>+</sup>, Mihiy JA, Cain SM, **Hafer JF**. Out-of-lab gait variables differ based on stride selection criteria. Annual Conference of the American Society of Biomechanics, 2021 (virtual)
3. Mihiy JA<sup>+</sup>, Wagatsuma M, Cain SM, **Hafer JF**. Functional alignment reduces placement-induced error in IMU-derived metrics. Annual Conference of the American Society of Biomechanics, 2021 (virtual)
4. Souther A, Jortberg J, Guadagnino S, Peacock J, **Hafer J**, Agresta C. Impacts of deliberate practice on lower extremity motor control patterns in collegiate cross-country runners. American Physical Therapy Association Combined Sections Meeting, Orlando, FL, 2021(virtual)
5. **Hafer JF**, Zernicke RF. Coordination responses to change in walking speed do not differ with age or knee osteoarthritis. Annual Conference of the American Society of Biomechanics, Atlanta, GA, 2020 (virtual)
6. **Hafer JF**, Boyer KA. Muscle activation patterns differ with knee osteoarthritis status but not with physical activity level. Osteoarthritis Research Society International, Vienna, Austria, 2020 [*conference not held due to COVID-19*]
7. **Hafer JF**, Kern KL, Provenzano SG, Agresta CE, Zernicke RF. IMU-derived metrics of kinematics and kinetics in aging and knee osteoarthritis gait. International Society of Biomechanics, Calgary, Canada, 2019 [podium]
8. Casto EM, Asmussen MJ, **Hafer JF**, Boyer KA. The impact of age on muscle activation patterns during prolonged walking. International Society of Biomechanics, Calgary, Canada, 2019
9. Chen TLW, Agresta CE, Lipps DB, Provenzano SG, **Hafer JF**, Wong DWC, Zhang M, Zernicke RF. Shear wave velocity in the plantar fascia of runners using different foot strike techniques. International Society of Biomechanics, Calgary, Canada, 2019
10. **Hafer JF**, Kern KL, Provenzano SG, Agresta CE, Zernicke RF. Assessment of clinically meaningful age and knee osteoarthritis gait measures using inertial measurement units. Osteoarthritis Research Society International, Toronto, Ontario, 2019
11. **Hafer JF**, Zernicke RF, Agresta CE. Coordination and variability differ by years of running experience. Annual Conference of the American Society of Biomechanics, Rochester, MN, 2018
12. Casto EM, **Hafer JF**, Boyer KA. Regular running in midlife may be protective of plantarflexor function following a prolonged walk. Annual Conference of the American Society of Biomechanics, Rochester, MN, 2018  
Finalist for ASB Doctoral Student Presentation Competition (EM Casto)



13. **Hafer JF**, Zernicke RF, Agresta CE. Novice runners display altered lower extremity and pelvic control compared to experienced runners. World Congress of Biomechanics, Dublin, Ireland, 2018 [podium]
14. **Hafer JF**, Boyer KA. Knee extensor functional demand during gait increases after a bout of exercise but does not differ by age. World Congress of Biomechanics, Dublin, Ireland, 2018
15. Provenzano S, **Hafer J**, Peacock J, Kempner S, Deneweth Zendler J, Agresta C. Restriction in pelvis and trunk motion in postpartum runners. Annual Conference of the Gait and Clinical Movement Analysis Society, Indianapolis, IN, 2018
16. Casto E, **Hafer JF**, Boyer KA. Differences in hamstring muscle quality between highly active and sedentary older adults. Annual Conference of the American Society of Biomechanics, Boulder, CO 2017
17. **Hafer JF**, Kent JA, Boyer KA. The role of muscle function in gait mechanics at the knee: Older vs. young adults. International Society of Biomechanics, Brisbane, Australia, 2017 [podium]
18. Boyer KA, **Hafer JF**. Muscle co-contraction and exercise induced pain flares in knee osteoarthritis. Osteoarthritis Research Society International, Las Vegas, NV, 2017
19. **Hafer JF**, Boyer KA. Older adults display reduced segment coordination variability during walking. New England American College of Sports Medicine, Providence, RI, 2016 [podium]
20. **Hafer JF**, Boyer KA. Coordination variability: reliability analysis and comparison across gait types. Annual Conference of the American Society of Biomechanics, Raleigh, NC, 2016 [podium]
21. **Hafer JF**, Kent JA, Boyer KA. The effect of running status on muscle quality in older adults. American College of Sports Medicine, Boston, MA, 2016
22. Brown AM, **Hafer JF**. Does fatigue alter coordination variability in healthy runners? American College of Sports Medicine, Boston, MA, 2016
23. Boyer KA, Jewell C, **Hafer JF**. Impacts of age, inactivity and knee osteoarthritis on movement coordination in walking. Osteoarthritis Research Society International, Amsterdam, The Netherlands, 2016
24. Shultz SP, Song J, Kraszewski AP, **Hafer JF**, Rao S, Backus SI, Mootanah R, Hillstrom HJ. Determinants of foot type. Orthopaedic Research Society, Orlando, FL, 2016
25. Hillstrom HJ, Joshi R, Miranda M, Backus S, **Hafer JF**, Gibbons M, Thaqi I, Lenhoff M, Hannan M, Endo Y, Sculco T, Lane J. Effect of increased serum Vitamin D on structure and

function of post-menopausal women: a pilot study. Orthopaedic Research Society, Orlando, FL, 2016

26. **Hafer JF**, Kent JA, Boyer KA. The effect of running status on muscle quality in older adults. New England American College of Sports Medicine, Providence, RI, 2015 [podium]
27. **Hafer JF**, Kent JA, Boyer KA. The effect of fatigue on knee mechanics in older adults: does physical activity matter? Annual Conference of the American Society of Biomechanics, Columbus, OH, 2015
28. Boyer KA, Jewell C, **Hafer J**. Gait response to an acute physical activity stimulus in individuals with osteoarthritis pain. Annual Conference of the International Society of Biomechanics, Glasgow, Scotland, 2015
29. **Hafer JF**, Boyer KA. The relationship between physical activity and knee extensor strength in individuals with OA: data from the Osteoarthritis Initiative. Osteoarthritis Research Society International, Seattle, WA, 2015
30. Boyer KA, Jewell C, **Hafer JF**. Gait adaptations to exercise-induced flares of osteoarthritis related knee pain. Osteoarthritis Research Society International, Seattle, WA, 2015
31. **Hafer JF**, Freedman Silvernail J, Hillstrom HJ, Boyer KA. The effect of increased running cadence on segment coordination. World Congress of Biomechanics, Boston, MA, 2014
32. **Hafer JF**, Brown AM, Hillstrom HJ, Boyer KA. Changes in coordination variability with increased running cadence. Annual Conference of the Gait and Clinical Movement Analysis Society, Newark, DE, 2014 [podium]
33. Plack LA, **Hafer JF**, Bido J, Metzl JD. Effects of altering cadence and footwear on the mechanics of healthy runners: a pilot study. Combined Sections Meeting of the American Physical Therapy Association, Las Vegas, NV, 2014
34. **Hafer JF**, Bido J, Plack LA, Metzl JD. Can increased running cadence simulate the effects of going barefoot? Annual Conference of the American Society of Biomechanics, Omaha, NE, 2013
35. Bido J, **Hafer JF**, Plack LA, Metzl JD. Can cadence manipulation simulate the joint loading benefits of barefoot running? Annual Conference of the American Society of Biomechanics, Omaha, NE, 2013
36. Gibbons M, Kraszewski A, **Hafer J**, Bido J, Graziano J, Levinson M, Backus S, Hillstrom H, Fealy S, Kontaxis A. The effects of fatigue on high school male and female pitchers. Annual Conference of the American Society of Biomechanics, Omaha, NE, 2013

37. Kraszewski A, Kontaxis A, Gibbons M, **Hafer J**, Graziano J, Hillstrom H, Fealy S. Shoulder kinematics of male and female high school pitchers. Annual Conference of the International Society of Biomechanics, Natal, Brazil, 2013
38. **Hafer JF**, deMille P, Brown AM, Garber CE, Hillstrom HJ. The effect of a cadence retraining protocol on running mechanics and efficiency. Annual Conference of the Gait and Clinical Movement Analysis Society, Cincinnati, OH, 2013 [podium]
39. Maschi R, Brown AM, **Hafer JF**. The relationship between running cadence and leg length in healthy female runners. Combined Sections Meeting of the American Physical Therapy Association, San Diego, CA, 2013
40. **Hafer JF**, Buckland E, Drefus LC, Backus SI. Modified GDI: do additional gait features add information? Annual Conference of the Gait and Clinical Movement Analysis Society, Grand Rapids, MI, 2012
41. Drefus LC, **Hafer JF**, Scher DM. Compensation patterns at the knee during equinus gait: Beware of apparent hamstring contracture. Annual Conference of the Gait and Clinical Movement Analysis Society, Grand Rapids, MI, 2012
42. **Hafer JF**, Brown AM, Maschi RA, Kirane Y, Hillstrom HJ. Association of overstriding and injury status in runners with and without iliotibial band syndrome. Annual Conference of the American Society of Biomechanics, Long Beach, CA, 2011
43. Hillstrom HJ, Garg R, Kraszewski AP, Lenhoff MW, Backus SI, **Hafer JF**, Wolff AL, Wolfe SW. The relationship between functional task performance and wrist kinematic parameters in healthy and midcarpal arthrodesis subjects. International Society of Biomechanics Annual Meeting, Brussels, Belgium, 2011
44. **Hafer JF**, Brown AM, Zifchock RA, Hillstrom HJ. The effect of injury status on running cadence in female runners. Annual Conference of the Gait and Clinical Movement Analysis Society, Bethesda, MD, 2011 [podium]
45. Zifchock RA, Zaferiou AM, Brown AM, **Hafer JF**, Hillstrom HJ. Comparison of hip, knee, and hindfoot kinematics during barefoot and shod jumping. Orthopaedic Research Society Annual Meeting, Long Beach, CA, 2011
46. **Frey JC**, Zifchock RA, Chow SB, Kraszewski AP, Patel V, Lenhoff MW, Backus SI, Deland JT, Demp P, Song J, Heilman B, Rajan S, Woodley A, Hillstrom HJ. The effect of foot type on temporal-distance gait parameters in healthy individuals. Annual Conference of the American Society of Biomechanics, Providence, RI, 2010
47. Galica AM, Dufour AB, Hillstrom HJ, Lenhoff MW, **Frey JC**, Casey VA, Hannan MT. Is hallux valgus associated with different peak pressure and pressure time integrals? Emed Scientific Meeting, Providence, RI, 2010

48. Zaferiou AM, Zifchock RA, Brown AM, **Frey JC**, Hillstrom HJ. The effects of footwear, learning, and fatigue on center of pressure excursion during single limb balance. Emed Scientific Meeting, Providence, RI, 2010
49. Sarzynski MA, **Frey JC**, Womack CJ, Pivarnik JM. Effects of physical and training characteristics on marathon performance. American College of Sports Medicine Conference, New Orleans, LA, 2007
50. **Frey JC**, Sarzynski MA. Effects of physical and training characteristics on marathon performance. Michigan Chapter of the American College of Sports Medicine Conference, Gaylord, MI, 2007 [podium]

## **OTHER ABSTRACTS**

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Argudo F\*, Mihy J, Wagatsuma M, **Hafer JF**. Comparison of gait variables between early and late stages of a 13 minute walk. University of Delaware INBRE Summer Scholars Symposium, 2020

\*Undergraduate mentee

Hunt AJ\*, **Hafer JF**. A comparison of IMU-based an MoCap-based kinematics using OpenSim. University of Delaware INBRE Summer Scholars Symposium, 2020

\*Undergraduate mentee

**Hafer JF**, Boyer KA. Older women's muscle and gait response to a bout of exercise differs by physical activity level. University of Massachusetts Amherst School of Public Health and Health Sciences Research Day, 2016

**Hafer JF**, Boyer KA. The relationship between physical activity and knee extensor strength in individuals with OA: Data from the Osteoarthritis Initiative. University of Massachusetts Amherst School of Public Health and Health Sciences Research Day, 2015

**Hafer JF**, Freedman Silvernail J, Boyer KA. The effect of increased running cadence on coordination. University of Massachusetts Amherst Life Sciences Graduate Research Symposium, 2014

**Hafer JF**, Freedman Silvernail J, Hillstrom HJ, Boyer KA. The effect of increased running cadence on segment coordination. University of Massachusetts Amherst School of Public Health and Health Sciences Research Day, 2014