

Curriculum Vitae - Daniel S. Peterson, PhD

602-543-9373 • daniel.peterson1@asu.edu • ORCID: 0000-00024639-6544

My work aims to improve our understanding of why people with neurological conditions fall, and ways to reduce the frequency of future falls. To achieve this goal, my lab conducts human-subject research to 1) characterize balance deficits, 2) understand control of balance, and 3) develop & assess fall-prevention rehabilitation interventions. We engage an interdisciplinary team of engineers, neuroscientists, neuropsychologists, & clinicians. These collaborations ensure our work is guided by a theoretical framework and remains translatable to the clinical community. Our goals of reducing falls and improving quality of life support the mission of the College of Health Solutions to “make meaningful contributions to the health and well-being of society”.

EMPLOYMENT & EDUCATION

Employment

Current positions

Associate Professor: Arizona State University College of Health Solutions Director: Gait and Balance Disorders Laboratory	2022 – Present
Assistant Professor: Arizona State University College of Health Solutions	2016 – 2022
Health Science Specialist; Phoenix VA Health Care System Research Division	2018 – Present
Affiliate Faculty: Arizona State University School of Biological and Health Systems Engineering	2016 – Present
Associate Faculty: Arizona State University Biodesign Institute and the ASU-Banner Neurodegenerative Research Center	2021 – Present
Adjunct Instructor: University of Utah Program in Physical Therapy	2015 – Present

Previous positions

Postdoctoral Researcher: Oregon Health & Science University Department of Neurology	2013 – 2016
Health Science Specialist: Salt Lake City & Portland VA Medical Centers Research Division	2014 – 2016
Research Fellow: Steadman Philippon Research Foundation Biomechanics Laboratory	2008 – 2009

Education

Doctor of Philosophy – Movement Science Washington University in St. Louis	2009 – 2013
Master of Science – Clinical Investigation Washington University in St. Louis	2011 – 2013
Master of Science – Kinesiology (Biomechanics) Pennsylvania State University	2006 – 2008
Bachelor of Science – Exercise and Sport Sciences University of Florida	2002 – 2006

RESEARCH & HONORS

Funding

* Indicates internal funding

Current Funding

- 1) **Funding Source:** ASU-Mayo Seed Grant
Role: PI (Co-PI: Mehta)
Total Costs: \$100,000
Title: Quantitative Gait Analysis as a novel diagnostic tool and clinical biomarker for Atypical Parkinsonian Syndromes
Purpose: Utilize machine learning to identify gait biomarkers for typical and atypical Parkinson's disease
Proposed effort: 0%
Dates of Award: 2023-2024

- 2) **Funding Source:** NIH
Role: Co-PI (Co-PI-Denney; Tufts University)
Total Subaward (ASU) Costs: \$73,777
Title: Novel pressure-sensing insoles to better predict and treat falls in home and clinical settings
Purpose: Serves to validate novel insoles for identifying metrics for balance and fall prevention
Proposed effort: 5%
Dates of Award: 2022-2023

- 3) **Funding Source:** Center for Innovation in Healthy and Resilient Aging
Role: PI (Co-PI: Lee)
Total Costs: \$45,000
Title: Assessment and Rehabilitation of Upright Standing Balance to Avoid Falls in people with PD
Purpose: Assess the relationship between balance outcomes and prospectively-collected falls in PD
Proposed effort: 5%
Dates of Award: 2022-2023

Completed Funding

Since 2016

- 1) **Funding Source:** U.S. Dept. of Veterans Affairs / Career Development Award (CDA-2; RX002341)
Role: PI
Total Direct Costs: \$721,117
Title: "Protective Step Training in People with Multiple Sclerosis"
Purpose: Understand the whether long-term protective step training can improve protective stepping in people with MS; identify predictors of responsiveness to perturbation training.
Effort: 7.5 calendar months / year
Dates of Award: 10/2018 – 10/2023

- 2) **Funding Source:** Michael J Fox Foundation
Role: PI
Total Costs: \$409,013
Title: Protective Step Training in People with PD and Postural Disturbances
Purpose: Understand the impact of perturbation training on people with PD who are at risk for falls.
Proposed effort: 1 calendar month / year
Dates of Award: 1/2019 – 10/2021

- 3) **Funding Source:** Northern Arizona University Seed Grant Program
Role: Co-PI (PI: Denney, Ivy)
Total Costs: \$2,000
Title: Assessing the use of laser shoes for freezing of gait in people with Parkinson's disease
Purpose: Characterize the impact of a new technology to improve walking in people with PD
Proposed effort: 0 calendar months / year
Dates of Award: 2019-2021

- 4) **Funding Source:** College of Health Solutions Jumpstart Grant
Role: PI
Total Costs: \$18,000*
Title: The Impact of Dopamine on Attention in Parkinson's Disease
Purpose: Characterize how attentional control varies across dopaminergic states in people with PD
Proposed effort: 0 calendar months / year
Dates of Award: 2019-2022
- 5) **Funding Source:** National Multiple Sclerosis Society / Pilot Grant
Role: Co-PI (PI of ASU subcontract; Co-PI: Fling; Colorado State University)
Total Costs: \$40,000
Subaward Costs to ASU / DSP: \$13,607 / \$13,607
Title: Interhemispheric communication in people with MS: Implications for balance and mobility
Purpose: Investigate how interhemispheric communication is altered in people with MS, and how this may impact motor performance and learning.
Effort: 1 calendar months
Dates of Award: 03/2018 – 02/2019
- 6) **Funding Source:** National Multiple Sclerosis Society (NMSS) / Research Grant (RG-1701-26763)
Role: Co-I (PI of ASU subcontract; Project PI: Dibble; University of Utah)
Total Costs: \$458,000
Subaward Costs to ASU / DSP: \$32,880 / \$32,880
Title: Gaze and postural stability in persons with MS at risk for falls: Characterizing deficits and response to treatment.
Purpose: The purpose of this RCT is to characterize the impact of task specific gaze and postural stability training on balance, dizziness, and vestibular function in people with MS.
Effort: 1 calendar month / year
Dates of Award: 10/2017-10/2020
- 7) **Funding Source:** Lundbeck LLC / Investigator Initiated Research Project
Role: Co-I (PI: Lieberman; Barrow Neurological Institute, AZ)
Total Costs: \$350,000
Subaward Costs to ASU / DSP: \$65,000 / \$16,250
Title: Effect of L-DOPS on falls among Parkinson's disease patients with orthostatic hypotension
Purpose: Understand the effect of anti-hypotension medication on balance in people with PD
Proposed effort: 1 calendar months / year
Dates of Award: 2018-2020
- 8) **Funding Source:** Center for Innovation in Healthy & Resilient Aging
Role: Co-I (PI: Krishnamurthi; ASU [CONHI] faculty)
Total Direct Costs: \$50,000*
Title: Developing a real-time fall risk assessment in Parkinson's disease by continuous monitoring of free-living activities
Purpose: To evaluate the predictive capacity of real-time, free-living activities for fall prediction in people with Parkinson's disease.
Effort: 0 calendar months / year
Dates of Award: 1/2019 – 1/2021
- 9) **Funding Source:** Arizona State University & Mayo Medical Center / Pilot Seed Grant
Role: PI
Total Costs: \$50,000
Title: Dual-task Perturbation Training: A novel intervention for fall prevention in people with PD
Purpose: Determine whether people with Parkinson's disease can improve protective stepping over 1-day of practice while attention is divided (i.e. under dual tasking scenario).
Effort: 0%
Dates of Award: 1/2018 – 1/2019
- 10) **Funding Source:** National Multiple Sclerosis Society / Pilot Grant (PP-1512-07101)
Role: Co-I (PI of ASU subcontract; PI: Foreman; University of Utah)
Total Costs: \$39,640

Subaward Costs to ASU / DSP: \$16,200 / \$16,200

Title: Compensatory Stepping in People with Multiple Sclerosis

Purpose: The purpose of this study is to determine the degree to which people with multiple sclerosis can improve protective stepping over a short-term (1-day) practice period.

Effort: 1.2 calendar months / year

Dates of Award: 09/2016-01/2018

Pre-2016

11) **Funding Source:** U.S. Dept. of Veterans Affairs / Career Development Award (CDA-1; I01BX007080)

Role: PI

Total Costs: \$160,983

Title: Effect of levodopa on postural motor learning in Parkinson disease

Purpose: Understand whether people with Parkinson's disease improve protective stepping responses after repeated postural perturbations (i.e. simulated trips), and the effect of levodopa on improvements.

Effort: 12 calendar months / year

Dates of Award: 2014-2016

12) **Funding Source:** Medical Research Foundation of Oregon / Early Clinical Investigator Award

Role: PI

Total Costs: \$19,971

Title: Postural motor learning in Parkinson's disease

Purpose: Characterize the performance and improvement of protective stepping between healthy young, healthy old, individuals with Parkinson's disease.

Effort: 0%

Dates of Award: 2014-2015

Peer Reviewed Publications

Source	H-index	Citations	i-10 index
Google Scholar	29	2496	49
Scopus	25	1675	--

Updated June. 2024

Full Bibliography:

- NIH: <https://www.ncbi.nlm.nih.gov/myncbi/1DAPA8aLlZUAm/bibliography/public/>
- Google Scholar: https://scholar.google.com/citations?user=zSjM_PEAJ&hl=en
- Scopus: <https://www.scopus.com/authid/detail.uri?authorId=16307615200>
- ORCID: <https://orcid.org/0000-0002-4639-6544>

Shaded = student or mentee under full or partial supervision of DSP

^c = DSP corresponding author

2024

80. Kim JK, Rider JV, Zinselmeier A, Chiu YF, **Peterson DS**, Longhurst JK. Dual task gait has prognostic value for cognitive decline in Parkinson's disease. *Journal of Clinical Neuroscience*. 2024. In press.
79. Monaghan, AS, Ofori E, Fling B, **Peterson DS**^c. Associating White Matter Microstructural Integrity and Improvements in Reactive Stepping in People with Parkinson's Disease. *Brain Imaging & Behavior*. Epub ahead of print
78. Monaghan, AS, Hooyman A, Dibble LE, Mehta S, **Peterson DS**^c. Generalization of In-Place Balance Perturbation Training in People with Parkinson Disease. *Journal of Neurologic Physical Therapy*. Epub ahead of print.

2023

77. Monaghan, AS, Hooyman A, Dibble LE, Mehta S, **Peterson DS**^c. Cognitive Predictors of Responsiveness to Reactive Step Training in People With Parkinson's Disease at Fall Risk. *Neuroscience Letters*. 2023 Nov 20;817:137517. doi: 10.1016/j.neulet.2023.137517. Epub 2023 Oct 11. PMID: 37832815
76. Lockhart T, Frames C, Olson M, Moon SH, **Peterson DS**, Lieberman A. Effects of Protective Step Training on Proactive and Reactive Motor Adaptations in Parkinson's' Disease Patients. *Frontiers in Neurology*. Accepted and in press
75. Monaghan AS, Ragothaman A, Harker GR, Carlson-Kuhta P, Horak FB^c, **Peterson DS**^c. Freezing of Gait in Parkinson's Disease: Implications for Dual-Task Walking. *Journal of Parkinson's Disease*. PMID: 37574744 DOI: 10.3233/JPD-230063.
74. Rafie F, Shibani V, Shahbazi M, Pourranjbar M, Nekouei AH, Rajizadeh MA, **Peterson DS**. Effects of voluntary, and forced exercises on neurotrophic factors and cognitive function in animal models of Parkinson's disease. *Neuropeptides*. Accepted and In Press.
73. Mancini M, Hasegawa N, **Peterson DS**, Horak FB, Nutt John G. Digital Measures of Freezing of Gait across the spectrum of normal, non-freezers, possible freezers and definite freezers. *Journal of Neurology*. 2023 May 19. doi: 10.1007/s00415-023-11773-4. PMID: 37208526.
72. Monaghan, AS, Hooyman A, Dibble LE, Mehta S, **Peterson DS**^c. Stability Changes in Fall-Prone Individuals with Parkinson's Disease Following Reactive Step Training. *Journal of Neurologic Physical Therapy*. 2023 Jun 1. doi: 10.1097/NPT.0000000000000442. PMID: 37259190
71. Monaghan, P, Monaghan, AS, Hooyman A, Fling BW, Huisinga JM, **Peterson DS**^c, Utilizing the ISway to Identify and Compare Balance Domain Deficits in People with Multiple Sclerosis. *Archives of Physical Medicine & Rehabilitation*. 2023 Apr 8;S0003-9993(23)00153-3. doi: 10.1016/j.apmr.2023.02.018. PMID: 37037293
70. Monaghan, AS, Gordon, E, Graham L, Hughes, E, **Peterson, DS**^c, Morris, R. Cognition and Freezing of Gait in Parkinson's Disease: A Systematic Review and Meta-Analysis. *Neuroscience and Biobehavioral Reviews*. 2023 Apr;147:105068. doi: 10.1016/j.neubiorev.2023.105068. PMID: 36738813

2022

69. Phan Vu, **Peterson DS**, Lee H^c. Directional Virtual Time-to-Contact: A New Measure for Investigating Temporal, Spatial, and Control Aspects of Postural Balance Control. *Journal of Biomechanics*. 2023 Jan;146:111428. doi: 10.1016/j.jbiomech.2022.111428. PMID: 36610387
68. Loyd BJ, Agnew L, Dibble L, Fangman A, **Peterson DS**, Schubert M, Gappmaier E, Thackeray A. Rehabilitation to Improve Gaze and Postural Stability in People with Multiple Sclerosis: A Randomized Clinical Trial. *Neurorehabilitation & Neural Repair*. 022 Nov;36(10-11):678-688. doi: 10.1177/15459683221124126. Epub 2022 Sep 13. PMID: 36113117.
67. **Peterson DS**^c. Effects of Gender on Dual-Tasking and Prioritization in Older Adults. *Gait & Posture*. 2022 Sep;97:104-108. doi: 10.1016/j.gaitpost.2022.07.247. Epub 2022 Jul 22. PMID: 35917700.
66. Monaghan A, Mansfield A, Huisinga J, **Peterson DS**^c. Examining the Relationship Between Reactive Stepping Outcomes and Falls in People With Multiple Sclerosis. *Physical Therapy Journal (PTJ)*. 2022 Jun 3;102(6):pzac041. doi: 10.1093/ptj/pzac041. PMID: 35403692
65. Monaghan A, Johansson H, Torres A, Brewer G, **Peterson DS**^c. The impact of divided attention on automatic postural responses: A systematic review and meta-analysis. *Experimental Gerontology*. 2022 Jun 1;162:111759. doi: 10.1016/j.exger.2022.111759. Epub 2022 Mar 1. PMID: 35245641
64. Van Liew C, Gudesblatt M, Covey TJ, Wilken J, Golan D, Zarif M, Bumstead B, Buhse MJB, Ofori E, **Peterson DS**. The moderating roles of self-efficacy and depression in dual-task walking in multiple sclerosis: A test of self-awareness theory. *J Int Neuropsychol Soc*. 2022 Apr 25;1-9. doi: 10.1017/S1355617722000200. Online ahead of print. PMID: 35465869
63. Richmond SB, **Peterson DS**, Fling BW. Bridging the Gap- Bilateral lower limb coordination and Callosal Integrity in people with Multiple Sclerosis. Accepted and in press: *Brain imaging and Behavior*. 2022 Jan 28. doi: 10.1007/s11682-021-00612-7. PMID: 35088352.
62. Van Liew C, Huisinga, **Peterson DS**^c. Evaluating the contribution of reactive balance to prediction

of fall rates cross-sectionally and longitudinally in persons with multiple sclerosis. *Gait and Posture*. 2022 Feb;92:30-35. doi: 10.1016/j.gaitpost.2021.11.008. PMID: 34808516.

2021

61. Monaghan A, Huisinga J, **Peterson DS^C**. The Influence of Plantar Sensation on Muscle Onset During Automatic Postural Responses in People with Multiple Sclerosis and Healthy Controls. *Multiple Sclerosis & Related Disorders*. Oct 5;56:103313. doi: 10.1016/j.msard.2021.103313. PMID: 34644600
60. Monaghan A, Finley J, Mehta SH, **Peterson DS^C**. Assessing the impact of dual-task reactive step practice in people with Parkinson's disease: A feasibility study. *Human Movement Science*. Sep 14;80:102876. doi: 10.1016/j.humov.2021.102876. PMID: 34534945
59. Van Liew C, Monaghan A, Foreman B, Dibble LE, **Peterson DS^C** Perturbation Practice in Multiple Sclerosis: Assessing Generalization from Surface Support Translations to Tether-Release Tasks. *Multiple Sclerosis and Related Disorders*. Aug 16;56:103218. doi: 10.1016/j.msard.2021.103218. PMID: 34454306
58. Van Liew C, Dibble L, Foreman B, **Peterson DS^C**. Change in "First Trial" Performance After Protective Step Practice in People with Multiple Sclerosis. *Clinical Biomechanics*. Aug 13;88:105448. doi: 10.1016/j.clinbiomech.2021.105448. PMID: 34418821.
57. Loyd BJ, Agnew L, Fangman A, Thackeray A, **Peterson D**, Schubert M, Dibble L. Characterizing Gaze and Postural Stability Deficits in People with Multiple Sclerosis. *Multiple Sclerosis and Related Disorders*. Aug 14;55:103205. doi: 10.1016/j.msard.2021.103205. PMID: 34438218
56. **Peterson DS^C**, Phan V, Richmond S, Lee H, Effects of dual-tasking on time-to-boundary during stance in people with PD: A Preliminary Study. *Clinical Biomechanics*. Jun 26;88:105420. doi: 10.1016/j.clinbiomech.2021.105420. PMID: 34216987
55. Monaghan A, Huisinga J, **Peterson DS^C**. The Application of Principal Component Analysis to Characterize Gait and its Association with Falls in Multiple Sclerosis. *Sci Rep*. 2021 Jun 17;11(1):12811. doi: 10.1038/s41598-021-92353-2. PMID: 34140612,
54. Richmond SB, Lee H, Fling BW, **Peterson DS^C**. The assessment of center of mass and center of pressure during quiet stance: Current applications and future directions. *Journal of Biomechanics*. 2021 Jun 23;123:110485. doi: 10.1016/j.jbiomech.2021.110485, PMID: 34004395
53. Roman G, **Peterson DS**, Ofori E, Vidt M. Upper extremity biomechanics in native and non-native signers *Accepted and In Press, WORK*.
52. Monaghan A, **Peterson DS^C**. Torque responses to in-place-perturbations in people with multiple sclerosis. *Gait & Posture*. Feb;84:346-351. doi: 10.1016/j.gaitpost.2021.01.003. Epub 2021 Jan 10. PMID: 33454502
51. Johansson H, Ekman, U, Rennie L, **Peterson DS**, Leavy B, Franzen E. Dual-Task Effects During a Motor-Cognitive Task in Parkinson's Disease: Patterns of Prioritization and the Influence of Cognitive Status. *Neurorehabilitation and Neural Repair*. 2021, March 10. DOI: 10.1177/1545968321999053, PMID: 33719728
50. **Peterson DS^C**, Moore A, Ofori E. Performance fatiguability during walking in people with Charcot-Marie-Tooth disease. *Gait & Posture*. Feb 11;85:232-237. doi: 10.1016/j.gaitpost.2021.02.002. PMID: 33618167.
49. Richmond SB, Swanson CW, **Peterson DS**, Fling BW. Advanced characterization of Static Postural Control Dysfunction in Persons with Multiple Sclerosis and Associated Neural Mechanisms. *Gait & Posture*. Jan;83:114-120. doi: 10.1016/j.gaitpost.2020.10.015. PMID: 33129171.

2020

48. **Peterson DS^C**, Van Liew, Stuart S, Horak FB, Mancini M. Relating Parkinson freezing and balance domains: A structural equation modeling approach. *Parkinsonism Relat Disord*. 2020 Aug 25;79:73-78. doi: 10.1016/j.parkreldis.2020.08.027. PMID: 32889503
47. **Peterson DS^C**, Barajas J, Denney L, Mehta S. Backward Protective Stepping During Dual-Task Scenarios in People With Parkinson's Disease: A Pilot Study. *Neurorehabilitation & Neural*

Repair. Aug;34(8):702-710. doi: 10.1177/1545968320935814. Epub 2020 Jul 7. PMID: 32633614

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45. **Peterson DS^c**, Smulders K, Mancini M, Nutt JG, Horak FB, Fling B. Relating response inhibition, brain connectivity, and freezing of gait in people with Parkinson's disease. *Journal of the International Neuropsychological Society (JINS)*, Dec 9;1-11. doi: 10.1017/S135561772000123X. PMID: 33292899;
44. Ehgoetz Martens KA, **Peterson DS**, Almeida QJ, Lewis SJG, Hausdorff JM, Nieuwboer A. Behavioural Manifestations and Associated Non-Motor Features of Freezing of Gait. *Neurosci Biobehav Rev.* 2020 Sep;116:350-364. doi: 10.1016/j.neubiorev.2020.06.026. Epub 2020 Jun 27. PMID: 32603716,
43. Roman G, **Peterson DS**, Ofori E, Vidt M. The modified Strain Index: A Composite Measure of Injury-Risk for Signers. *Journal of Motor Behavior.* 2020 Aug 17;1-10. doi: 10.1080/00222895.2020.1806778. PMID: 32799767,
42. Schlenstedt C, **Peterson DS**, Mancini M. The effect of tactile feedback on gait initiation in people with Parkinson's disease. *Gait & Posture.* 2020 Jul;80:240-245. doi: 10.1016/j.gaitpost.2020.06.001. PMID: 32559642., (IF= 2.76).
41. Lingo VanGilder, JL, Hooyma A, **Peterson, DS**, Schaefer SY. Post-stroke cognitive impairments and responsiveness to gait rehabilitation: A review. *Current Physical Medicine and Rehabilitation Reports.* <https://doi.org/10.1007/s40141-020-00283-3>.
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2019

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34. Ellis T, Dibble LE, **Peterson DS**. (2019). Physical Therapy for Person's with Parkinson's disease: Moving Beyond Effectiveness; Editorial for Special Issue. *J Neurol Phys Ther.* 2019 Jan;43(1):1-2. PMID: 30531380 DOI: 10.1097/NPT.0000000000000248.
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2018

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2017

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2016

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20. **Peterson DS^C**, Gera G, Horak FB, & Fling BW. (2016) Supraspinal control of postural responses in people with multiple sclerosis. *Gait & Posture*. 2016 Jun;47:92-5. doi: 10.1016/j.gaitpost.2016.02.023. PMID: 27264410
19. **Peterson DS^C**, King LA, Cohen RG, & Horak FB. (2016) Cognitive Contributions to Freezing of Gait in Parkinson Disease- Implications for Physical Rehabilitation. *Phys Ther*. 2016 May;96(5):659-70. doi: 10.2522/ptj.20140603. PMID: 26381808,
18. **Peterson DS^C**, Huisinga J, Spain B, & Horak F. (2016) Characterization of compensatory Stepping in People with Multiple Sclerosis. *Archives of Physical Medicine & Rehabilitation*. 2016 Apr;97(4):513-21. doi: 10.1016/j.apmr.2015.10.103. PMID:26603657. EDITORS SELECTION
17. **Peterson DS^C** & Horak FB. (2016) Neural Control of Walking in People with Parkinson's disease *Physiology (Bethesda)*. Mar;31(2):95-107. doi: 10.1152/physiol.00034.2015. Review. PMID:

2015

16. **Peterson DS**^C & Smulders K. (2015) Cues and attention in Parkinsonian gait: Potential mechanisms and future directions. *Front. Neurol*, 08 Dec 2015. PMID: 26696955.
15. **Peterson DS**^C, Fling B, Mancini M, Cohen RG, Nutt J, & Horak FB. (2015) Dual-task interference and brain structural connectivity in people with Parkinson's disease who freeze. *J Neurol, Neurosurg, and Psychiatry*; 86:786-792. doi:10.1136/jnnp-2014-308840. PMID: 25224677,
14. **Dijkstra BW**, Horak F, Kamsma Y, & **Peterson DS**^C. (2015) Older adults can improve compensatory stepping with repeated postural perturbations. *Frontiers in Aging Neuroscience*. Vol 7. ISSN: 1663-4365. DOI. 10.3389/fnagi.2015.00201,
13. King LA, **Peterson DS**, Mancini M, Carlson-Kuhta P, Fling BW, Nutt J, Carter J, Winters-Stone KM, & Horak FB. (2015) Do cognitive measures and brain circuitry predict outcomes of exercise in Parkinson Disease: a randomized clinical trial. *BMC Neurol*. 2015 Oct 24;15(1):218. PMID: 26499867.

2014

12. **Peterson DS**, Pickett KA, Duncan RP, Perlmutter J, & Earhart GE. (2014) Gait Related Brain Activity in People with Parkinson Disease Who Experience Freezing of Gait. *PLoS ONE*; 2014;9(3):e90634. doi: 10.1371/journal.pone.0090634. PMID: 24595265; PMCID: PMC3940915.
11. **Peterson DS**, Pickett KA, Duncan RP, Perlmutter J, & Earhart GE. (2014) Brain Activity during Complex Imagined Gait Tasks in Parkinson Disease. *Clinical Neurophysiology*. 2014 May;125(5):995-1005. PMCID: PMC3981914. DOI: 10.1016/j.clinph.2013.10.008

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10. Williams AJ, **Peterson DS**, Ionno M, & Earhart GE. (2013) Upper Extremity Freezing and Dyscoordination in Parkinson Disease: Effects of Amplitude and Cadence Manipulations. *Parkinson Disease*. PMCID: PMC3763266 DOI: 10.1155/2013/595378
9. Williams AJ, **Peterson DS**, & Earhart GE. (2013) Gait Coordination in Parkinson Disease: Effects of Step Length and Cadence Manipulations. *Gait and Posture*. Jun;38(2):340-4. PMCID: PMC3640640 DOI: 10.1016/j.gaitpost.2012.12.009
8. Torry MR, Shelburne KB, Myers C, Giphart JE, Pennington W, Krong JP, **Peterson DS**, Steadman JR, & Woo SLY. (2013) High Knee Valgus in Female Subjects Does Not Yield Higher Anterior and Lateral Tibial Translations During Drop Landings: A Biplane Fluoroscopy Study. *Journal of Orthopaedic Research* Feb;31(2):257-67, PMCID: PMC3535677 DOI: 10.1002/jor.22217

2012

7. **Peterson DS**, Plotnik M, Hausdorff J, & Earhart GM. (2012) Evidence for a relationship between bilateral coordination during complex gait tasks and freezing of gait in Parkinson's disease, *Parkinsonism and Related Disorders*; 2012 Nov;18(9):1022-6. doi: 10.1016/j.parkreldis.2012.05.019,
6. **Peterson DS**, Pickett KA, & Earhart GM. (2012) Effects of Levodopa on Vividness of Motor Imagery in Parkinson Disease. *Journal of Parkinson's Disease*; 2(2)127-133; doi: 10.3233/PJD-1012-12077,
5. Pickett KA, **Peterson DS**, & Earhart GM. (2012) Motor imagery of gait tasks in individuals with Parkinson disease. *Journal of Parkinson's Disease*, 2(1):19-22. doi: 10.3233/JPD-2012-11045,

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4. Torry MR, Shelburne KB, **Peterson DS**, Giphart JE, Krong JP, Myers C, Steadman JR, & Woo SLY. (2011) Knee Kinematic Profiles During Drop Landings: A Biplane Fluoroscopy Study, *Medicine Science in Sports & Exercise*. Mar;43(3):533-41. PMID: 20689456; doi: 10.1249/MSS.0b013e3181f1e491,
3. Myers CA, Torry MR, **Peterson DS**, Shelburne KB, Giphart JE, Krong J, Woo SLY, & Steadman JR. (2011) Measurements of Tibiofemoral Kinematics During Soft and Stiff Drop Landings Using Biplane Fluoroscopy. *American Journal of Sports Medicine* Aug;39(8):1714-22. PMID: 21602566,

2. Torry MR, Myers C, Shelburne, KB, **Peterson DS**, Giphart JE, Pennington WW, Krong JP, Woo SLY, & Steadman, JR. (2011) Relationship of Knee Shear Force and Quadriceps Extensor Moment on Knee Translations in Females Performing Drop Landings: A Biplane Fluoroscopy Study. *Clinical Biomechanics* (26);1019-1024; doi:10.1016/j.clinbiomech.2011.06.010. PMID: 21820780,

2010

1. **Peterson DS**, Martin PE (2010) Effects of Age and Walking Speed on Coactivation and Cost of Walking in Healthy Adults. *Gait and Posture*. Mar; 31(3):355-9. PMID: 20106666

Selected Conference Abstracts

Mentee presenter or co-author under Dr. Peterson's mentorship

Podium presentations

Monaghan A, Gordon E, Graham L, Hughes E, Peterson DS, Morris R. Cognition and Freezing of Gait in Parkinson's Disease: A systematic Review and Meta-Analysis. World Parkinson's Congress. Barcelona SP, 2023.

Dirks L, Plesher K, Rupiper P, Moskowitz S, Ivy C, Denney L, Peterson D, Shill H. Impact of Laser Shoes On Activities of Daily Living in People with Parkinson's and Freezing of Gait. World Parkinson's Congress. Barcelona SP, 2023.

Monaghan A, Trevino J, Barajas J, Ofori E, Fling B, Peterson DS. Examining the Relationship Between White Matter Integrity and Reactive Stepping. International Symposium on Gait and Balance in Multiple Sclerosis. Denver, CO. 2023

Monaghan A, Trevino J, Barajas J, Ofori E, Fling B, Peterson DS. The Effectiveness of Reactive Step Training in People with Multiple Sclerosis. International Symposium on Gait and Balance in Multiple Sclerosis. Denver, CO. 2023

Monaghan P, Monaghan A, Hooymann A, Fling B, Huisinga J, Peterson DS. Modeling Balance in People with Multiple Sclerosis: An Exploratory Factor Analysis Approach. International Symposium on Gait and Balance in Multiple Sclerosis. Denver, CO. 2023

Phan, V, Peterson DS, Lee H, Adverse impacts of Parkinson's disease and dual-tasking on the temporal and control aspects of balance interpreted by directional virtual time to contact. American Society of Biomechanics. 2023

Monaghan A, Trevino JL, Barajas, JS, Dibble LE, Mehta SH, Peterson DS. Cognitive Predictors of Reactive Step Training in Parkinson's Disease. *American Society of NeuroRehabilitation*. St. Louis, MO. April, 2022

Oxpring M, Peterson DS. Improvement in muscle activation latency through reactive step training in people with Parkinson's Disease. American Accadamy of Physical Medicine and Rehabilitation. 2023

Delgado F, Der Ananian C, Schaefer S, Bosch P, **Peterson DS**. Balance and Reactive Steps in Older Adults With and Without Self-Reported Musculoskeletal Conditions. *Gerontological Society of America*, November 4-7, 2020

Peterson DS, Dijkstra BW, & Horak FB. Effects of Levodopa on Postural Motor Learning in Parkinson's Disease. *International Society of Posture and Gait Research*, June, 2015.

Peterson DS, Dijkstra BW, & Horak FB. Effects of Parkinson's Disease on Adaptation of Compensatory Stepping. *Gait and Clinical Movement Analysis Society Annual Meeting*, March, 2015.

Peterson DS, Pickett KA, & Earhart GM. Supra-spinal Control of Locomotion in Freezers and Non-freezers with Parkinson Disease. *International Society of Posture and Gait Research*, Akita, Japan, June 2013

Peterson DS, Pickett KA, & Earhart GE. "Cortical and subcortical brain activity during imagined gait tasks across age" *International Society of Posture and Gait Research*, Trondheim Norway, June 2012.

Peterson DS, Pickett KA, & Earhart GE. "Comparing Supra-spinal Locomotor Regions in Parkinson's Disease and Controls. *Clinical Research Training Center National Meeting*, Rochester MN, May

2012.

Peterson DS, & Martin PE. "Effects of Age and Walking Speed on Coactivation during Gait" *American Society of Biomechanics*. State College, PA. August 26-69, 2009.

Peterson DS, Krong J, Giphart JE, Shelburne K, Steadman JR & Torry M. "Comparison of Tibial Translations during Soft and Stiff Landings in Healthy Adults: A Biplane Fluoroscopy Study" *American Society of Biomechanics*. State College, PA. August 26-69, 2009.

Selected Conference Presentations and Proceedings

Kim J, Rider JV, Zinselmeier A, Chiu Yi-Fang, Peterson DS, Longhurst JK. Interlimb arm swing asymmetry during dual-task gait has diagnostic values for cognitive decline in Parkinson's disease. *APTA Combined Sections Meeting*. Boston, MA, 2024.

Vaibhav Poliseti Venkata S, Sabat S, Deshpande CA, Arefeen A, Peterson DS, Zadeh H. On-Device Machine Learning for Diagnosis of Parkinson's Disease from Hand Drawn Artifacts. *IEEE International Conference on Wearable and Implantable Body Sensor Networks (BSN'22)*. Accepted & In press.

Barajas JS, Monaghan A, Trevino T, Dibble L, Mehta S, Peterson DS Effects of In-Place Perturbation Training on Falls in People with Parkinson's disease and Postural Dysfunction *International Society of Posture and Gait Research*. Montreal, CA, July, 2022

Monaghan A, Trevino J, Barajas J, Dibble L, Mehta S, Peterson DS. The Effectiveness of Reactive Step Perturbation Training in People with Parkinson's Disease and Posture Disturbances. *International Society of Posture and Gait Research*. Montreal, CA, July, 2022.

Mancini M, Hasegawa N, Peterson DS, Horak FB, Nutt JG. Freezing of Gait across the spectrum of normal, non-freezers, possible freezers, and definite freezers. *International Society of Posture and Gait Research*. Montreal, CA, July, 2022

Phan Vu, Peterson DS, Lee H. Directional Virtual Time-To-Contact: A Case Study on Assessing Impacts of Disease and Dual-Tasking. *North American Society of Biomechanics (NACOB)* Ottawa, CA, August, 2022.

Monaghan A, Mansfield A, Huisinga J, Peterson DS. Delayed Step Latencies During Backward Reactive Stepping Increases the Odds of Having a Fall History. *American Society of NeuroRehabilitation*. St. Louis, MO, April. 2022.

Van Liew C, Gudesblatt M., Covey T., Wilken J., Golan D, Zarif M, Peterson D. The moderating roles of self-efficacy and depression in dual task walking in multiple sclerosis: A test of self-awareness theory. *International Symposium on Gait and Balance in Multiple Sclerosis*. Virtual. September, 2021

Van Liew, C., Gudesblatt M, Srinivassan J, Kaczmarek O, Golan D, Doinger G, Peterson D. Cognitive Domains and Dual Task Walking in Persons with Multiple Sclerosis. *International Symposium on Gait and Balance in Multiple Sclerosis*. Virtual. September, 2021.

Monaghan, A, Huisinga, J, & Peterson D. Modeling Gait in People with Multiple Sclerosis: A Principal Component Analysis Approach. *International Symposium On Gait and Balance in Multiple Sclerosis*. Virtual. September, 2021

Phan, Vu, Peterson, DS, Lee, H: Intermittent Switching Rate as a Measure to Assess Impacts of Parkinson's Disease and a Secondary Cognitive Task on Postural Balance. *North American Congress on Biomechanics*, Virtual. August, 2021.

Scavarda M, Nagel K, **Peterson DS**, Plesher K, Moskowitz S, Ivy C, Denney L. The Impact of Visual Cueing on Gait Velocity in those with Parkinson's Disease with Freezing of Gait *International Parkinson and Movement Disorder Society Virtual Congress*. Virtual. September 17-22, 2021.

Barajas J, Denney L, Mehta SH, Peterson DS^c. Characterizing the Impact of Baseline Cognitive Status on Dual Task Performance While Backward Reactive Stepping *American Society of Neurorehabilitation*. Virtual. April 5-9, 2021

Monaghan AS, Finley J, Mehta SH, Peterson DS^c. Adaptation of dual-task performance with reactive steps in people with PD. *American Society of Neurorehabilitation*. Virtual. April 5-9, 2021

- Phan V, **Peterson DS**, Richmond S, Lee, H. Effects of Parkinson's Disease and a Secondary Cognitive Task on Standing Postural Stability. *International Conference on Neural Rehabilitation (ICNR) 2020*
- Monaghan AS, **Peterson DS**. Torque Responses to In-Place Perturbations in People with Mild Multiple Sclerosis. *10th International Symposium on Gait & Balance in Multiple Sclerosis*. Virtual. October, 2020
- Van Liew C, Gudesblatt M, Srinivasan J, Kaczmarek O, Golan D, Doniger G, Wilken J, Ofori E, **Peterson DS**. Cognitive Domains and Dual Task-Walking in Persons with Multiple Sclerosis. *10th International Symposium On Gait & Balance in Multiple Sclerosis*. Virtual. October, 2020
- Van Liew C, Dibble LE, Foreman KB, & **Peterson DS**. Change in 'First-Trial' Performance After Protective Step Practice in People with Multiple Sclerosis. *2020 Consortium for Multiple Sclerosis Centers*. August 3rd, 2020
- Monaghan A, Van Liew C, Dibble LE, Schaefer SY, Hunt GR, Foreman KB, **Peterson DS**. Understanding Generalization after Perturbation Practice in Multiple Sclerosis. *9th International Symposium On Gait & Balance in Multiple Sclerosis*. Denver, CO, 2019
- Barajas J, Nadkarni A, Denney L, Mehta S, **Peterson DS**. Protective Postural Control with Divided Attention: Effects of Parkinson's Disease. *International Society of Posture and Gait Research*. Edinburgh, Scotland, June 30-July 4; 2019.
- Roman G, **Peterson DS**, Vidt ME. Quantification of ballistic signing: Does native and non-native status matter? *Combined Sections Meeting of the American Physical Therapy Association*, Feb. 2019.
- Peterson DS**, Lohse KR, Mancini M. Anticipatory postural responses prior to protective steps are not different in people with PD who do and do not freeze. *International Freezing of Gait Society*, Leuven, Belgium, 2018
- Peterson DS**, Lohse KR, Mancini M. How anticipatory postural adjustments affect protective steps: A step-by-step multi-level analysis *American Society of Neurorehabilitation*, San Diego, CA. 2018
- Muthukrishnan N, **Peterson DS**. Choice of stepping limb after postural perturbations in people with PD, does disease severity or limb dominance matter? *American Society of Neurorehabilitation*, San Diego, CA. 2018
- Roman G, **Peterson DS**, Vidt ME. Work Envelope in Native and Non-Native Signers. *American Society of Biomechanics*, 2018
- Barajas J, Mehta S, **Peterson DS**. First trial protective step performance before and after short-term perturbation practice in people with Parkinson's disease. *American Society of Neurorehabilitation*. Baltimore, MD, 2017
- Peterson DS**, Kratz K, Foreman BK, Dibble L. Protective stepping in people with MS: effects of a single bout of practice. *International Society of Posture and Gait Research*. Ft Lauderdale, FL. 2017
- Peterson DS**, Schlenstedt C, Mancini M, Horak FB. Anticipatory Postural Adjustments to Internal and External Perturbations in People who Do and Do Not Experience Freezing of Gait. *Society for Neuroscience*, San Diego, CA. 2016.
- Peterson DS**, Huisinga JM, Spain R, & Horak FB. Characterization of protective stepping in people with Multiple sclerosis. *Society for Neuroscience*. Chicago, IL. 2015
- Peterson DS**, Gera G, Horak FB, & Fling BW. Supra-spinal control of automatic postural reactions in People with MS. *International Multiple Sclerosis Symposium*. Portland, OR. September, 2015.
- Peterson DS**, Cohen RG, Fling B, Mancini M, Nutt JG, & Horak FB. "Dual-task interference in related to PPN structural connectivity in people with Parkinson's disease who freeze." *International Society of Posture and Gait Research*, Vancouver, Canada, June 28-July 2, 2014.
- Peterson DS**, Pickett KA, Duncan RP, & Earhart GM. Neural pathology during imagined locomotion in people with Parkinson disease. *American PT Association: Combined Sections Meeting*. San Diego, CA. January 21-24, 2013.
- Peterson DS**, Plotnik M, Hausdorff J, & Earhart, GM. "Effects of Turning and Backward Walking on Bilateral Coordination in Individuals with Parkinson Disease" *World Parkinson Congress*, Glasgow, Scotland, Sept 29-31, 2010.

Symposia and Invited Conference Presentations

** Indicates international conference or symposium

**Roundtable lead / speaker, World Parkinson's Congress The role of the physical therapist in addressing non-motor symptoms	2023
Invited Speaker: MDS- PAS 8th Annual Movement Disorders School for Neurology Residents	2023
**Symposium Speaker, International Society of Posture & Gait Research Subcortical contributions to reactive balance	2023
**Invited Speaker: International Symposium of Gait and Balance in MS "Neural control of reactive balance in people with MS"	2023
Symposium Speaker, Combined Sections Meeting (CSM) Neuroimaging of Reactive Balance Control: Identifying Therapeutic Targets to Inform Fall Prevention	2023
**Invited Speaker: INSIGHT, Living Brave with PD: PD Warrior Conference "Freezing of Gait and Cognition: Opportunities for Rehabilitation"	2022
**Invited Speaker: Movement Disorders Society- European Section: Multidisciplinary Teamwork in Parkinson's Disease, Atypical PD & Dystonia: Innovations & Challenges. "Impacts of FOG on Cognition: Current Knowledge and Clinical Application"	2022
Symposium Speaker, Combined Sections Meeting (CSM) "Fake News: Understanding limitations and pitfalls of scientific literature"	2019
**Invited Speaker: International Symposium of Gait and Balance in MS "Compensatory Stepping in people with Multiple Sclerosis"	2019
**Invited Speaker: International Freezing of Gait Conference (Leuven, Belgium) Posture and Gait Control in People with PD who Freeze	2018
Symposium Speaker, 2017 Combined Sections Meeting (CSM) "Cognitive impairment in PD: Understanding and unlocking freezing of gait"	2017
Invited Speaker, 2017 Washington State Traumatic Brain Injury Conference "Linking Mobility and Cognition: Implications for Rehabilitation"	2017
**Symposium Speaker, 2014 International Society of Posture and Gait Research "Supraspinal Control of Locomotion in PD- Implications for Rehabilitation"	2014
Invited Speaker, OHSU Parkinson Center: Managing & Treating PD "Integrating cognitive tasks into physical therapy"	2014

Invited Academic Research Presentations

** Indicates international presentation

Reactive balance in People with Parkinson's disease Oregon Health & Science University, (Neurology Grand Rounds)	2024
Characterization and treatment of reactive balance in neurological populations Pennsylvania State University (Action Club)	2023
** Protective postural control in people with PD: Deficits & potential for rehabilitation Tel Aviv University & Sheba Medical Center, Israel	2021
Parkinson's, Motor Disorders & the Community ASU TRiP Talk	2021

Dual Task Postural Control People with PD Oregon Health & Science University	2020
Protective Step Training in PD: Potential for Rehabilitative Application University of Southern California	2020
One Step Backward and Two Steps Forward: Protective Posture in Clinical Populations Arizona State University; Speech & Hearing Science	2019
Protective Step Dysfunction and Training in Clinical Populations University of Utah	2018
Protective postural control in clinical populations: Potential for clinical intervention? Colorado State University	2017
Understanding and treating mobility dysfunction in clinical populations Arizona State University, Biomedical Engineering Seminar Series	2016
Compensatory Stepping in Parkinson's disease and Multiple Sclerosis University of Utah	2015
Postural Motor Learning in Parkinson's Disease: Implications for Rehabilitation Utah State University	2014
Biomechanical and Neural Factors Associated with Freezing in PD Utah State University	2013
Biomechanical and Neural Factors Associated with Freezing of Gait in PD Oregon Health Sciences University	2012
Freezing of Gait in Parkinson Disease Illinois State University	2012
Metabolic Cost of Walking in Older Adults and Mechanisms of ACL Injury in Young University of Illinois in Chicago	2009
Effects of age on Coactivation, Variability, and Joint Kinetics During Walking Mayo Clinic, Rochester, MN	2008

Honors & Awards

Outstanding Faculty Mentor Award Nominee- Arizona State University Graduate College	2021
Outstanding Teaching Award Nominee- 5 th Annual CHS Staff and Faculty Awards	2020
Outstanding Faculty Mentor Award Nominee- Arizona State University Graduate College	2020
Attendee: NIH-Sponsored "Training in Grantsmanship for Rehabilitation Research" workshop	2017
Manuscript selected as "Editor's Choice" (Archives of Physical Medicine & Rehabilitation)	2016
Travel Grant Recipient- 2016 World Parkinson Congress	2016
Attendee, NIH-sponsored "Training Course in fMRI" (Univ. of Michigan)	2012
2 nd Place- Graduate Research Symposium; (Washington University in St. Louis)	2011
Selected as a Funded Pre-Doctoral Trainee on an NIH CTSA (T32 HD007434; PI: Mueller); Washington University School of Medicine; Program in Physical Therapy	2009
B.K. & Betty Stevens Undergraduate Scholarship (University of Florida)	2006
Anderson Scholar for Academic Achievements (University of Florida)	2005

Mentee awards (while under supervision of Dr. Peterson)

College of Health Solutions Christine Wells Outstanding Research Award (Monaghan)	2023
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College of Health Solutions Christine Wells Outstanding Research Award (Van Liew)	2021
Graduate & Professional Student Association Outstanding Research Award (Monaghan)	2020
School of Biological and Health Systems Engineering Merit Award Stipend (Muthukrishnan)	2018
Northern Arizona University Annual 3-minute Research Presentation (3 rd place; Peters)	2017

SERVICE

Service for Arizona State University

College:

Co-Chair: Mentoring Committee	2022 – Present
Co-Chair: CHS Lab and Clinic Safety Committee	2021 – Present
Member: CHS Research Council	2018 – Present
Member: CHS Grant Review Committee	2020 – Present
Member: Jumpstart Grant Review Committee	2019 – Present
Member: CHS Personnel Committee	2021
Member: Faculty success hub (CHS Visioning Committee)	2018
Member: Faculty success hub (Research subcommittee)	2018

Program:

Member: MS in EXW Curriculum Committee	2019 – Present
Member: MS in Biomechanics Curriculum Committee	2016 – 2018
Member: Search Committee (Biomechanics Tenure Track Hire)	2017 – 2018

Professional Service

Grant Review Service (national & international)

National Multiple Sclerosis Society

Recovering Functional Activity Grant Review Committee	2023
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Parkinson's UK

College of Experts- Standing grant reviewer	2020 – Present
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Congressionally Directed Medical Research Program (CDMRP)

2022

NIH Grant Review Activities:

Ad-Hoc Member: NINDS G64 (NSDK) Clinical Trials Study Section	2024
Ad-Hoc Member: Musculoskeletal Rehabilitation Service (MRS) study section	2023
Ad-Hoc Member: NINDS ZNS1 G38 Special Emphasis Panel	2021
Ad-Hoc Member: NINDS NSD-K (Clinical Trials) Study Section	2018
Ad-Hoc Member: Special Emphasis Panel/SRG ZRG1 ETTN-C (10) B: Small Business panel: Clinical Neurophys, Devices, Neuroprosthetics, & Biosensors	2017

Dept. of Veterans Affairs Grant Review Activities

Standing Member- Rehabilitation R&D Scientific Group Review (RRD6-Chronic Medical Conditions and Aging)	2020 – 2022
Ad-Hoc Member: Rehabilitation R&D Scientific Group Review (RRD6-Chronic Medical Conditions and Aging)	2018 – 2019
SPiRE Grant reviewer (RRDS R); Rehabilitation Research and Development	2017 – 2019; 2022 2024

NSF Study Section Grant Review Activities

Ad-Hoc Member: Program in Perception, Action, and Cognition 2018

International Funding Agency Review Activities:

As-Hoc Member: Israeli Ministry of Innovation, Science and Technology Grant Review 2022
Ad-Hoc Member: Mitacs "Accelerate" Proposal Stream (Canada) 2022
Ad-Hoc Member: Parkinson's UK Grant Review Panel (UK) 2020 & 2022
Ad-Hoc Member: Dunhill Medical Trust (UK) 2020
Ad-Hoc Member: Health Research Board, national funding agency for Ireland 2019
Ad-Hoc Member: Research Foundation Flanders (Belgium) 2017 & 2018
Ad-Hoc Member: Israeli Science Foundation 2017

Other, National Grant Review Activities

Univ. of Maryland Claude D. Pepper Older Americans Independence Center (UM-OAIC) 2020

Service to Societies

2026 World Parkinson's Congress Comprehensive Care Program Subcommittee 2024
2023 World Parkinson's Congress Comprehensive Care Program Subcommittee 2022-2023
International Society of Posture and Gait Research (ISPGR) World Congress Session Co-Chair & Scientific Review Committee 2019

Service to Journals

Editorial Board- Neuroscience Letters 2024 – Present
Review Editor- Frontiers in Movement Disorders 2020 – Present
Editorial Board- Journal of Neurologic Physical Therapy 2016 – Present
Special Issue Editor (Journal of Neurologic Physical Therapy) "Physical Therapy for Parkinson's Disease – Mechanisms and Interventions" 2017 – 2018

Ad Hoc Reviewer (**approximately 25-35 per year**) for the following journals:

<i>Anatomical Record</i>	<i>J. of NeuroEng. & Rehab.</i>	<i>Psychological Research</i>
<i>Arch Phys Med & Rehab</i>	<i>J. of Motor Learning & Devel.</i>	<i>Medical Engineering & Physics</i>
<i>Behavioural Brain Research</i>	<i>J. of Sci & Medicine in Sport</i>	<i>Medicine & Sci in Sports & Ex.</i>
<i>Brain Imaging and Behavior</i>	<i>J. of Applied Biomechanics;</i>	<i>Motor Control</i>
<i>Cerebral Cortex</i>	<i>J. of Parkinson's Disease</i>	<i>Movement Disorders</i>
<i>Clinical Biomechanics</i>	<i>J of Neural Transmission</i>	<i>Mechanisms of Aging & Devel.</i>
<i>Clinical Neurophysiology</i>	<i>J. of Neurologic PT</i>	<i>Multiple Sclerosis & Rel. Dis.</i>
<i>Disability & Rehabilitation</i>	<i>J. of Neurology</i>	<i>Neurobiology of Aging</i>
<i>Experimental Aging Research;</i>	<i>JOVE</i>	<i>Neuroimage</i>
<i>European J. of Neuroscience</i>	<i>Lancet Neurology</i>	<i>Neuroscience Letters</i>
<i>Gait & Posture</i>	<i>Peer J</i>	<i>Neurorehab. & Neural Repair</i>
<i>Human Brain Mapping</i>	<i>Parkinson Disease J.</i>	<i>Neuroscience and Biobehav. Rev</i>
<i>Human Movement Science</i>	<i>Parkinson's Dis. & Rel. Dis.</i>	<i>Sensors</i>
<i>J. of Biomechanics</i>	<i>Pilot & Feasibility Studies</i>	<i>Scientific Reports</i>
<i>J. of Gerontology: Med. Sci.</i>	<i>Physiotherapy Theory & Practice;</i>	<i>Transactions on Neural Systems</i>
<i>J. of Neurology, Neurosurgery, & Psychiatry</i>	<i>PLoS One</i>	<i>& Rehab Eng</i>
	<i>Physical Therapy Journal</i>	

Professional Memberships

Society for Neuroscience
International Society for Posture and Gait Research

Community service

Community Research / Educational Presentations

“What goes wrong with Balance in Parkinson’s Disease & Can we change it” American PD Association “Let’s Keep Moving with APDA” seminar series https://www.apdaparkinson.org/videos/lets-keep-moving-with-apda-what-goes-wrong-with-balance-in-parkinsons-disease-can-we-change-it/	2023
“Falls, Balance & MS- causes and possible treatments” MS support groups (Phoenix)	2022
“Falls, Balance, and Parkinson’s Disease” PD support groups (Phoenix)	2022
“Balancing activity, safety, and quality of life” Braille Institute Quarterly Fall Prevention Seminar	2020 / 2021
“PT and PD: Balance and physical therapy in people with Parkinson’s disease” Arizona Rehab PT Clinic	2019
“Balance and posture in Parkinson’s disease” Scottsdale Parkinson’s disease support group	2018
“Parkinson’s Disease: Symptoms and Signs” Cache Valley Senior Center, Logan UT	2016
“Walking & Balance in Parkinson’s Disease: Latest Research” Logan, UT Parkinson’s Disease Support Group	2013
“Imagine That! Imagined walking to gain insights into locomotor control in PD” Young Onset PD Support Group, St. Louis, MO	2013

Community Engagement

“New Adventures in Learning” (NAIL) Continued adult education program Instructor / Presenter	2017- 2020
Hereditary Neuropathy Foundation- “Movement is Medicine” Summit (Phoenix, AZ) Co-presenter / researcher	2018
Hereditary Neuropathy Foundation Center for Excellence for CMT (ASU & BNI) contributor	2021 – present

TEACHING & MENTORING

Teaching (ASU)

Instructor of Record

“Neural Aspects of Movement and Rehabilitation (KIN 424 / 598)	2016 – Present
“Motor Behavior” (KIN345)	2021 – Present

Teaching (Other Institutions)

Instructor of Record

“Neural Aspects of Rehabilitation”; MS in Exercise Science Curriculum
Utah State University 2016

Guest Lecturer

“Motor Control”; Doctorate in Physical Therapy Curriculum
University of Utah 2015 – Present

“Biocontrol”; Movement Science PhD Curriculum
Washington University in St. Louis 2012

“Development, Control, and Analysis of Human Movement”; Post Professional DPT
Washington University in St. Louis 2012

“Neuroscience” Doctorate in Physical Therapy Curriculum
Washington University in St. Louis 2011 – 2012

Teaching Assistant and Guest Lecturer

“Biomechanics” Undergraduate Curricula
Penn State University 2006 – 2008

Mentoring - ASU

Committee Chair:

Graduate: PhD

Andrew Monaghan (Exercise & Nutrition Science; College of Health Solutions) 2019 – 2023
Title: Neural Control of Protective Stepping in Neurological Populations;
Successfully defended thesis: May 2023
Received the CHS 2021 Christine Wells Outstanding Research Award
Currently completing a postdoc at Emory University

Charles Van Liew (Exercise & Nutrition Science; College of Health Solutions) 2018 – 2021
Title: Dual-Task Walking in MS: Correlates, Moderators, and Consequences
Successfully defended thesis: April 2021
Received the CHS 2021 Christine Wells Outstanding Research Award

Graduate: MS

Alexander Belnavis (MS; Speech & Hearing Science) 2021 – 2023
Title: Relating speech and gait outcomes in people with PD
Committee co-chair: (co-chair: Daliri)

Jordan Barajas (MS: Exercise, Nutrition, & Wellness; College of Health Solutions) 2017 – 2020
Title: Effects of Dual Tasking on protective stepping in people with PD
Thesis successfully defended 11/2020
Currently working in industry

Marvin Vergara (MS: Applied Project; Fulton Schools of Engineering) 2019
Title: Characterizing electromyographic activity in people with PD
Project successfully defended 5/2019
Currently working in industry

Matthew Gerveler (MS Applied Project; Fulton Schools of Engineering) 2017 – 2018
Title: Characterizing protective stepping in healthy young adults via TMM
Project successfully defended, 05/2018
Currently working in industry

Undergraduate Honors Theses

Sean Bowman (Barrett Honors Senior Thesis) Title: Anticipatory vs. expected reactive stepping in people with PD	2023 – Present
Devin Nikjou (Barrett Honors Senior Thesis) Title: EMG responses in reactive balance in people with PD	2023 – Present
Ayden Salek (Barret Honors Senior Thesis) Title: EMG responses to reactive balance training in neurological populations	2023 – Present
Sam Webster (Barrett Honors Senior Thesis) Title: Parkinsonian Symptoms in Patients with REM Sleep Behavior Disorder	2022 – 2023
Tea McCormick (Barrett Honors Senior Thesis, BME) Title: assessing cognitive tests across domains in people with PD & FOG	2021 – 2023
Cal Bosard (Barrett Honors Senior Thesis, CHS) Title: Characterizing reactive lateral stepping in people with PD	2021 – 2022
Jelena Mitrovic (Barrett Honors Senior Thesis, CHS) Title: Effects of Ballet on Balance in Individuals with Down Syndrome	2021 – 2022
Becca Sturm (Barrett Honors Senior Thesis, CHS) Title: Dual tasking in people with and without PD <i>Thesis successfully defended May 2022</i>	2021 – 2022
Finn Larsen (Barrett Honors Senior Thesis, College of Nursing) Title: Transfer of skills across hockey & Golf <i>Thesis Successfully defended: May 2021</i>	2019 – 2020
Randall Arroyo (Barrett Honors Thesis, Kinesiology) Title: Generalization of protective stepping across lateral stepping directions <i>Thesis successfully defended: 4/2019</i>	2018 – 2019
Rachael Nowak (Barrett Honors Thesis, Kinesiology) Title: Generalization of protective stepping: forward and backward steps <i>Thesis successfully defended: 11/2018</i> Currently in Physical Therapy School	2017 – 2018
Rachael Preshler (Barrett Honors Senior Thesis, Kinesiology) Title: Relating reactive stepping to falls in community dwelling older adults. <i>Thesis successfully defended; 05/2018</i> Currently in Physical Therapy School	2017 – 2018

Committee Member:

Graduate: PhD

Ferdinand Delgado (PhD in Exercise & Nutrition Science; CHS) Title: Investigating the Interplay between Executive Function, Apolipoprotein E4, and Falls in Older Adults with Normal Cognition, Mild Cognitive Impairment, and Alzheimer's Dementia Committee Chair: Cheryl Der Ananian <i>Thesis Defense: May 2023</i>	2018 – 2023
Josh Beaumont (PhD in Exercise & Nutrition Science, CHS) Title: Energy expenditure of walking in adults: influence of body mass index, age, height, and sex Committee Chair: Glenn Gaesser <i>Thesis Defense: Nov. 2023</i>	2017 – 2023

- Seong Moon** (PhD in Biomedical Engineering; Fulton Schools of Engineering) 2017 – 2023
 Title: Understanding the Effect of Epidural Steroid Injection in Lower Back Pain using Inertial Measurement Unit Wearable Device
 Committee Chair: Thurmon Lockhart
Thesis Defense: May 2023
- Kaycee Glatke** (PhD in Biomedical Engineering, Fulton Schools of Engineering) 2017 – 2022
 Title: Low-Intensity Blood Flow Restriction Training as a Pre-Operative Rehabilitative Modality to Improve Post-Operative Outcomes for ACL Reconstruction
 Committee Chair: Thurmon Lockhart
Thesis successfully defended, May 2022
- Victoria Smith** (PhD in Biomedical Engineering; Fulton Schools of Engineering) 2015 – 2019
 Title: Understanding the application and limitations of Lyapunov exponents for fall risk assessments
 Committee Chair: Thurmon Lockhart
Thesis Defense: 10/2019
Currently working in industry
- Gretchen Roman** (PhD in Exercise & Nutrition Science; College of Health Solutions) 2015 – 2019
 Title: 'Upper extremity biomechanics in native and non-native sign language
 Committee Chair: Swan
Thesis Defense: 11/2018
Currently in a postdoctoral position- University of Rochester
- Graduate: MS**
- Lexi Kasofsky** (MS in Exercise & Wellness; CHS) 2022 – 2023
 Title: Blood flow restriction in Stroke Survivors
 Committee Chair: Siegler
- Kalyani Datta** (Speech Language Pathology) 2022 – 2022
 Title: Effects of Levodopa on Cognitive Control in Parkinson's Disease
 Committee Chair: Brewer
- Madeline Hooten** (Speech Language Pathology) 2022 – 2022
 Title: Effects of Gender on Cannabis consumption in people with PD
 Committee Chair: Ofori
- Kwanghee Jo** (MS in Biomedical Engineering) 2022 – 2022
 Title: The Use of a Vibrotactile Feedback for Improving Standing Posture Stability
 Committee chair: Lee
- Xun Yu** (MS in Biomedical Engineering) 2022 – 2022
 Title: Dynamic stability assessment of walking while wearing passive back support Exo-suit
 Committee chair: Lockhart
- Arianna Marquez** (MS in Biomedical Engineering; Applied Project) 2022 – 2022
 Title: Gait Symmetric Adaptation and Retention to Short-Term Visual Distortion and Split-Belt Treadmill Walking
 Committee chair: Lee
- Theophilus Annan** (MS Applied Project; Fulton Schools of Engineering) 2020 – 2021
 Title: Backward reactive stepping in stroke survivors
 Committee Chair: Honeycutt

Niveditha Muthukrishnan (MS in Biomedical Engineering) 2016 – 2018
Title: Evaluation of a Soft Robotic Knee Exosuit for Assistance in Stair Ascent
Committee Chair: Polygerinos
Currently completing an PhD at ASU

Chloe Houlihan (MS Applied Project) 2017 – 2018
Title: Testing the Relationship Between Dexterity and Cognitive Ability in Healthy Older Adults
Committee Chair: Schaefer
Currently working in industry

Troy Ramos (MS Applied Project; Fulton Schools of Engineering) 2017 – 2018
Title: Quantifying Local Dynamic Stability in Healthy and Fall Prone Adults
Committee Chair: Lockhart
Currently working in industry

Undergraduate Honors Theses

Lauren Berrett (Barrett Honors Senior Thesis, Engineering) 2020 – 2021
Title: gait in people with multiple sclerosis
Committee Chair: Lee

Danielle Keim (Barrett Honors Senior Thesis, CHS) 2019 – 2020
Title: Postural control after varying interventions in children with Autism
Committee Chair, Ringenbach

Cheng Chang (Barrett Honors Senior Thesis, CHS) 2019 – 2020
Title: App Development for facilitating PT at-home exercise prescription
Committee Chair, Holzapfel

Jonathan Talos (Barrett Honors Senior Thesis, Fulton Schools of Engineering) 2019
Title: Gait monitoring for transtibial amputees
Committee Chair: Schaefer

Sydney Connor (Barrett Honors Senior Thesis, Fulton Schools of Engineering) 2016 – 2017
Title: Utilizing Motor Practice to Prime Motor Performance
Committee Chair: Schaefer
PhD Candidate, Johns Hopkins University

Other

Isabel Rosas (SCENE High-school Scholar; Bioscience High School) 2022 – 2023
Topic: Motor Learning and Cognition in people with PD

Achintya Sai (SCENE High-school Scholar; Bioscience High School) 2022 – 2023
Topic: CVLT performance in people with MS
2nd place in Behavioral & Social Science Devision, 1st place award from American Psychological Association, 2023 Arizona Science & Engineering Fair

Katherine Shi (Basis High-school Scholar) 2022 – 2023
Topic: Reactive balance and proprioception in people with PD

Hanna Johannsson, PhD (Visiting PhD student; Karolinska Institute) 2020
Topic: Cognition and motor learning in people with PD
Currently a postdoctoral scholar at Karolinska Institute

Anandita Nadkarni (Summer Intern; Milburn High school) 2017
Topic: Protective postural control in people with PD

Other Research Mentoring at ASU

I provide for-credit research experiences and mentorship to undergraduate (UG) & Graduate (Grad) students each semester

Mentoring Outside of ASU

Committee Chair / co-chair:

Graduate: MD

University of Arizona, School of Medicine

- | | |
|--|----------------|
| Orlando Acuna
Project: Dual tasking in Parkinson's disease- clinical samples | 2022 – Present |
| Milan Oxspring
Project: Changes in EMG across reactive stepping training in those with PD | 2021 – Present |
| Andrew Acosta (“Pathway Scholar”)
Project: Relating Cognition and Depression to learning in people with PD | 2020 – Present |

Graduate: Doctorate in Physical Therapy

Northern Arizona University (NAU), Program in Physical Therapy

- | | |
|--|-------------|
| Alyssa Martin
Thesis: Impacts of “laser shoes” on freezing episodes in people with PD
* Joint project with Rachael Nowak
<i>DSP Co-Chair; Linda Denney (NAU)</i>
<i>Project successfully defended, March, 2021</i> | 2020 – 2021 |
| Rachael Nowak
Thesis: Impacts of “laser shoes” on freezing episodes in people with PD
* Joint project with Alyssa Martin
<i>DSP Co-Chair; Linda Denney (NAU)</i>
<i>Project successfully defended, March, 2021</i> | 2020 – 2021 |
| Madison Scavarda
Thesis: Impacts of “laser shoes” on freezing episodes in people with PD
* Joint project with Kenneth Nagel
<i>DSP Co-Chair; Linda Denney (NAU)</i>
<i>Project successfully defended, March, 2021</i> | 2020 – 2021 |
| Kenneth Nagel
Thesis: Impacts of “laser shoes” on freezing episodes in people with PD
* Joint project with Madison Scavarda
<i>DSP Co-Chair; Linda Denney (NAU)</i>
<i>Project successfully defended, March, 2021</i> | 2020 – 2021 |
| Sidney Gutierrez
Thesis: Dual tasking and postural control in community dwelling older adults
<i>DSP Co-Chair; Linda Denney (NAU)</i>
<i>Project successfully defended in May 2020</i> | 2019 – 2020 |
| Wendy Peters
Thesis: Understanding Stroke: A Physical Therapy Perspective
<i>DSP Co-Chair; Pamela Bosch (NAU)</i>
<i>Project successfully defended (05/2018)</i> | 2017 – 2018 |

*Won 3rd place at Annual NAU 3-minute Research Symposium

Lisa Britton 2017 – 2018
Thesis: Prioritization of a Cognitive Task and an Increased Risk of Falls in Community Dwelling Older Adults; *Joint project with Alexa Zienka
DSP Co-Chair; Pamela Bosch, (NAU)
Project successfully defended (05/2018)

Alexa Zienka 2017 – 2018
Thesis: Prioritization of a Cognitive Task and an Increased Risk of Falls in Community Dwelling Older Adults; *Joint project with Lisa Britton
DSP Co-Chair; Pamela Bosch (NAU)
Project successfully defended (05/2018)

Jenna Martinez 2016 – 2017
Thesis: Dual Task Performance in people with Parkinson's Disease
DSP Co-Chair; Linda Denney (NAU)
Project successfully defended (05/2017)

Graduate: MS

Oregon Health & Science University

Bauke Dijkstra (MS, Kinesiology) 2013 – 2014
Thesis: Older Adults Improve Postural Control Through Perturbation Training
Visiting Scholar from the University of Groningen, The Netherlands
DSP Committee member; Chair: Yvo Kamsma

Committee Member / Dissertation reader:

Graduate: PhD

Colorado State University

Sutton Richmond (PhD, Human Bioenergetics) 2018 – 2020
Thesis: Bridging the Callosal Gap in Gait: A mechanistic Evaluation of White Matter's Role in Bilateral Coordination
Committee Member; Chair: Brett Fling
Dissertation successfully defended; 3/6/2020

Ben Gurion University, Be'er Sheva, Israel

Uri Rosenblum Belzer (PhD) 2021
Thesis: Mechanisms of Balance Recovery During Walking in Complex Environments in Healthy Young and Older Adults
External thesis reviewer; Chair: Drs. Melzer & Plotnik

Post-doctoral Mentorship

University of Utah

Brian Loyd, PhD

Distance co-mentor (Primary mentor- Lee Dibble)

Currently Faculty Member at University of Montana

2018 – 2021