

# Jonathan Martin Wood

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## Research goal

Advance physical therapy practice by determining how to optimize rehabilitation interventions that will improve physical function and quality of life for people with neurologic disorders.

## Professional positions

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### Academic

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| 2026 - present | Assistant professor<br>Department of physical therapy<br>University of Delaware                        |
| 2023 - 2025    | Postdoctoral fellow<br>Jefferson Moss Rehabilitation Research Institute<br>Thomas Jefferson University |

### Clinical

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|-------------|---|
| 2017 - 2018 | Neurologic physical therapist<br>Johns Hopkins Hospital   |
| 2016 - 2017 | Resident<br>Johns Hopkins and University of Delaware Neurologic Physical Therapy<br>Residency program |
| 2015 - 2016 | Physical Therapist<br>ProFitness Physical Therapy   |
| 2014 - 2016 | Physical Therapist<br>Montefiore Medical Center   |

## Licensure and certifications

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| 2018 - present | Board Certified Specialist in Neurologic Physical Therapy (52362)<br>American Board of Physical Therapy Specialties |
| 2016 - present | Physical therapy license (J1-0003526)<br>State of Delaware Division of Professional Regulation                      |
| 2017 - present | Credentialed Clinical Instructor<br>American Physical Therapy Association   |
| 2015 - present | CPR/AED for professional rescuers<br>American Red Cross   |

## Education

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- 2023      **Ph.D.**, Biomechanics and Movement Science, concentration in motor control  
University of Delaware  
Dissertation title: Learning locomotor patterns using repetition and reward  
Advisor: Susanne M. Morton  
Co-Advisor: Hyosub E. Kim  
Committee members: Darcy S. Reisman, Michael D. Lewek, Aaron L. Wong
- 2014      **Doctor of Physical Therapy**  
Utica University (formally Utica College)
- 2012      **B.S.**, Health Sciences  
Utica University (formally Utica College)

## Research grants

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### Past support

- 2025      National Institutes of Health (F32HD120236). *The role of subjective values and dopamine availability in incentive-based motor learning*. Role: Principal Investigator. \$78,520

## Honors and awards

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- 2025      Neural Control of Movement Scholarship Award  
Society for the Neural Control of Movement
- 2025      Jefferson postdoc travel award  
Thomas Jefferson University
- 2023      President's Award  
Academy of Acute Care Physical Therapy
- 2022      University Dissertation Fellowship  
University of Delaware
- 2021      University Doctoral Fellowship  
University of Delaware
- 2021      Early Career Scientist Workshop, selected attendee  
Academy of Neurologic Physical Therapy
- 2019, 2021      Travel Award  
University of Delaware
- 2018      Emerging Leader Award  
American Physical Therapy Association
- 2017      Best poster award: How do you Rehabilitate Balance when Vision, Sensation, and Vestibular Systems are Impaired? A Case Study  
APTA of MD Regional Annual Conference

2012 Dean Robert Woods Student Life Award,  
Utica University (formally Utica College)

## **Publications**

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1. Dowdall, L., Geminiani A., Kosugi, A., Lemke, S., Liu, S., Nashef, A., Perks, K., Chowdhury, R., Thanawalla, A., Wang, T., Wei, R.H., **Wood, J. M.** (2025). Integrated approaches for investigating the Neural Bases of Movement - Highlights from the 34th Annual Meeting of the Society for the Neural Control of Movement. *Journal of Neurophysiology*.
2. Arhos, E. K., **Wood, J. M.**, Silbernagel, K. G., & Morton, S. M. (2024). Motor Learning of Knee Joint Kinematics in Patients Within the First Year After ACL Reconstruction. *Sports Health*.
3. **Wood, J. M.**, & Wong, A. L. (2024). Subjective perception of effort affects the way we move. *Journal of Neurophysiology*.
4. **Wood, J. M.**, Thompson, E., Wright, H., Festa, L., Morton, S. M., Reisman, D. S., & Kim, H. E. (2024). Explicit and implicit locomotor learning in individuals with chronic hemiparetic stroke. *Journal of Neurophysiology*.
5. **Wood, J. M.**, Kim, H. E., & Morton, S. M. (2024). Reinforcement Learning during Locomotion. *eNeuro*, 11(3),
6. Arhos, E. K., **Wood, J. M.**, Silbernagel, K. G., & Morton, S. M. (2024). Individuals early after anterior cruciate ligament reconstruction show intact motor learning of step length via the split-belt treadmill. *Clinical Biomechanics*, 115, 106256.
7. Roth, A.M., Buggeln, J. H., Hoh, J. E., **Wood, J. M.**, Sullivan, S. R., Ngo, T. T., Calalo, J. A., Lokesh, R., Morton, S. M., Grill, S., Jeka, J. J., Carter, M. J., Cashaback, J. G. A. (2024). Roles and Interplay of Reinforcement-based and Error-based Processes During Reaching and Gait in Neurotypical Adults and Individuals with Parkinson's Disease. *PLOS computational biology*. 20(10): e1012474.
8. **Wood, J. M.**, Morton, S. M., & Kim, H. E. (2023). A reliable and efficient adaptive Bayesian method to assess static lower limb position sense. *Journal of Neuroscience Methods*, 392, 109875.
9. **Wood, J. M.**, Morton, S. M., & Kim, H. E. (2021). The Consistency of Prior Movements Shapes Locomotor Use-Dependent Learning. *eNeuro*, 8(5).
10. **Wood, J. M.**, Kim, H. E., French, M. A., Reisman, D. S., & Morton, S. M. (2020). Use-dependent plasticity explains aftereffects in visually guided locomotor learning of a novel step length asymmetry. *Journal of Neurophysiology*, 124(1), 32–39.

11. Radwan, A., Buell, J., Merchant, M., Oeser, M., Smith, J., Spilka, J., **Wood, J. M.**, Wydysh, J. (2015). Validation of a simple seat satisfaction questionnaire. *Journal of Safety, Health & Environmental Research*. 11(1): 195-200.

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### **Publications in prep**

1. **Wood, J. M.**, Kim, H. E., Morton, S. M. Lower limb proprioception is related to locomotor adaptation.
2. **Wood, J.M.**, Therrien, A. S., Wong, A. L. Exploring the effort, reward tradeoff in people with Parkinson's disease.

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### **Invited Talks**

1. Determining the cognitive contributions to reduced movement vigor in people with Parkinson's disease. Society for the Neural Control of Movement Meeting. Panama City, Panama (2025).
2. Where are my legs? A novel assessment of lower limb proprioception. SPARK! Research Symposium. University of Delaware. Newark, DE (2022). [Withdrawn]
3. Learning new Locomotor Patterns using Repetition and Reward. USC Neurorehabilitation Seminar Series. Virtual Talk (2022).
4. Investing in Academic Future of Physical Therapy Learners: The Resident Educator. APTA Combined Sections Meeting. Denver, CO (2020).
5. Early Mobility of a Patient Status Post Implementation of a Centrimag Bilateral Ventricular Assist Device: A Case Report. APTA Combined Sections Meeting. Anaheim, CA (2016).
6. Validation of a Simple Seat Satisfaction Questionnaire. Applied Ergonomics Conference. Orlando, FL (2014).

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### **Notable Intramural Talks**

1. Vigor and Parkinson's disease: Unpacking the effort reward tradeoff. Topics in rehabilitation science seminar, Jefferson Moss Rehabilitation Research Institute. Philadelphia, PA (2025).
2. How do incentive structures shape motor learning? Focus area meeting, Jefferson Moss Rehabilitation Research Institute. Philadelphia, PA (2024).
3. The tradeoff between effort and reward in Parkinson's disease. Focus area meeting, Jefferson Moss Rehabilitation Research Institute. Philadelphia, PA (2024).
4. A gentle introduction to Bayesian statistics and inference. Movement science meeting, Jefferson Moss Rehabilitation Research Institute. Philadelphia, PA (2024).

5. Use-Dependent Plasticity in Locomotor Learning. Biomechanics and movement science seminar, University of Delaware. Newark, DE (2019).
6. A Comparison of Different forms of Locomotor Learning. Biomechanics and movement science seminar, University of Delaware. Newark, DE (2019).
7. Case Report of a Patient with Pontine Hemorrhage. Grand Rounds, University of Delaware. Newark, DE (2017).
8. Multidisciplinary Management of Post-Concussion Syndrome. Johns Hopkins Hospital. Baltimore, MD (2016).

### **Posters**

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1. Jackson, S., **Wood, J. M.**, Morton, S. M. Does Pain Impact the Retention of Motor Memories, or Is It Simply Context Change? APTA Combined Sections Meeting. Boston, MA (2024).
2. **Wood, J. M.**, Kim, H. E., & Morton, S. M. Reinforcement learning and strategic aiming lead to distinct patterns of acquisition and explicit retention in locomotion. APTA Combined Sections Meeting. San Diego, CA (2023).
3. Penn, S. **Wood, J. M.**, Kim, H. E., & Morton, S. M. Testing reliability of the psi adaptive algorithm to determine lower limb positive sense thresholds. Undergraduate Research Symposium. Newark, DE. (2022).
4. **Wood, J. M.**, Morton, S. M., & Kim, H. E. A Method to Test Lower Limb Position Sense using the Split-Belt Treadmill. Society for Neuroscience. Virtual meeting (2021).
5. **Wood, J. M.**, Morton, S. M., & Kim, H. E. The Consistency of Prior Movements Shapes Locomotor Use-Dependent Learning. Society for the Neural Control of Movement. Virtual meeting (2021).
6. **Wood, J. M.**, Kim, H. E., French, M. A., Reisman, D. S., & Morton, S. M. Use-Dependent Plasticity in Locomotor Learning. Society for Neuroscience. Chicago, IL (2019).
7. **Wood, J. M.**, Kumble, S., Zink, E. K., Bahouth, M., Stevens, R. D. Incremental Verticalization: An Attempt to Solve the Conundrum of Paroxysmal Sympathetic Hyperactivity in a Patient with Intracerebral Hemorrhage. APTA Combined Sections Meeting. Washington D.C. (2019).
8. Biltz, N., **Wood, J. M.**, Wilchinski, J. Improving and maintaining therapist compliance of using standardized outcome measures in patients post-stroke: a multidisciplinary quality improvement project. APTA Combined Sections Meeting. Washington D.C. (2019).
9. **Wood, J. M.**, Adamski, G. Screening for Temporal Mandibular Joint Dysfunction in a Patient with Dizziness: A Case Report. APTA Combined Sections Meeting. New Orleans, LA (2018).

10. **Wood, J. M.**, Reoli, R., How do you Rehabilitate Balance when Vision, Sensation, and Vestibular Systems are Impaired? A Case Study. APTA Combined Sections Meeting. New Orleans, LA (2018).
11. **Wood, J. M.**, Reisman, D. S., Drake, M., & Morton, S. M. Ratings of Perceived Exertion and Difficulty in Individuals with Stroke during Moderate Intensity Task Practice. APTA Combined Sections Meeting. New Orleans, LA (2018).
12. **Wood, J. M.**, Koch, J. The Standardization of Outcome Measures as Part of a Clinical Pathway for Patients Post Stroke in the Outpatient Setting. APTA Combined Sections Meeting. New Orleans, LA (2018).
13. **Wood, J. M.** Early Mobility of a Patient Status Post Implementation of a Centrimag Bilateral Ventricular Assist Device: A Case Report. Johns Hopkins Critical Care Conference. Baltimore, MD (2015).
14. Radwan, A., Buell, J., Merchant, M., Oeser, M., Smith, J., Spilka, J., **Wood, J. M.**, Wydysh, J. Descriptive Analysis of Seating Ergonomics among the Utica College Community. New York State Physical Therapy Conference. Albany, NY (2013).

### **Teaching**

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2021 (2 semesters)	Teaching assistant, PHYT 631: PT in the Acute Care Environment & PHYT 801: Med Sci I – General Medicine Physical Therapy Department, University of Delaware
2020-2023 (4 semesters)	Guest lecture, PHYT 623: Clinical Neuroscience Physical Therapy Department, University of Delaware
2020	Guest lecture, PHYT 804: Neurophysiologic Evaluation and Treatment Physical Therapy Department, University of Delaware
2016-2022 (5 semesters)	Teaching assistant, PHYT 804: Neurophysiologic Evaluation and Treatment Physical Therapy Department, University of Delaware

### **Mentoring**

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2024 - present	Alyssa Eyssalenne. The tradeoff between effort and reward in people with Parkinson's Disease. Research Assistant, Moss Rehabilitation Research Institute.
2024	Muhammad Farooq. The tradeoff between effort and reward in people with Parkinson's Disease. Undergraduate Volunteer, Holy Family University.
2023 - 2024	Sky Yallof. The tradeoff between effort and reward in people with Parkinson's Disease. Research Assistant, Moss Rehabilitation Research Institute.

2022 - 2023	Saunders Penn. The relationship between lower limb position sense and split-belt adaptation. University of Delaware Advancing Diversity in Physical Therapy (ADaPT) Summer Scholars Program. Newark, DE.
2019	Dara Priester. Use-Dependent Plasticity in Locomotor Learning University of Delaware Advancing Diversity in Physical Therapy (ADaPT) Summer Scholars Program. Newark, DE.
2018	Nicole Biltz. Clinical. Johns Hopkins Hospital Physical Therapy Clinic
2018	Megan Ziegler. Clinical. Johns Hopkins Hospital Physical Therapy Clinic
2017	Nicole Gomes. Clinical. University of Delaware Physical Therapy Clinic.
2017	Kevin Kim. Clinical. University of Delaware Physical Therapy Clinic.

## Service

### Professional service

2015 - 2022	Section Program Chair for APTA Combined Sections Meeting Academy of Acute Care Physical Therapy
2015 - 2018	Article Reviewing and Scoring Heart Failure Clinical Practice Guideline

### Ad hoc reviewer

*Journal of Neurorehabilitation and Neural Repair, Journal of Neurophysiology, eNeuro, Experimental Brain Research, Journal of NeuroEngineering and Rehabilitation, Journal of Cognitive Neuroscience, Scientific Reports*

### Other service

2020 - 2021	Tutor Pandemic Professors
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## Alternative media

1. Wood, J.M. (Guest), Jones, J. (Host). (2024). Journal of Neurophysiology [Audio podcast]. Podbean. <https://jneurophysiol.podbean.com/e/jnp-micro-podcasts-locomotor-learning-in-chronic-hemiparetic-stroke/>.

### Professional societies

2020 - present	Society for the Neural Control of Movement
2015 - present	APTA, Academy of Neurologic Physical Therapy

2013 - present	APTA, Academy of Physical Therapy Research
2013 - present	APTA, Academy of Acute Care Physical Therapy
2012 - present	American Physical Therapy Association (APTA)