Nicholas Foreman, MS

Curriculum Vitae

George Washington University | Department of Exercise and Nutrition Sciences

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Education

2022 – present **Ph.D. in Exercise Physiology and Applied Nutrition** | George Washington University | PI: Matthew Barberio

2020 - 2022 **M.S. in Kinesiology |** University of Minnesota | PI: Christopher Lundstrom

- Thesis: *Exercise intensity, autonomic control, circulating cortisol, and next-day endurance performance in trained runners*

2017 - 2019 **B.A. in Human Physiology |** University of Minnesota

Professional Experience

2022 – present **Research Assistant** | Molecular and Applied Physiological Sciences Lab | George Washington University | *PI: Matthew Barberio*

- Designed and executed a cross-sectional study on fat mass and postprandial glucose metabolism from study design and participant recruitment to data analysis. Results to be published in spring 2024.
- Assisting with a study on exercise and cholesterol function, which included design of a web application to improve exercise prescription accuracy.

2021 **Research Assistant** | Laboratory of Physiological Hygiene and Exercise Science | University of Minnesota | *PI: Li Li Ji*

- Assisted with the development of hindlimb immobilization methods and Western blot protocols. Learned basic laboratory and mouse-handling techniques.

2018 - 2022 **Research Assistant |** Human and Sport Performance Laboratory | University of Minnesota | *PI: Christopher Lundstrom*

- Obtained grant funding, designed, and led a study on comparisons between combinations of treadmill speed and incline in trained runners. Collected and analyzed all ventilatory data. Results were published in a manuscript.
- Designed and co-led a study on retrospective prediction of recreational marathon performance from anthropometric and graded exercise testing variables. Results were presented as a conference poster.

Research Publications

Published Manuscripts

1. **Foreman, N.**, Hesse, A., & Lundstrom, C. (2023). Heavy Domain Exercise Delays Recovery of Linear Measures of Heart Rate Variability Independent of Heart Rate. *SportRχiv [Preprint].* https://doi.org/10.51224/SRXIV.313
2. Lundstrom, C., **Foreman, N.**, & Biltz, G. (2023). Practices and applications of heart rate variability monitoring in endurance athletes. *International Journal of Sports Medicine, 44(01), 9–19.* https://doi.org/10.1055/a-1864-9726
3. **Foreman, N.**, Lee, E., & Lundstrom, C. (2022). Assessment of a Treadmill Speed Incline Conversion Chart: A Validation Study. *International Journal of Sports Physiology and Performance, 17(7), 1030–1036.* https://doi.org/10.1123/ijspp.2021-0021
4. **Foreman, N.***, Hesse, A.*, & Ji, L. (2021). Redox signaling and sarcopenia: searching for the primary suspect. *International journal of molecular sciences, 22(16), 9045.* https://doi.org/10.3390/ijms22169045 [*co-first authorship]

Manuscripts in Progress

1. **Foreman, N.**, Ciarleglio, A., Kraus, W., & Barberio, M. Machine Learning Prediction of Visceral Adipose Tissue Before and After Exercise Training. *Data analysis in progress with pre-print expected in spring 2024.*
2. **Foreman, N.**, Rajwade, S., Bluth, J., Skoglund, L., Letts, A., Ciarleglio, A., DiPietro, L., & Barberio, M. Relationships Between Postprandial Substrate Oxidation, Fat Mass, and Cardiometabolic Variables in Young Adults. *Data analysis in progress with planned submission to Journal of Applied Physiology.*

Conference Abstracts

1. **Foreman, N.**, Rajwade, S., Bluth, J., Skoglund, L., Letts, A., DiPietro, L., & Barberio, M. (2023). Assessment of Metabolic Flexibility to a Glucose Tolerance Test in Young Adults. Poster presented at the Mid-Atlantic Regional Conference of the American College of Sports Medicine.
2. **Foreman, N.**, Gadaleta, N., Martin, D., Brandt, C., & Barberio, M. (2023). Assessment Of HDL Function And Plasma Lipoprotein Profiles Following Acute Exercise Of Differing Intensities: 1663. *Medicine & Science in Sports & Exercise, 55(9S), 553.* Poster presentation, ACSM Annual Meeting.
3. Lundstrom, C., **Foreman, N.**, Hesse, A., & Lee, E. (2023). Physiological Responses To Marathon Training Are Similar Between Sexes, Despite Differences At Baseline: 966. *Medicine & Science in Sports & Exercise, 55(9S), 324.* Oral presentation, ACSM Annual Meeting.
4. Lundstrom, C., **Foreman, N.**, Lee, E., Hesse, A., & Biltz, G. (2022). Training-related Changes In Cardiac Autonomic Function Assessed Before And After Graded Exercise

Testing: 2141. *Medicine & Science in Sports & Exercise, 54(9S), 621–622.* Poster presentation, ACSM Annual Meeting.

5. Lundstrom, C., Lee, E., **Foreman, N.**, Hesse, A., & Biltz, G. (2021). Heart Rate Variability At Rest And During Steady State Exercise In Marathon Training Students: 48. *Medicine & Science in Sports & Exercise, 53(8S), 15–16.* Poster presentation, ACSM Annual Meeting.
6. **Foreman, N.***, Hesse, A.*, & Lundstrom, C. (2021). Machine Learning Fails To Improve Marathon Time Prediction Compared To Multiple Linear Regression: 161. *Medicine & Science in Sports & Exercise, 53(8S), 49.* Virtual poster presentation, ACSM Annual Meeting. [*co first-authorship]

Teaching Experience

2023 – present **EXNS 8108: Graduate Laboratory Techniques** | Teaching Assistant | George Washington University
- Taught laboratory techniques in human metabolism, body composition, exercise testing, and muscle function.

2022 - present **EXNS 2111: Exercise Physiology** | Teaching Assistant | George Washington University
- Co-taught weekly labs on body composition, nutrition assessment, and submaximal exercise testing. Created rubrics and designed lab reports to improve teaching pedagogy.

2021 - 2022 **KIN 3385: Human Physiology** | Teaching Assistant | University of Minnesota
- Co-taught weekly labs for 72 students per semester. Developed new labs on the length-tension and force-velocity relationships.

2020 - 2021 **KIN 4385: Exercise Physiology** | Teaching Assistant | University of Minnesota
- Oversaw weekly labs for 16 students per semester. Lab topics included exercise testing, body composition, anaerobic testing, and ventilatory thresholds.

Grants

$27, 144 | Principal Investigator | F31 Predoctoral Fellowship | National Institutes of Health | *Submitted August 2023 [Not Funded]*

$27, 144 | Principal Investigator | Predoctoral Fellowship | American Heart Association | *Submitted September 2023*

$10,000 | Student Investigator | Ultra-Endurance Sports Science & Medicine Research Grant | The Paramedic Foundation | *Submitted December 2022 [Not Funded]*

$150 **| Student Investigator** | Graduate and Professional Students in Education and Human Development | University of Minnesota | *Funded January 2022*

$7,000 | Student Investigator | Ultra-Endurance Sports Science & Medicine Research Grant | The Paramedic Foundation | *Submitted December 2021 [Not Funded]*

$1,000 | Student Investigator | Hauge Fellowship | University of Minnesota | *Funded February 2021*

$1,500 | Student Investigator | Undergraduate Research Opportunities Program | University of Minnesota | *Funded March 2019*

Professional Memberships

2019 – present | American College of Sports Medicine

2023 – present | American Heart Association

Technical Competencies

R / RStudio	• Intermediate proficiency in data cleaning and visualization with an emphasis on the organization of longitudinal time series data. • Intermediate proficiency in applying machine learning models and computing measures of heart rate variability for reproducible analysis. • Entry-level proficiency in web application design through R Shiny.
Python	• Entry-level proficiency through introductory coursework. Proficient in web scraping.
Git	• Entry-level proficiency with version control via Github Desktop.
Exercise testing	• Experience supervising graded exercise testing and interpreting results for populations without chronic disease. • Developed custom exercise testing protocols to prescribe constant intensity exercise.
Body composition	• Proficient in analysis of body composition through dual X-ray absorptiometry (DEXA), bioelectrical impedance analysis, and underwater weighing.
Phlebotomy	• Entry-level experience with butterfly sticks and placement of intravenous catheters in healthy individuals.
ELISA	• Intermediate proficiency in completion of ELISA kits for analysis of insulin, non-esterified fatty acids, etc.