

Dr. Emily Lundstrom, MS, PHD, NASM-PES

Curriculum Vitae

Clinical Exercise Research Center
Division of Biokinesiology & Physical Therapy
University of Southern California
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2025

EDUCATION

- August 2024 **Ph.D.**, Kinesiology, Exercise Physiology Emphasis, **Pennsylvania State University**, University Park, PA.
- August 2020 **M.S.**, Kinesiology, Exercise Physiology Emphasis, **Pennsylvania State University**, University Park, PA.
- May 2018 **B.S.**, Kinesiology, Exercise Science Emphasis, **University of South Dakota**, Vermillion, SD.

ACADEMIC APPOINTMENTS

- 2025-pres. Assistant Professor of Clinical Physical Therapy, Full-time faculty, Division of Biokinesiology and Physical Therapy, University of Southern California, Los Angeles, CA.
- 2018-2024 Kinesiology Course Teaching Assistant, Pennsylvania State University, University Park, PA.
Courses Taught/Assisted: KINES 350 – Exercise Physiology (4 semesters), KINES 101 – Biophysical Basis of Kinesiology (1 semester), KINES 345 – Philosophy and Ethics of Movement (4 semesters), KINES 100 – Cultural and Behavioral Foundations of Kinesiology (3 semesters)

PROFESSIONAL EXPERIENCES

2023-Pres. Applied Expertise in High Performance Sport - Consulting and Coaching

- Provided expert consultation to high-performance sport organizations, including PSU Athletics and High Performance Sport NZ, translating research findings into practical strategies for optimizing athlete health and performance.
- Designed tailored training plans and implemented data-driven approaches for elite athletes and teams, incorporating nutrition assessments, metabolism testing, training and performance evaluations to enhance athletic performance and recovery.
- Utilized advanced technologies (e.g., WHOOP, Polar, TritonWear) to analyze and interpret physiological data, offering actionable insights for performance enhancement and injury prevention to coaches and athletes.
- Delivered workshops and presentations on athlete nutrition, training strategies, and health optimization, effectively communicating complex scientific concepts to diverse audiences including coaches, athletes, and sport science professionals.

2018-2024 Research Assistant; Women's Health and Exercise Lab, Pennsylvania State University – University Park, PA

- Led and managed multiple research studies, including the Swimmer WHOOP Study, Active Women's and Active Men's Study, and Dried Plum/Prune Study (RCT), demonstrating strong project management, coordination, and industry partnership skills.

- Conducted comprehensive laboratory procedures, including nutrition assessments, metabolism testing, exercise/sport training analyses, performance evaluations, and biological sample processing, highlighting versatility in research methodologies.
- Consulted with athletes and teams to optimize performance and enhance training strategies, applying research findings to practical settings.
- Excelled in data management, analysis, and interpretation, contributing to publications in prestigious journals and advancing research in sport science, exercise endocrinology and physiology, and athlete (both men's and women's) health.

2019-2023 Biological Processing Room Manager; Women's Health and Exercise Lab, Pennsylvania State University – University Park, PA

- Led comprehensive training programs for students and staff on laboratory procedures, sample processing, and quality control standards, while managing inventory and optimizing workflow efficiency through structured scheduling.
- Exhibited strong leadership and financial management skills by supervising teams, creating budgets, managing purchasing, **and maintaining accurate records and documentation throughout laboratory operations.**

2018-2023 Penn State Intercollegiate NCAA Division 1 Assistant Swim Coach (Volunteer), Pennsylvania State University – University Park, PA

- Designed and tailored swim and conditioning workouts for NCAA collegiate swimmers, optimizing performance across various groups including Sprint, IM, Butterfly, and Mid-Distance. Provided hands-on coaching during meets/competitions.
- Monitored athletes' progress, utilizing video analysis and test-set evaluations to identify areas for improvement and implement targeted strategies, while developing comprehensive workouts and rehabilitation programs for injured athletes.
- Spearheaded the implementation of new technologies to advance training and performance.
- Collaborated in creating competition season training plans, incorporating periodization principles.

ADVISING EXPERIENCE –

- 2019-2020** Honor's Thesis Project Advisor, Department of Kinesiology, Pennsylvania State University
Student: Hannah Canil
Project: *Within-Day Energy Availability in Collegiate Division 1 Swimmers.*
- 2019-2020** Research experience advisor, COURSE#395B Department of Kinesiology, Pennsylvania State University
Student: Matthew Popovich
- 2020-2021** Research experience advisor, COURSE#395B Department of Kinesiology, Pennsylvania State University
Student: Chris Rodas
- 2021-2022** Research experience advisor, COURSE#395B Department of Kinesiology, Pennsylvania State University
Student: Megan Ventrella
- 2022-2023** Research experience advisor, COURSE#495B Department of Kinesiology, Pennsylvania State University
Student: Megan Ventrella
- 2022-2024** Honor's Thesis Project Advisor, Department of Kinesiology, Pennsylvania State University
Student: Megan Conklin
Project: *Energy Availability and Sleep Quality on Training Responses and Sport Performance in Collegiate Division I Swimmers*
- 2022-2024** Honor's Thesis Project Advisor, Department of Kinesiology, Pennsylvania State University
Student: Anna Tooke
Project: *Hair cortisol as a reflection of metabolic, physical, and psychosocial stressors in male and female collegiate athletes at different phases of a competitive season*

SEMINAR AND LECTURE PRESENTATIONS

- Sep 2018** Kinesiology Research Showcase: Women's Health and Exercise Lab Research Studies poster presentation. College of Health and Human Development, *University Park, PA*
- Oct 2018** Kinesiology 590B: Exercise Physiology Seminar, *University Park, PA*
Guest Lecture entitled "Physiological and Genetic Adaptations to Diving in Sea Nomads"
- July 2019** Women's Health and Exercise Lab: Guest Lecture entitled "The Female Athlete Triad"
University Park, PA
- Sep 2019** Kinesiology Research Showcase: Women's Health and Exercise Lab Research Studies poster presentation. College of Health and Human Development, *University Park, PA*
- Sep 2019** Kinesiology 345: Meaning, Ethics and Movement. *University Park, PA.*
Guest Lecture entitled "Fairness in sport; should we create a level playing field? The case of Caster Semenya"
- Sep 2019** Kinesiology 345: Meaning, Ethics and Movement. *University Park, PA.*
Guest Lecture entitled "The nature of the moving human being: Dualism and Materialism"
- Sep 2019** PSU 014 Section 028 First Year Seminar: Health and Human Development. *University Park, PA*
Laboratory Demonstration
- Oct 2019** Kinesiology 455: Physiological Basis of Exercise as Medicine. *University Park, PA.*
Guest lecture entitled "Strength of Evidence for Exercise Benefits in Knee Osteoarthritis"
- Oct 2019** PSU 014 Section 028 First Year Seminar: Health and Human Development. *University Park, PA*
Guest Teaching – "Exploration of Health and Human Development Majors and Future Student Organization Involvement and Career Planning."
- Nov 2019** Kinesiology 345: Meaning, Ethics and Movement. *University Park, PA.*
Guest Lecture entitled "Swimming; My Personal Movement Playground"
- Nov 2019** Kinesiology 455: Physiological Basis of Exercise as Medicine. *University Park, PA.*
Guest lecture entitled "Strength of Evidence for Exercise Benefits in Chronic Fatigue Syndrome/Fibromyalgia"
- Nov 2019** Kinesiology 345: Meaning, Ethics and Movement. *University Park, PA.*
Class Debate: Side Leader. Debate Presentation entitled "The merits of 'Exercise is Medicine'"
- March 2020** Research Presentation: Swimmer WHOOP Study Data to the PSU Swimming and Diving Coaching Staff – Data Interpretation and Utilization for Team Performance Enhancement.
University Park, PA.
- April 2020** Athlete Home Programming Presentation - Performance Meeting: Swim and Dive Staff, Sports Performance, Nutrition, Athletic Training, and Strength and Conditioning Staff. *University Park, PA.*
- April 2020** Kinesiology 454, Women's Health and Exercise. Guest Presentation entitled "Contemporary Topics; The underlying Physiology of why Women outperform their male counterparts in long distance swimming events." *University Park, PA.*
- June 2020** Master's Degree Thesis Defense: "Effectiveness of Wearable Technology for Predicting Measures of Metabolism and Performance in Collegiate Division 1 Swimmers." *University Park, PA.*
- March 2021** Graduate Exhibition Research Presentation titled "Using Wearable Technology to Predict Physiological and Psychological Indicators of Health and Performance in Swimmers"
University Park, PA.
- June 2021** 2021 American College of Sports Medicine Annual Meeting, Research Presentation titled "Using Wearable Technology to Predict Physiological and Psychological Indicators of Health and Performance in Swimmers."
- March 2022** Graduate Exhibition Research Presentation titled "Sex-Differences in Within-Day Energy Balance in Elite Division 1 Swimmers"

University Park, PA.

- June 2022** 2022 American College of Sports Medicine Annual Meeting, Research Presentation titled “Sex-Differences in Within-Day Energy Balance in Elite Division 1 Swimmers.” *San Diego, CA.*
- October 2022** Penn State Center for Women’s Health Research - Women’s Health Research Day 2022, Research Poster Presentation titled “Psychological Stress is Associated with Metabolic Compensation and Training Characteristics in Elite Female and Male Endurance Athletes” *Hershey, PA.*
- December 2022** International Sport + Exercise Nutrition Conference, Oral Research Presentation titled “Sport Specific Stress is Associated with Eating Attitudes and Metabolic Compensation in Collegiate Female and Male Endurance Athletes”. Manchester, UK.
- March 2023** Graduate Exhibition Research Presentation titled “Sport Specific Stress is Associated with Eating Attitudes and Metabolic Compensation in Collegiate Female and Male Endurance Athletes” Exhibition #134
University Park, PA.
- October 2023** Kinesiology Research Showcase – Current and Ongoing Projects in the Women's Health and Exercise Lab
- October 2023** Sport Dietician Australia Conference 2023, Research Poster Presentation titled “Elite Collegiate Swimmers do not meet Sport Nutrition 24-Hour or Within-Day Nutrient Timing Recommendations During Heavy Training” University of Sunshine Coast, Australia. October 27-28, 2023. Virtual.
- November 2023** American College of Sport Medicine Mid-Atlantic Regional Chapter Meeting 2023, Research Poster Presentation titled “Elite Collegiate Swimmers do not meet Sport Nutrition 24-Hour or Within-Day Nutrient Timing Recommendations During Heavy Training” Lancaster, Pennsylvania. November 3-4, 2023.
- March 2024** Pennsylvania State University Graduate Exhibition Conference 2024. Research poster entitled; “Metabolically Suppressed Female Runners, Described By Pre-Season RMR Ratio, Exhibit Poorer Running Performance.” March 22, 2024. Pennsylvania State University, University Park, PA.
- May 2024** 2024 American College of Sports Medicine Annual Meeting, Research Presentation titled; “Metabolically Suppressed Female Runners, Described By Pre-Season RMR Ratio, Exhibit Poorer Running Performance.” Thematic Poster Session, May 30, 2024. Boston, MA.
- July 2024** 29th Annual European College of Sports Science Meeting, Oral Research Presentation titled; “Sleep Quality Impacts Training Responses and Performance in Elite Swimmers” July 2-5, 2024. Glasgow, United Kingdom.
- July 2024** 29th Annual European College of Sports Science Meeting, Research Presentation titled; “Associations Among Energy Availability and Sleep Quality in Elite Swimmers.” Thematic Poster Session, July 2-5, 2024. Glasgow, United Kingdom.
- September 2024** Odd-impact Loading Exercise is Associated with an Increase in Strength Strain Index Following a 12-month Dietary Intervention in Postmenopausal Women: The Prune Study. ASBMR Toronto, ON, Canada, Sept 27-30

INVITED LECTURES

- March 2022** “Using technology to examine within day energy balance in elite division 1 swimmers”. Williams NI, **Lundstrom EA**, De Souza MJ. **26th NUGA Scientific Conference**, Nigerian Games Association, University of Lagos, Lagos, Nigeria, March 23, 2022. Virtual
- February 2023** “Within-Day Energy Balance in Athletes”. **Lundstrom EA**, Williams, NI. **Monthly Performance Nutrition and Physiology Team Meeting Presentation and Research Discussion**. High Performance Sport – New Zealand. February 28, 2023. Virtual.

- April 2023** “Researcher Q&A: Sex-Differences and Indications of Metabolic Compensation in Within-Day Energy Balance in Elite Division 1 Swimmers – An Interview with Emily Lundstrom MS” **Professionals in Nutrition for Exercise and Sport** (<https://pinesnutrition.org/>) Monthly eNewsletter.
- July 2023** “Research of energy, metabolism, sport performance, reproductive and bone health in women, men and athletes at WHEL: research conduction and methodology and biospecimen processing.” **Lundstrom, EA.**, Salamunes, AC. **University of Lagos**, Lagos, Nigeria. July 22 2023. Virtual.
- November 2023** “Sex differences in indications of metabolic compensation in within-day energy balance in elite division 1 swimmers - a discussion of sex differences from biobehavioral and anthropological perspectives” **Lundstrom, EA.**, Williams, NI. **SDIG Meeting**, Penn State University. November 2 2023.
- February 2024** “Literature discussion of energy deficiency, psychological stress and heart rate variability, and applications for training and conducting research utilizing the WHOOP Performance Optimization System” **Lundstrom, EA.**, Williams, NI. **Industry Meeting with Performance Science Team at WHOOP Inc.** February 12, 2024. Virtual.
- May 2024** Gatorade Sport Science Institute (GSSI-ACSM) Young Investigator in Sports Nutrition Award Presentation, titled: "Practical Outcomes and Translational Implications of my research project titled 'Metabolically Suppressed Female Runners, Described By Pre-Season RMR Ratio, Exhibit Poorer Running Performance' by Sport Health Professionals and Athletes". GSSI-ACSM Pre-Conference Symposium. 2024 American College of Sports Medicine Annual Meeting, May 28, 2024. Boston, MA.

PUBLICATIONS (as first author)

Lundstrom, E. A., Koltun, K. J, Strock, N. CA., Canil, H. N., De Souza, MJ., Williams, N. I. (2023). *Wearable Technology Metrics are Associated with Energy Deficiency and Psychological Stress in Elite Swimmers.* International Journal of Sport Science and Coaching (IJSSC).

Lundstrom, E. A., Canil, H. N., De Souza, MJ., Williams, N. I. (2023). *Sex-differences In Within-day Energy Balance In Elite Division 1 Swimmers.* Appl Physiol Nutr Metab.

Lundstrom, E. A., De Souza, MJ., Kuruppumullage, P.D., Williams, N. I. (2024). *The Relationship between Stress, Eating Attitudes and Metabolism in Endurance Athletes Across a Competitive Season.* Appl Physiol Nutr Metab.

Lundstrom, E.A., Allaway, H. CM., Salamunes, AC. C., Williams, N. I., De Souza, MJ. (2025). *Metabolically Suppressed Female Runners, Described By Pre-Season RMR Ratio, Exhibit Poorer Running Performance.* Euro J Sport Sci.

Lundstrom, E.A., Khen, K. De Souza, M.J., Williams, N.I., (2025). Elite Collegiate Swimmers do not meet Sport Nutrition 24-Hour or Within-Day Nutrient Timing Recommendations During Heavy Training. IJSSN. *(In Review)*

Lundstrom, E.A., Conklin, M.E., De Souza, M.J., Williams, N.I., (2025). Sleep Quality Impacts Training Responses and Performance in Elite Swimmers. *(In Review)*

Lundstrom, E.A., Conklin, M.E., De Souza, M.J., Williams, N.I., (2025). Association Between Energy Availability and Sleep Quality in Elite Female and Male Swimmers – A Brief Report. *(In Review)*

RESEARCH DISSEMINATION AND MEDIA OUTREACH

April 2023 “Researcher Q&A: Sex-Differences and Indications of Metabolic Compensation in Within-Day Energy Balance in Elite Division 1 Swimmers – An Interview with Emily Lundstrom MS”

Professionals in Nutrition for Exercise and Sport (<https://pinesnutrition.org/>) Blog Post.

Link: <https://pinesnutrition.org/researcher-qa-sex-differences-and-indications-of-metabolic-compensation-in-within-day-energy-balance-in-elite-division-1-swimmers/>

January 2024 “NEW STUDY REVEALS HOLES IN WEARABLE DEVICE SCORES” Train Right Blog Post reviewing first-author publication “Wearable Technology Metrics are Associated with Energy Deficiency and Psychological Stress in Elite Swimmers”

Link: <https://trainright.com/new-study-reveals-holes-in-wearable-device-scores/>

April 2024 “Making Sense of Wearable Data” Gatorade Sports Science Institute Research, SSE #250 Citation and discussion of first-author publication “Wearable Technology Metrics are Associated with Energy Deficiency and Psychological Stress in Elite Swimmers”

Link: <https://www.gssiweb.org/sports-science-exchange/article/making-sense-of-wearables-data>

November 2024 “Eat to Compete: Optimize Your Swimmers’ Nutrition to Boost Training and Recovery.” American Swim Coaches Association (ACSA) Scientific Blog.

Link: https://swimmingcoach.org/page/lundstrom_blog

AWARDS

Noll Endowment - Travel Grant - 2020

For: Kinesiology 588 Grant Proposal Project. Grant Title: Longitudinal Monitoring of Athlete Health and Performance.

Barbara Drinkwater Student Travel Award - 2022

For: ACSM Research Presentation titled “Sex-Differences in Within-Day Energy Balance in Elite Division 1 Swimmers.”

Dr Joseph Davis Fund for Encouragement of Innovative Research in Kinesiology- Student Award 2022

For Research Proposal: Stress and Metabolism in Athletes.

Penn State College of Health and Human Development Undergraduate Teaching Excellence Certificate Award – Awarded for Academic Years: 2022-2023

For: The Excellence in Teaching Award honors and recognizes Ph.D. Teaching Assistants in the College of HHD at The Pennsylvania State University for Excellence in Teaching

Janet W. McArthur, MD Award - 2023

For: Conducting Outstanding Research Pertaining to Women’s Health Issues

Penn State College of Health and Human Development Limited Endowment Funds, Professional Development Award - 2023

For: Attending the Sport Dietician Australia Conference 2023, University of Sunshine Coast, AUS.

College of Health and Human Development Limited Endowment Funds, Professional Development Award - 2024

For: Attending the European College of Sport Science Conference 2024, University of Glasgow, Scotland.

Kinesiology Graduate Student Research Award - 2024

For: Research Study, titled: "Metabolically Suppressed Female Runners, As Described By Pre-Season RMR Ratio, Exhibit Poorer Running Performance"

Gatorade Sport Science Institute (GSSI) Young Investigator Award - 2024

For: Research Study, titled: "Metabolically Suppressed Female Runners, As Described By Pre-Season RMR Ratio, Exhibit Poorer Running Performance"

American Kinesiology Association (AKA) Graduate Writing Award - 2024

For: publication, titled: "Sex-Differences in Within-Day Energy Balance in Elite Division 1 Swimmers."

CERTIFICATIONS

Certified Swim Coach (ASCA)

Certified Performance Enhancement Specialist (NASM)

PSU Graduate Student Online Teaching Certificate

Human Subjects and Biomedical Research CITI

Red Cross First Aid, AED and CPR Certification

PROFESSIONAL MEMBERSHIPS

2016-Present	American Swim Coaches Association (ASCA)
2018-Present	American College of Sports Medicine (ACSM)
2018-Present	Female Athlete Triad Coalition (FATC)
2017-Present	National Academy of Sports Medicine (NASM)
2021-Present	National Strength and Conditioning Association (NSCA)
2023-Present	Professionals in Nutrition and Exercise for Sport (PINES)
2023-Present	ACSM Mid-Atlantic Regional Chapter
2024-Present	European College of Sport Science (ECSS)