

Curriculum Vitae
Rachel Tinius, PhD, ACSM-EP-C, Fellow-ACSM
August 2026

CONTACT INFORMATION

Program in Exercise Science
School of Kinesiology, Recreation, and Sport
Western Kentucky University
Smith Stadium 1059
1906 College Heights Blvd, #11089
Bowling Green, KY 42101
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PRESENT POSITIONS

Associate Professor
Exercise Biochemistry Lab Director
School of Kinesiology, Recreation, and Sport
Western Kentucky University

Chief Executive Officer
BumptUp Labs, Inc.

EDUCATION

Ph.D. Movement Science *Fall 2011-Fall 2015* *Washington University in St. Louis*

- Movement Science- Program in Physical Therapy
- Translational Physiology Laboratory
- Advisor: Todd Cade, PT, PhD
- Cumulative/Final GPA: 4.0

TL1 Predoctoral Clinical Research Training Program

Fall 2013-Spring 2015

Washington University in St. Louis

- The Clinical Research Training Center at Washington University supports a select group of trainees, as they embark on careers as outstanding patient-oriented researchers, by teaching them how to:
 - Design and conduct clinical research, analyze data, consider relevant ethical and legal issues, write manuscripts and grants, develop and present scientific posters, and compete for research funding
- Advisors: Jay Piccirillo, MD, FACS; Jeffrey Peipert, MD, PhD; Susan Stark, PhD, OTR/L

M.S. Clinical Investigation *Fall 2013-Fall 2015*

Washington University in St. Louis

- Advisor: Jay Piccirillo, MD, FACS
- Cumulative/Final GPA: 4.0

M.S. Exercise Science *Spring 2010-Summer 2011*

Western Kentucky University

- Designated Graduate Scholar of the College of Health and Human Services
- Advisor: Scott Lyons, PhD
- Cumulative/Final GPA: 4.0

B.S. Exercise Science *Fall 2006-Fall 2009*

Western Kentucky University

- Designated Scholar of the College of Health and Human Services at Graduation
- Advisor: Scott Lyons, PhD
- Cumulative/Final GPA: 4.0

PROFESSIONAL CERTIFICATIONS

ACSM Certified Exercise Physiologist *November 2014* *National Certification*

- Ability to conduct physical fitness assessments, interpret results, develop exercise prescriptions, and apply behavioral and motivational strategies to apparently healthy individuals and individuals with medically controlled diseases and health conditions
- Support clients in adopting and maintaining healthy lifestyle behaviors
- Skill in management, administration, and supervision of fitness programs
- Scored 744/800 on certification exam

Preparation in Pedagogy *Spring 2015* *Washington University in St. Louis*

- Extensive knowledge of effective pedagogy, including evidence-based teaching methods, by participating in advanced-level Teaching Center workshops
- Classroom teaching experience that includes observation and feedback from faculty and students
- Developed and refined a well-informed teaching approach

PROFESSIONAL ORGANIZATIONS/SERVICE

American College of Sports Medicine

Pregnancy and Postpartum Special Interest Group *2019-present*

Role/s: Steering Committee (2019-2022)

Executive Committee (2022- 2025)

President (2025-present)

WORK EXPERIENCE

Fall 2011-Spring 2015 *Washington University- Program in Physical Therapy* *St. Louis, MO*

Translational Physiology Lab

Research Assistant

- Assistance with ongoing Research Projects (W.Todd Cade, PT, PhD, PI)
- Hyperinsulinemic/euglycemic clamp/isotope infusion studies
- Stable isotope tracer serum processing
- Mass spectrometry
- Indirect calorimetry (resting and exercise)
- Body composition testing (adults, children, and infants)
- Exercise testing and training
- Body Plethysmography (Bod Pod and Pea Pod Certified)
- Elisa Kit Protocols
- Clinical exercise testing for BJH patients (ECG, blood pressures, VO₂ measurement)

Teaching Assistant

- Principles in Human Physiology (Spring 2013)
 - Lectures:
 - *Adipose Tissue as an Endocrine Organ*
 - *Pregnancy Physiology, Common Pregnancy Complications, Pregnancy and Exercise*
- Women's Health Unit- Doctorate of Physical Therapy Program (Spring 2013, Spring 2014, & Spring 2015)
 - Lectures:
 - *Pregnancy Physiology and Exercise in Pregnancy*
- Teaching Center Annual Teaching Symposium (August 13, 2014)
 - Discussion leader for first time teaching assistants on discipline-specific topics

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Spring 2015 Maryville University- Exercise Science Program St. Louis, MO
Adjunct Professor

- Anatomy and Physiology (Spring 2015)

Fall 2010-Summer 2011 WKU Department of Kinesiology Recreation and Sport Bowling Green, KY
Graduate Assistant

- Class instructor : PE 101- Jogging & PE 100- Lifetime Fitness & Wellness
- Teaching Assistant: Exercise Physiology Lab
- Conducted Research in the Exercise Physiology Lab

Fall 2010- Spring 2015 Vetta Sports O'Fallon, IL
Soccer Coach

- Coordinate and conduct practice sessions for ages 3-10
- Coach games

Spring 2009-Winter 2009 WKU Athletic Training Room Bowling Green, KY
Internship Position

- Assistance with WKU athletes' treatment and injury rehabilitation
- Experience with electrical muscle stimulation and therapeutic ultrasound
- Experience with many different injuries and rehabilitation protocols

HONORS AND AWARDS

Academics

- ACSM Pregnancy and Postpartum Abstract Award- 2026
- Kentucky Commercialization Venture's Innovator of the Year- 2025
- Kentucky Commercialization Ventures IMPACT Competition Winner- 2025
- Equalize Competition- Viewer's Choice Award- Digital Tools- 2023
- WKU Innovation and Impact Award (University-wide winner)- 2022
- Kentucky Commercialization Ventures IMPACT Competition Winner -2022
- College of Health and Human Services- Faculty Award for Research/Creative Activity- 2022
- WKU Faculty Award for Excellence in Research- 2019 (overall University winner)
- College Health and Human Services- Faculty Award for Research/Creative Activity- 2018
- WKU Office of Research and Creative Activity- Prolific Proposer Award-2018
- WKU Office of Research and Creative Activity Early Investigator Award – 2017
- WKU Office of Research and Creative Activity Early First Time Obtaining External Funding Awardee – 2017
- WKU Graduate Scholar of the College of Health and Human Services-2011
- WKU Graduate Student-Athlete of the Year- 2011
- WKU Exercise Science Female Outstanding Graduate Student of the Year- 2010-2011
- WKU Scholar of the College of Health and Human Services- 2009
- WKU Student-Athlete of the Year- 2009
- WKU Exercise Science Female Outstanding Student of the Year- 2008-2009
- Designated a President's Scholar at WKU in 2008-2009
- Department of Foreign Language Outstanding Achievement Award-2006
- WKU College of Health and Human Services Freshman Academic Achievement Award- 200

College Athletics (WKU)

Soccer

- Nominated as WKU's Representative for NCAA Woman of the Year- 2010
- Lowe's Senior CLASS Leadership award candidate (one of thirty nationwide)- 2009
- NSCAA/Adidas Scholar-Athlete All-Region Team- 2008 & 2009
- ESPN the Magazine Academic All-American- 2008 & 2009
- ESPN the Magazine Academic All-District- 2007
- NSCAA All-Region Team- 2009

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- Voted by peers as Team Captain- 2009
- WKU Coach's Award for Outstanding Commitment- 2009
- Preseason All-Sunbelt Conference- 2009
- First Team All-Sunbelt Conference- 2008 & 2009
- Great Lakes All-Region Team- 2008 & 2009
- Second Team All-Sunbelt Conference- 2007

Track and Field

- All-Sunbelt Conference in the 3000m Steeplechase-2010

Post-College Running

- 1st place- BG26.2 Half Marathon- November 2019, 2024, 2025
- Boston Marathon Participant- April 2015 and April 2023 (12 weeks pregnant)
- 1st place female Snow Flurry Scurry 5K- January 2022, 2023, 2024, 2025, 2026
- 1st place female- Run for Sight 5k- September 2022, 2025
- 1st place Bowling Green female/2nd overall- Medical Center 10k- October 2022, 2024, 2025
- 1st place female Med Center 5k (36 weeks pregnant)- 2023
- 3rd place female- Main Street Marathon- September 2019
- 1st place female- Family Enrichment Center half marathon- March 2019, 2025, 2026 (16 weeks pregnant)
- 3rd place female in the Missouri Cowbell Marathon - October 2013
- 1st place female in the Total Fitness mini-marathon - March 2012
- 1st place female in the Bowling Green 26.2 Marathon- November 2012
- 1st place female Corvette half-marathon- October 2011

RESEARCH SUPPORT

Externally- Funded

- Kentucky Cabinet for Economic Development Matching Funds Award- June 2025
 - Amount: \$75,000
 - Clinical Testing and Refinement of BumpUp®: A mobile app to increase physical activity and improve obstetric outcomes among pregnant and postpartum women
 - Role: PI
- Mid South REACH (Research Evaluation and Commercialization Hub) NIH Grant- Jan 2026
 - Amount: \$41,750
 - Developing a prototype of assessing fetal heart rate during movement
 - Role: PI
- Mid South REACH (Research Evaluation and Commercialization Hub) NIH Grant- Aug 2025
 - Amount: \$41,750
 - Role: PI
- Small Business Research Innovation Grant, NIH
 - Title: Clinical Testing and Refinement of BumpUp®: A mobile app to increase physical activity and improve obstetric outcomes among pregnant and postpartum women
 - Amount: \$295,885
 - Role: PI
- Owensboro Community Health Grant
 - Title: Providing a Mobile Health Resource for Mothers who have Experienced a Pregnancy Loss
 - Amount: \$22,500
 - Role: PI
- Kentucky IDeA Networks of Biomedical Research Excellence Renewal Award- May 2023-May 2024
 - Amount: \$40,000
 - Role: PI

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- Kentucky Commercialization Ventures: IMPACT (Innovative Mobile, Public Health, and Community-Oriented Technologies) Competition- 1st place
 - Title: BumpUp: an evidence-based digital technology to improve physical activity and health outcomes among pregnant and postpartum women
 - Amount: \$25,000
 - Role: PI
- Kentucky IDeA Networks of Biomedical Research Excellence Bridge Funding Award- May 2022-May 2023
 - Amount: \$50,000
 - Role: PI
- NIGMS-funded Institutional Development Award (IDeA) Networks of Biomedical Research Excellence (INBRE) in Kentucky
 - Title: Pilot testing of a mobile health intervention designed to increase physical activity and improve morbidity and mortality-related outcomes among pregnant and postpartum women in a rural setting
 - Role: PI
 - Amount: \$216,364
- NIGMS-funded Institutional Development Award (IDeA) Networks of Biomedical Research Excellence (INBRE) in Kentucky (P20GM103436).
 - Title: Development of an mHealth application to increase physical activity and monitor weight status during pregnancy and postpartum
 - Role: PI
 - Amount: \$149,144
- Kentucky Biomedical Research Infrastructure Network Investigator Development Award- May 2016-April 2019
 - Title: Physical Activity during Pregnancy: Novel Pathways and Intervention Strategies for Improving Maternal and Neonatal Outcomes.
 - Amount: \$170, 400
 - Role: PI
- Kentucky Biomedical Research Infrastructure Network- Equipment Grant – April 2019
 - BodPod Air Displacement Plethysmography System and Parvomedics Resting and Exercise Metabolic System
 - Amount: \$77, 278
 - Role: PI

Internally-Funded Grants

- Collaborative QTAG (Quick Turnaround Grant)- Sept 2025
 - Title: Maternal Pregnancy Factors (Diet, physical activity, mental health, stress) and their impact on neonatal body composition
 - Amount: \$10,000
 - Role: PI
- Faculty-Undergraduate Student Engagement Internal Grant (Lexi Clements)-December 2025
 - Title: Maternal Sleep and Stress during Pregnancy and Postpartum
 - Amount: \$3,000
 - Role: PI/Student Mentor
- Faculty-Undergraduate Student Engagement Internal Grant (Ally Newberry & Gillian Johnston)-May 2024
 - Title: The role of maternal protein and water intake on newborn body composition
 - Amount: \$3,000
 - Role: PI/Student Mentor

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- Faculty-Undergraduate Student Engagement Internal Grant (Zoe Avery)-May 2024
 - Title: The Impact of Prenatal Yoga on Hip Mobility
 - Amount: \$3,000
 - Role: PI/Student Mentor
- Faculty-Undergraduate Student Engagement Internal Grant (Kylee Meece)-May 2023
 - Title: Lipid Genetics in Pregnant Women: Genes Present in Pregnant Women after High Fat Meals and Their Effect on Women's Health
 - Amount: \$3,000
 - Role: PI/Student Mentor
- CHHS Quick Turnaround Grant (QTAG)- October 2018
 - Title: An educational intervention on postpartum depression for perinatal nurses
 - Amount: \$1,200
- Research and Creative Activities Program (RCAP)- May 2018- December 2019
 - Title: Postpartum health: investigating the metabolic health of women after pregnancy
 - Amount: \$15,947
 - Role: PI
- Research and Creative Activities Program (RCAP)- May 2016- December 2019
 - Title: Physical Activity during Pregnancy: Novel Pathways for Improving Maternal and Neonatal Outcomes
 - Amount: \$15,800
 - Role: PI
- Faculty-Undergraduate Student Engagement Internal Grant (Kat Howard)- May 2022
 - Title: The relationship between modifiable maternal lifestyle factors and postpartum depression
 - Amount: \$1,500
 - Role: PI/Student Mentor
- Faculty-Undergraduate Student Engagement Internal Grant (Matthew Johnson)- May 2019
 - Title: The role of maternal obesity and physical inactivity on cortisol and insulin levels in umbilical cord blood
 - Amount: \$3,000
 - Role: PI/Student Mentor
- Faculty-Undergraduate Student Engagement Internal Grant (Lauren Miller)- May 2018
 - Title: The role of physical activity during pregnancy on infant motor development at 1-year
 - Amount: \$3,000
 - Role: PI/Student Mentor
- Research and Creative Activities Program (RCAP)- May 2016- December 2017
 - Title: Physical activity during Pregnancy
 - Amount: \$15,484
 - Role: PI
- Faculty-Undergraduate Student Engagement Internal Grant (Nicholas VanMeter)- December 2017
 - Title: Investigating the Expression of Important Metabolic Proteins in the Placenta
 - Amount: \$3,000
 - Role: PI/Student Mentor
- Faculty-Undergraduate Student Engagement Internal Grant (Britt Fugmann)- December 2017
 - Title: Exercise and Dietary Factors and their Potential Role on Fertility-Related Outcomes
 - Amount: \$3,000
 - Role: PI/Student Mentor
- Faculty-Undergraduate Student Engagement Internal Grant (Nikitha Rajendran)- July 2017

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- Title: The role of physical activity during pregnancy on infant motor development
- Amount: \$3,000
- Role: PI/Student Mentor

- Kentucky Biomedical Research Infrastructure Network- Equipment Grant – July 2017
 - Peapod Air Displacement Plethysmography System
 - Amount: \$89,000
 - Role: PI

- Faculty-Undergraduate Student Engagement Internal Grant (Keagan Keen)- January 2017
 - Title: The impact of an acute bout of high intensity exercise on mood among pregnant women
 - Amount: \$3,000
 - Role: PI/Student Mentor

- Faculty-Undergraduate Student Engagement Internal Grant (Caitlin Hesse)- January 2017
 - Title: Exercise Testing and Pregnancy: Should secondary criteria for VO2max testing be adjusted for women during pregnancy?
 - Amount: \$3,000
 - Role: PI/Student Mentor

- Faculty-Undergraduate Student Engagement Internal Grant (Gabrielle Ringenberg)- January 2016- Complete
 - Title: Testing the validity of a submaximal exercise test in obese women
 - Amount: \$3,000
 - Role: PI/ Student Mentor

- Faculty-Undergraduate Student Engagement Internal Grant (Hannah Fickey)- January 2016- Complete
 - Title: The 6 minute walk test and the YMCA cycle ergometry test: Can they predict VO2max in pregnancy?
 - Amount: \$3,000
 - Role: PI/Student Mentor

MANUSCRIPT REVIEWER RESPONSIBILITIES

Reviewer for:

Medicine and Science in Sport and Exercise
PLOS one
Journal of Human Lactation
Journal of Physical Activity and Health
BMC Pregnancy and Childbirth
Journal of Obesity
Journal of Physical Therapy
International Journal of Exercise Science
Integrative Obesity and Diabetes
Journal of Applied Physiology, Nutrition, and Metabolism
Journal of Maternal-Fetal & Neonatal Medicine

Editorial Board Member for:

BMC Pregnancy and Childbirth
The International Journal of Exercise Science

TEACHING AND MENTORING RESPONSIBILITIES

Teaching Responsibilities at WKU

Kinesiology Master's Degree Curriculum

Rachel Tinius, PhD, ACSM-EP-C

Course Master
Seminar in Exercise Physiology (EXS 523) _____ 2024-Present

Course Master
Research Methods (EXS 511) _____ 2022-Present

Exercise Science Curriculum

Course Master
Clinical Exercise Physiology (EXS 420) _____ 2016-2019

Course Master
Exercise Science Practicum (EXS 296) _____ 2016-Present

Course Master
Exercise Testing and Prescription (EXS 412) _____ 2015-Present

Course Master
Motor Learning and Control (EXS310) _____ 2015-2017

Doctor of Physical Therapy Program

Lecturer
Women's Health Unit _____ 2015-Present

Mentoring Responsibilities at WKU

Masters

Jacob Costello
Master Thesis Committee. _____ May 2026
Acute effects of pre-exercise sauna exposure on power performance in resistance-trained young adults.

Jada Shannon
Master's Thesis Chair _____ August 2024
Factors affecting mental health of college-aged individuals

Madhawa Perera
Master's Thesis Chair _____ April 2024
Health Professional Communication Regarding Physical Activity during Pregnancy: Is it appropriate and can BumpUp® Influence it?

Bailey Watson
Master's Thesis Chair _____ April 2024
ACL bracing: Is it still being done clinically and does it influence confidence and/or biomechanical performance during a drop vertical jump?

Alison Colao
Master's Thesis Chair _____ April 2022
Do Changes in the Navy Physical Readiness Test Impact Performance?

Brenna Menke
Master's Thesis Chair _____ June 2020
Is physical activity during late pregnancy related to infant body composition at birth?

Samantha Henry
Master's Thesis Chair _____ June 2020

Rachel Tinius, PhD, ACSM-EP-C

Factors influencing both maternal and infant body composition at two years postpartum

Kolbi Edens

Master's Thesis Committee Chair _____ May 2019

Project Title: Effects of Evidence-Based Materials and Access to Local Resources on Physical Activity during Pregnancy in a Rural Setting

Kristin Yoho

Master's Thesis Committee Chair _____ May 2019

Project Title: Metabolism during pregnancy and postpartum: How does it change and what factors influence it?

Alyssa Olenick

Master's Thesis Committee _____ May 2017

Project Title: Metabolic flexibility among women following a single high fat meal

Regis Pearson

Master's Thesis Committee _____ May 2017

Project Title: The acute impact of high-fat load on PBMCS among women: impact of ethnicity and weight status

BethAnne Clayton

Master's Thesis Committee _____ May 2016

Project Title: The implications of different types of diet and exercise on human health

Paige Wessel

Master's Thesis Committee _____ May 2016

Project Title: Accuracy of commercial fitness trackers during high-intensity functional training

Undergraduate

Zoe Avery

Honor's Thesis Committee Chair _____ May 2025

Impact of prenatal yoga on hip mobility

Kylee Meece

Honors Thesis Committee Chair _____ May 2024

Lipid genetics in pregnant women: Maneuvering the challenges of using degraded samples

Kathryn Howard

Honors Thesis Committee Chair _____ December 2022

Modifiable Maternal Factors and their Relationship to Postpartum Depression

Obadiah Kirk

Honors Thesis Committee Chair _____ May 2020

The role of mitochondrial pyruvate carrier-1 (MPC-1) on heart failure and its implications for cardiac recovery

Mequeil Howard

Honors Thesis Committee Member _____ May 2020

Infant temperament and cardiac physiology as predictors of infant locomotion

Lauren Miller

Honors Thesis Committee Chair _____ May 2019

FUSE Grant Project Title: Modifiable factors that influence motor development at 4 and 12 months of age.

Gabrielle Ringenberg

Honors Thesis Committee Chair _____ May 2017

FUSE Grant Project Title: Testing the validity of a submaximal exercise test in obese women

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Awarded Honor's Thesis/Capstone Project of the Year

Caitlin Hesse

Honors Thesis Committee Member

May 2017

FUSE Grant Project Title: Exercise Testing and Pregnancy: Should secondary criteria for VO2max testing be adjusted for women during pregnancy?

Mentoring External to WKU

Dr. Alisa Paudel

June 2024

Maternal Fetal Medicine Fellowship Thesis Committee. University of Tennessee Graduate School of Medicine. The acute effects of exercise on fetal well-being in pregnancies complicated by fetal growth restriction.

Kara Kern

May 2025

PhD Thesis Committee. East Carolina University. The Effects of Prenatal Exercise on Infant Gross Motor Skills and Cord Plasma Insulin Like Growth Factor I & II.

Jordyn Cox

Fall 2024

Michael Smith Foreign Study Student/Visitor Scholar.

BIBLIOGRAPHY

PUBLICATIONS

Manuscripts (*Student in the Tinius Lab)

Pearson R, Hamilton D, Broskey N, Purvis R, Zite N, Tucker C, Fortner K, Reeder C, van Nes J, May L, Blankenship M, **Tinius RA**, Maples JM. Blood lactate concentrations are associated with markers of metabolic dysfunction during late pregnancy. *American Journal of Physiology- Endocrinology and Metabolism*. *In Press*.

Paudel A, Maples JM, **Tinius RA**, Carter K, Hawk G, Zite N, Szymanski L, Fortner K. The acute effects of exercise on fetal well-being in pregnancies complicated by fetal growth restriction with normal Dopplers: a prospective study. *Pregnancy*. 2026, 2: e70379.

Perera, M., Nagpal, T. S., Blankenship, M. M., Tolusso, D. V., Cox, J. M., Prashadika, D., ... & **Tinius, R. A.** (2025). Perspectives of Midwives and Nurse Practitioners in Kentucky on Exercise Counseling During Pregnancy: A Qualitative Study. *SAGE open nursing*, 2025, 11, 23779608251313895.

Tinius RA, Perera M*, Furgal K, Blankenship M, Rajendran N*, Poston L*. The relationship between modifiable factors and late pregnancy physical activity on infant motor development at 12 months of age: Findings from a rural city in the Mid-Southern United States. *BMJ Open*. 2025 Nov 4;15(11):e099209.

Cox J*, Cartwright K, Nagpal T, **Tinius RA**. What are barriers and facilitators to prenatal and postnatal physical activity amongst racially diverse women residing in a medically underserved area?" *Under review*.

Cox J*, Corson A., Adamo K, Mottola M, **Tinius R**, Barakat R. 'Hey Google' tell me about physical activity after a c-section: An online scan of publicly available information. *Journal of Midwifery*. *Under Review*.

Tolbert MA, Leach S, Condo MP, Mancini, A, **Tinius RA**. Patient-Perceived Benefits and Adverse Events of Dry Needling. *Int J Sports Phys Ther*. 2025 Sep 1;20(9):1355-1363. doi: 10.26603/001c.143187. PMID: 40904717; PMCID: PMC12404588.

Avery Z*, Tolbert M, Polk S, Cartwright K, **Tinius RA**. The Impact of Prenatal Yoga on Hip Mobility and Delivery Outcomes. *Int J Exerc Sci*. 2026 Feb 1;19(7):7002. doi: 10.70252/IJES2026702. PMID: 42003892; PMCID: PMC13075557.

Duchette C*, Perera M*, Arnett S, White E, Belcher E*, **Tinius R**. Benefits of Resistance Training During Pregnancy for Maternal and Fetal Health: A Brief Overview. *Int J Womens Health*. 2024 Jun 19;16:1137-1147. doi:

10.2147/IJWH.S462591. PMID: 38912201; PMCID: PMC11193983.

Davenport, Nagpal, Mottola, May, **Tinius RA**, Shaw, etc... Are you ready to recommend physical activity for pregnant people. *ACSM's Health and Fitness Journal*. 2024. *ACSM'S Health & Fitness Journal*, 4, p. 13-20.

Perera M*, Hawk GS, Nagpal TS, **Tinius RA**. Social support for exercise from pregnancy to postpartum and the potential impact of a mobile application: A randomized control pilot trial in Southern United States. *Prev Med Rep*. 2023 Oct 30;36:102485. doi: 10.1016/j.pmedr.2023.102485. PMID: 37954963; PMCID: PMC10637991.

Tinius, RA, Blankenship, MM, Colao, AM*.; Hawk, GS, Perera, M* Schoenberg, NE. A Pilot Study on the Impact of the BumpUp® Mobile App on Physical Activity during and after Pregnancy. *Sustainability* **2022**, 14, 12801. <https://doi.org/10.3390/su141912801>.

Rebelle CC*, Jette SL, Mills JM*, **Tinius RA**. Physical Activity Beliefs and Behaviors during Pregnancy and their Association with Provider Counseling among Women in the Southern United States. *Physical Activity and Health*, 2022; 6(1): 287-298. DOI: [10.5334/paah.210](https://doi.org/10.5334/paah.210)

Olenick AA*, Pearson RC*, Shaker N*, Blankenship MM, **Tinius RA**, Winchester LJ, Oregon E, Maples JM. African American Females Are Less Metabolically Flexible Compared with Caucasian American Females following a Single High-Fat Meal: A Pilot Study. *Int J Environ Res Public Health*. 2022 Oct 9;19(19):12913. doi: 10.3390/ijerph191912913. PMID: 36232212; PMCID: PMC9566281.

Howard, K*. Maples JM. **Tinius RA**. Modifiable Maternal Factors and Their Relationship to Postpartum Depression. *Int J Environ Res Public Health*. 2022 Sep 29;19(19):12393. doi: 10.3390/ijerph191912393. PMID: 36231692; PMCID: PMC9564437.

Tinius RA., Maples JM, Schafer MA, Paudel A, Fortner KB, Zite NB, Nagpal TS. To Be Active or to Stop? A Cross-Sectional Retrospective Study Exploring Provider Advice and Patient Fears Surrounding Physical Activity in Pregnancies Complicated by Fetal Growth Restriction. *Int. J. Environ. Res. Public Health* 2022, 19, 6076. <https://doi.org/10.3390/ijerph19106076>

Rebelle, C. C., Jette, S. L., Mills, J. M., & **Tinius, R. A.** (2022). Physical Activity Beliefs and Behaviors during Pregnancy and their Association with Provider Counseling among Women in the Southern United States. *Physical Activity and Health*, 6(1), pp. 287–298. DOI: <https://doi.org/10.5334/paah.210>

Cade WT. **Tinius RA**. Klein S. Patterson B. Cahill AG. Stein R. et al. Effect of Excessive Gestational Weight Gain, Insulin Sensitivity and Kinetics in African Americans with Overweight/Obesity. *Obesity*. 2022 Oct;30(10):2014-2022. doi: 10.1002/oby.23533.

Menke BR*, Duchette C, **Tinius RA**, Wilson AQ, Altizer EA, Maples JM. Physical Activity during Pregnancy and Newborn Body Composition: A Systematic Review. *Int. J. Environ. Res. Public Health* 2022, 19, 7127. <https://doi.org/10.3390/ijerph19127127>

Tinius RA, Duchette C*, Beasley S, Blankenship MM, Schoenberg N. Obstetric Patients and Healthcare Providers Perspectives to Inform Mobile App Design for Physical Activity and Weight Control During Pregnancy and Postpartum in a Rural Setting. *Int J Womens Health*. 2021 Apr 29;13:405-432. doi: 10.2147/IJWH.S296310. PMID: 33953614; PMCID: PMC8092851.

Nagpal T, Maples JM, Duchette C*, Altizer E, **Tinius RA**. Physical Activity during Pregnancy may Mitigate Adverse Outcomes Resulting from COVID-19 and Distancing Regulations: Perspectives of Prenatal Healthcare Providers in the Southern Region of the United States. *International Journal of Exercise Science*. 2021. 14(3), 1138–1150.

Tinius RA, Yoho K*, Blankenship MM, Maples JM. Postpartum metabolism: how does it change from pregnancy and what are the potential implications? *International Journal of Women's Health*. 2021 Jun 17;13:591-599. doi: 10.2147/IJWH.S314469. PMID: 34168507; PMCID: PMC8216742.

Maples JM, Erlich S, **Tinius RA**. Elevated lipid oxidation is associated with exceeding gestational weight gain recommendations and increased neonatal anthropometrics: A cross-sectional analysis. *BMC Pregnancy and Childbirth*. 2021: 575.

Link K, Logsdon CM, **Tinius RA**. A Web-Based Educational Intervention to Increase Perinatal Nurse and Pre-Licensure Student Knowledge and Self-Efficacy in Providing Postpartum Depression Care. *The Journal of Perinatal Education*. (1):29-37. doi: 10.1891/J-PE-D-21-00008. PMID: 35165502; PMCID: PMC8827346.

Tinius RA, *Polston M, *Bradshaw H, *Greene A, *Ashley P, *Parker A. An Assessment of Mobile Applications Designed to Address Physical Activity During Pregnancy and Postpartum. *International Journal of Exercise Science*. 14(7):382-399. eCollection April 2021. PMID: 34055180. PMCID: [PMC8136604](#)

Tinius RA, Blankenship MM, Furgal KE, Cade WT, *Duchette C, Pearson KJ, Maples JM. Metabolic flexibility during late pregnancy is associated with neonatal adiposity. *Appl Physiol Nutr Metab*. 2021 Feb 5:1-4. doi: 10.1139/apnm-2020-1005. Epub ahead of print. PMID: 33544662.

Maples JM, McCarley C, Blankenship MM, *Yoho K, Johnson KP, Fortner KB, **Tinius RA**. Metabolic Flexibility and Weight Status May Contribute to Inter-Individual Changes in Breastmilk Lipid Content in Response to an Acute Bout of Exercise: Preliminary Findings from a Pilot Study. *Int J Exerc Sci*. 2020 Dec 1;13(2):1756-1769. PMID: 33414866; PMCID: PMC7745905.

Hoover DL, Killian CB, **Tinius RA**, Bellar DM, Wilkinson SG, Esslinger FT, Judge LW. Predictive Validity of a Functional Movement Screen in Professional Basketball Players. *Medicina (Kaunas)*. 2020 Dec 21;56(12):724. doi: 10.3390/medicina56120724. PMID: 33371366; PMCID: PMC7767371.

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Blankenship MM, Link KA, *Henry SJ, **Tinius RA**. Patient and Provider Communication Regarding Exercise during Pregnancy in a Rural Setting. *Int J Exerc Sci*. 2020 Sep 1;13(3):1228-1241. PMID: 33042364; PMCID: PMC7523888.

Tinius RA, *Edens K, Link K, Jones MS, Lyons S, *Rebelle T, Pearson KJ, Maples J. Effect of Evidence-Based Materials and Access to Local Resources on Physical Activity Levels, Beliefs, and Motivation During Pregnancy in a Rural Setting. *J Phys Act Health*. 2020 Aug 28;1-11. doi: 10.1123/jpah.2019-0440. Epub ahead of print. PMID: 32858524; PMCID: PMC7914278.

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Tinius R.A., Cahill A.G., & Cade W.T. Origins in the Womb: Potential Role of the Physical Therapist in Modulating the Deleterious Effects of Obesity on Maternal and Offspring Health through Movement Promotion and

Prescription during Pregnancy. 2016, *Physical Therapy Journal*. DOI: 10.2522/ptj.20150678. PubMed PMID: 27417168.

Tinius R.A., Cahill A.G., & Cade W.T. Impact of physical activity during pregnancy on obstetric outcomes in obese women. 2016, *Journal of Sports Medicine and Physical Fitness*, 2017, 57(5):652-659. PubMed PMID: 26564274

Tinius R.A., Cahill A.G., Strand E.A., & Cade W.T. Maternal inflammation during late pregnancy is lower in physically active compared to sedentary obese women. *Appl Physiol Nutr Metab* 2016, 41(2): 191-198. DOI: 10.1139/apnm-2015-0316. PubMed PMID: 26799789

Cade W.T., **Tinius R.A.**, Reeds D.N., Patterson B.W., & Cahill A.G. Maternal glucose and fatty acid kinetics and infant birth weight in obese women with type 2 diabetes. *Diabetes* 2016, 65 (4): 893-901. DOI: 10.2337/db15-1061. PMID: 26861786

Tinius R.A., Cahill A.G., Strand E.A., & Cade W.T. Altered lipid metabolism is associated with higher maternal inflammation in obese women during late pregnancy. *Integrative Obesity and Diabetes* 2015, 2 (1): 168-175. PubMed PMID: 27239331

Cade W.T., Bohnert K., Reeds D.N., Benni P., Peterson L.R., Byrne B.J., **Tinius R.A.** & Taylor C. Endurance Exercise Training in Young Adults with Barth Syndrome: a Pilot Trial. *Journal of Inherited Metabolic Disease*, In press. DOI: 10.1007/8904_2016_553. PMID: 27295193.

Tinius, R.A. "Physical Activity and Maternal and Neonatal Outcomes in Obese Pregnant Women". (2015). *Arts & Sciences Electronic Theses and Dissertations*. Paper 557. http://openscholarship.wustl.edu/art_sci_etds/557

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Friedman, R.A. "Investigation of C-Reactive Protein and Leptin as Biomarkers of Obesity with Potential Clinical Utility" (2011). *Masters Theses & Specialist Projects*. Paper 1091. <http://digitalcommons.wku.edu/theses/1091>

Abstracts

Tinius RA, Maples JM, Blankenship M, *Cooley B., *Olenick A, Hoover DL, Cade WT. The YMCA cycle test and 6-minute walk test are not accurate predictors of peak cardiorespiratory fitness during mid pregnancy. *Med Sci Sports Exer*; 2017: 49(5).

*Driskill M, **Tinius RA**, Hoover DL. A pregnancy-specific equation for predicting cardiorespiratory fitness. *Med Sci Sports Exer*; 2017: 49(5): In press. (*Student in the Tinius Lab)

Tinius, R.A., Cahill A.G., Cade W.T. Impact of physical activity during pregnancy on obstetric outcomes in obese women. *Medicine and Science in Sports and Exercise* (48) 5S. May 2016.

Cahill A.G, **Tinius R.A.**, Roehl K., Cade W.T. 31: Metabolic abnormalities in insulin-resistant pregnancies: beyond glucose. *American Journal of Obstetrics and Gynecology*. 35th annual meeting for Maternal-Fetal Medicine. January 2015.

Cade W.T., Bohnert K.L., Reeds D.N., Peterson L.R., **Tinius R.A.**, Bittel A.J., Bittel D.C., de las Fuentes L., Byrne B.J. & Bashir A. Impaired cardio-skeletal muscle energetics in children with Barth syndrome: a ³¹P MRS study. Accepted for the 2015 *American Physiological Society Conference Physiological Bioenergetics: From Bench to Bedside*, Tampa, FL, 9/9-12, 2015.

Friedman, R.A., S. Hunt, A. Maunsell, and J.W. Navalta. Repeated High-Intensity Anaerobic Bouts Influence Lymphocyte Migration but not Apoptosis. *International Journal of Exercise Science*, 5(1): S55-S57, 2010.

Rachel Tinius, PhD, ACSM-EP-C

Hunt, S., **Friedman, R. A.** Maunsell, S. Bhamare, J.W. Navalta, and S. Lyons. Excess Post-exercise Oxygen Consumption Duration is significantly Greater in the Morning Compared to the Afternoon. *International Journal of Exercise Science*, 5(1): S44-S46, 2010.

SELECTED PROFESSIONAL PRESENTATIONS

(*Student in the Tinius Lab, #award winning presentation)

Tinius RA. KSTC Microaward Pitch Presentation. BumptUp. The Birth of BumptUp®: a digital intervention for increasing physical activity and combatting obesity among pregnant and postpartum women. March 12, 2026.

Tinisu RA. Wash U Movement Science PhD Program. Perspectives from an Academic Entrepreneur. February 10, 2026. St. Louis, MO.

Tinius RA. Bright Coalition Guest speaker. The Birth of BumptUp®: a digital intervention for increasing physical activity and combatting obesity among pregnant and postpartum women. January 6, 2026.

Tinius RA. Louisville Worksite Wellness Council. Family First: Engaging Your Whole Family in Wellness & Benefits Real Talk with Experts on What Works—And Why It Matters. Panelist. Aug 21, 2025 (Zoom).

Tinius RA. Venturium 2025 Pitch Competition, BumptUp® - June 2025 (Zoom)

Tinius RA. External Advisory Board – Mid South Reach- April 2025

Tinius RA. American College of Sports Medicine National Conference. A Digital Intervention (Bumptup®) for Increasing Physical Activity Levels During and After Pregnancy. June 2025 (Atlanta, GA)

Tinius RA. Exercise during Pregnancy: What are the benefits and how do we get women to actually move? Piedmont OBGYN Grand Rounds. January 2025.

Tinius RA. Kentucky INBRE Annual Meeting, Panelist on Commercialization Panel – Feb 2025

Tinius RA. Lewis Bread. How can exercise during pregnancy bring an ROI to your company?- Jan 2025

Tinius RA. United Coal. How can exercise during pregnancy bring an ROI to your company? – Jan 2025

Tinius RA. Venturium 2024 Pitch Competition, BumptUp® - June 2024

Tinius RA. UAccel Guest Speaker – Things I have learned along the way as an academic entrepreneur. November 1, 2024

Tinius RA. 1st NIH Symposium on Women's Health Research in the IDeA States, A Pilot Study on the Impact of the BumptUp® Mobile App on Physical Activity during and after Pregnancy. - June 2024

Tinius R.A. Louisville Worksite Wellness Council Monthly Meeting Guest, BumptUp®- June 2024 (Louisville, KY)

Tinius RA. External Advisory Board for the KY INBRE Annual Conference. Turning research into commercialization with BumptUp®. Feb 2024 (Lexington, KY)

Tinius RA. EQUALIZE Pitch Competition. June 24, 2023.

Tinius RA & Perera M. Impact Of A Mobile Application On Stage Of Change For Physical Activity Among Pregnant Women. National American College of Sports Medicine. Denver, CO. June 1, 2023.

Rachel Tinius, PhD, ACSM-EP-C

Tinius RA. Never Stop Learning: How the desire to learn has shaped a career in pregnancy clinical research. Keynote Speaker for Student Scholar Showcase. Bowling Green, KY. April 1st, 2023.

Tinius RA. Innovation Mic Event. April 12, 2023.

Tinius RA. UAccel Program Guest Speaker. October 28, 2022.

Tinius RA. Development of BumpUp®: a digital intervention for increasing physical activity and combating obesity among pregnant and postpartum women. WKU Board of Regents. October 24, 2022.

Tinius RA. Development of BumpUp®: a digital intervention for increasing physical activity and combating obesity among pregnant and postpartum women. Grand Rounds, University of Tennessee Obstetrics and Gynecology Department. October 7, 2022.

Tinius RA. Development of BumpUp®: a digital intervention for increasing physical activity and combating obesity among pregnant and postpartum women. Centers for Disease Control Infant Outcomes Monitoring, Research, and Prevention Branch. June 10, 2022.

Tinius RA. BumpUp. UACCEL cohort pitch presentation. May 9, 2022.

Tinius RA. Utilizing physical activity interventions to combat obesity during and after pregnancy. Emory University Dept of Obstetrics and Gynecology Grand Rounds. April 20, 2022.

Tinius RA. Strategies to Increase Physical Activity and Improve Outcomes During and After Pregnancy. Kappa Theta Nursing Research Day. April 19th, 2022.

Tinius RA. Utilizing physical activity interventions to combat obesity during and after pregnancy. East Carolina University Journal Club. March 28, 2022.

Tinius RA. KY INBRE Fall Seminar Series. Utilizing Mobile Health Technology to Increase Physical Activity during and after Pregnancy in Rural Communities. November 10, 2021. Virtual.

Tinius RA. 2021 Southeast IDeA Conference. Development of an mHealth application to increase physical activity and monitor weight status during pregnancy and postpartum November 12-14, 2021. Puerto Rico. Virtual Presentation.

Tinius RA. Kinetic Pitch Presentation. BumpUp™ – A unique mobile app designed to increase physical activity and improve outcomes during and after pregnancy. October 28, 2021. Virtual.

Tinius RA. Metabolic Flexibility, Insulin Resistance, and Obesity During Pregnancy Are Associated with Neonatal Adiposity. National ACSM, Virtual Conference, June 2021.

Tinius RA. Metabolic Flexibility, Insulin Resistance, and Obesity During Pregnancy Are Associated with Neonatal Adiposity. Southeast ACSM Virtual Conference, February 2021.

Tinius RA, *Edens K, Maples JM, Cade W, Pearson K. Effects of Evidence-Based Materials and Access to Local Resources on Physical Activity during Pregnancy in a Rural Setting. Southeast Regional IDeA Conference in Louisville, KY. Nov 6-8, 2019.

*#Menke B, *Edens K, Esslinger K, Maples JM, **Tinius RA.** Does Physical Activity during Late Pregnancy Impact Infant Body Composition at Birth? Southeast Regional IDeA Conference in Louisville, KY. Nov 6-8, 2019 & Southeast ACSM in Jacksonville, FL February 13-15, 2020.

*#Duchette C, Blankenship M, Cade W, Maples JM, Pearson K, **Tinius RA.** Obesity and Physical Activity during Pregnancy have Implications for Neonatal Growth and Inflammation. Southeast Regional IDeA Conference in Louisville, KY. Nov 6-8, 2019 & Southeast ACSM in Jacksonville, FL February 13-15, 2020.

Rachel Tinius, PhD, ACSM-EP-C

*Henry S, **Tinius RA**. Patient and Provider communication regarding exercise during pregnancy in a rural setting. Southeast Regional IDeA Conference in Louisville, KY Nov 6-8, 2019 & Southeast ACSM in Jacksonville, FL February 13-15, 2020.

Tinius RA, Edens K., Pitts B., Yoho K., Maples JM, Lyons TS, Link K., Jones MS., Pearson KJ. Effects of evidence-based materials and local resources on knowledge/beliefs and physical activity levels during pregnancy. National American College of Sports Medicine. Orlando, FL, May 2019.

Tinius RA, Blankenship M, *Olenick A, Hoover DL, Pearson K, Cade WT, Maples JM. Metabolic inflexibility among overweight and obese pregnant women may lead to unfavorable downstream metabolic outcomes. National American College of Sports Medicine. Minneapolis, MN, May 2018.

Tinius RA, Maples JM, Blankenship M, *Cooley B, *Olenick A, Hoover DL, Cade WT. The YMCA submaximal cycle test and 6-minute walk test are not accurate predictors of cardiorespiratory fitness during mid-pregnancy. American College of Sports Medicine National Meeting. Denver, CO. June 2017.

*Olenick A, *Pearson R, Shaker N, **Tinius RA**, Blankenship M, Oregon E, Hoover DL, Maples JM. Metabolic Flexibility Among Women in Response to a Single High-Fat Meal. American College of Sports Medicine National Meeting. Denver, CO. June 2017.

*#Driskill M, **Tinius RA**, Hoover DL. A pregnancy-specific equation for predicting cardiorespiratory fitness. American College of Sports Medicine National Meeting. Denver, CO. June 2017.

Tinius RA & C. Moyer. Mythbusters: The Truth about Exercise during Pregnancy. Southeast American College of Sports Medicine. Tutorial Presentation. Greenville, SC, February 2017.

*Ringenberg G & **Tinius RA**. The validity of submaximal exercise testing in obese women. Southeast American College of Sports Medicine. Poster Presentation. Greenville, SC, February 2017.

*Hesse C, **Tinius RA**, *Cooley B, *Olenick A, Blankenship M, Hoover DL, Maples JM. Assessment of endpoint criteria and perceived barriers during maximal cardiorespiratory testing among pregnant women. Southeast American College of Sports Medicine. Poster Presentation. Greenville, SC, February 2017.

*Keen K, Maples J, *Cooley B, *Olenick A, Blankenship M, Hoover DL, **Tinius RA**. Acute high-intensity exercise improves mood during the second trimester of pregnancy. Kentucky Physiological Society Meeting. Bowling Green, KY. March 2017.

*Olenick A, *Pearson R, Shaker N, **Tinius RA***, Blankenship M, Oregon E, Hoover DL, Maples JM. Metabolic Flexibility Among Women in Response to a Single High-Fat Meal. Kentucky Physiological Society Meeting. Bowling Green, KY. March 2017.

Fickey H*, Maples JM, Blankenship M, Cooley B*, Olenick A*, Hoover DL, Cade WT, **Tinius RA**. The YMCA submaximal cycle test and 6-minute walk test are not accurate predictors of cardiorespiratory fitness during mid-pregnancy. Kentucky Physiological Society Meeting. Bowling Green, KY. March 2017.

Tinius RA. Physical Activity during Pregnancy: Past findings and Current Research in Bowling Green, KY. Bowling Green Medical Center Evidence-Based Practice Council Journal Club Meeting- Invited Speaker. August 2nd, 2016.

Tinius RA, Cahill AG., Cade WT. Impact of physical activity during pregnancy on obstetric outcomes in obese women (Platform Presentation). American College of Sports Medicine National Conference- Boston, MA, June 2016.

Tinius RA, Cahill AG, Cade WT. Southeast ACSM. Greenville, SC. Low-intensity physical activity is associated with lower maternal systemic inflammation during late pregnancy. February 2016.

Rachel Tinius, PhD, ACSM-EP-C

Williams K*, Brown A*, Crandall J., **Tinius RA**. Educational Information improves knowledge about physical activity during pregnancy. Student Reach Week Conference- WKU. Bowling Green, KY. April 2016. (*Student in the Tinius Lab)

Tinius RA, Cahill AG, Cade WT. Physical Activity and Maternal and Neonatal Metabolic Outcomes in Obese Pregnant Women (Platform Presentation). American College of Sports Medicine National Conference. San Diego, CA, May 2015.

Tinius RA, Cahill AG, Cade WT. Physical Activity and Maternal and Neonatal Metabolic Outcomes in Obese Pregnant Women. ACTS Translational Science 2015 Conference. Washington, DC, April 2015.

Tinius RA, Cahill AG, Cade WT. The Role of Physical Activity on Maternal and Neonatal Outcomes in Obese Pregnant Women. Diabetes Day Symposium. St. Louis, MO, October 2014.

Tinius RA, Cahill AG, Cade WT. The Role of Physical Activity on Maternal and Neonatal Outcomes in Obese Pregnant Women. Institute of Clinical and Translational Sciences 9th Annual Symposium. St. Louis, MO, October 2014.

Tinius RA, Cahill AG, Cade WT. The Influence of Maternal Physical Activity on Labor and Delivery Outcomes in Obese Pregnant Women. Institute of Clinical and Translational Sciences 9th Annual Symposium. St. Louis, MO, October 2014.

Tinius RA, Cahill AG, Cade WT. Effects of Maternal Obesity on Lipid Metabolism, Oxidative Stress and Neonatal Outcomes. ACTS Translational Science 2014 Conference. Washington, DC, April 2014.

Tinius RA, Cahill AG, Cade WT. Effects of Maternal Obesity on Lipid Metabolism, Oxidative Stress and Neonatal Outcomes. 19th Annual Graduate Research Symposium. St. Louis, MO, February 2014.

Tinius RA, Cahill AG, Cade WT. “Increased maternal lipid oxidation in obese pregnancy is associated with higher infant birth weight.” William H. Danforth Scientific Symposium Celebrating the March of Dimes. St. Louis, MO, November 2013.

Tinius RA, Cahill AG, Cade WT. “Increased maternal lipid oxidation in obese pregnancy is associated with higher infant birth weight.” Institute of Clinical and Translational Sciences 8th Annual Symposium. St. Louis, MO, October 2013.

Friedman RA, Lyons SW, Navalta JW, Schafer MA, Arnett S. Biomarkers of Obesity with Potential Clinical Utility. American College of Sports Medicine’s National Conference. San Francisco, CA, May 2012.

Training Programs (all required a competitive application and acceptance process)

- **UAccel Cohort Program**. 12 week professional development and an experiential learning opportunity to innovators in higher education that are interested in learning the best commercialization path for their technology. Spring 2022
- **EQUALIZE**- 6 month training program and pitch competition. Equalize Startups is a nonprofit launchpad dedicated to fueling the success of women founders in academia. Spring 2023
- **HERImpact**- Six-month accelerator designed to support and empower women entrepreneurs. Spring 2026

NIH Review Panel

- Small Business: Disease Management, Risk Prevention, and Health Behavior Change- May 2024
- Lifestyle Change and Behavioral Health- Feb 2025
- Clinical Care and Health Interventions- SBIR – July 2025