

VALENE GARR BARRY, PHD
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RESEARCH INTERESTS

The role of whole-body and myocardial insulin resistance in the development of pregnancy-induced chronic disease. The role of maternal nutrient metabolism and metabolic flexibility in perinatal health outcomes. Assessment methods for metabolism and body composition during the perinatal period

EDUCATION

- Doctor of Philosophy in Nutrition Sciences** 2016 - 2021
The University of Alabama at Birmingham
Dissertation: Membrane Capacitance: A Novel Approach to Non-invasively Identify Women with Insulin Resistance using Bioimpedance.
- Graduate Certificate in Mentoring and Leadership** 2018 - 2021
The University of Alabama at Birmingham
- Master of Science in Nutrition Sciences** 2016 - 2018
The University of Alabama at Birmingham
Thesis: Membrane Capacitance Derived from Bioimpedance Spectroscopy is Associated with Insulin Resistance in Relatively Healthy U.S. Women, but not Men.
- Bachelor of Science in Biochemistry, Biology, cum Laude** 2012 - 2014
The University of Texas at Arlington

FELLOWSHIPS & TRAINING PROGRAMS

- Postdoctoral Fellowship in Obesity and Cardiovascular Disease 2021 - Present
Washington University School of Medicine Center for Healthy Weight and Wellness – T32
- Pre-doctoral Fellowship in Obesity-Related Research 2017 - 2021
UAB Nutrition Obesity Research Center (NORC) NIH – T32 training program
- Future Leaders Advancing Research in Endocrinology (FLARE) Program 2019
The Endocrine Society
- NIH Post Baccalaureate Research Education Program (PREP) at UAB 2015 - 2016
Graduate Research Assistantship funded by National Institutes of Health (NIH)
- Ronald E. McNair Post Baccalaureate Program (McNair Scholars UTA) 2014
- National Science Foundation AACCESS Scholarship 2012- 2014
Arlington Academy for Community College Exceptional Students in Science (AACCESS)

RESEARCH EXPERIENCE

- Graduate Student Trainee** 2016 - 2021
The University of Alabama at Birmingham, Department of Nutrition Sciences
Mentor: Barbara A. Gower, PhD

Electrical capacitance as an indicator of insulin resistance-related infertility and PCOS

UAB Department of Reproductive Endocrinology & Infertility 2019 - 2021
Designed and carried out a prospective observational study premenopausal women to determine whether capacitance is different among women with insulin resistance-related infertility compared to women with normal ovulation.

Precision and reliability of a non-invasive bioelectrical indicator of insulin resistance in women

UAB Department of Nutrition Sciences

2019 - 2021

Designed and carried out a longitudinal study of premenopausal women to evaluate the intra-day reliability, inter-day reliability, and between-device consistency of capacitance measurements. This study followed women through one complete menstrual cycle and considered factors such as hydration status, temperature, and body composition. *This study was funded by the UAB Comprehensive Diabetes Research Center's Graduate Student Innovator award.*

Bioimpedance as an approach to detect insulin resistance

UAB Department of Nutrition Sciences

2016 - 2018

Investigated the association of bioelectrical response with dietary intake, body composition, makers of glucose metabolism, and inflammation using the National Health and Nutrition Examination Survey III (NHANES III). Evaluated the accuracy, specificity, and sensitivity of bioimpedance markers as predictors of insulin resistance and the association between bioimpedance marker and insulin sensitivity from the hyperinsulinemic clamps.

Assessment of prenatal care and educational needs for low-income women with gestational diabetes.

UAB Department of Obstetrics and Gynecology

2016 - 2018

Evaluated the clinical needs of low-income multi-ethnic women diagnosed with gestational diabetes (GDM). Conducted semi-structured interviews with GDM patients in the OBCC to elucidate the efficacy of current patient education strategies, the relevant health educational needs, and barriers to health behaviors.

Post Baccalaureate Research Assistant

2015 - 2016

The University of Alabama at Birmingham, Department of Nutrition Sciences

Mentors: Barbara A. Gower, PhD and Brooks Wingo, PhD

Adiposity, diet, and ovarian follicular fluid metabolism

UAB Department of Obstetrics and Gynecology

2015 - 2019

Assessed diet composition and feeding practices in women preparing to undergo in-vitro fertilization. Explored the association of successful egg retrieval with obesity, macronutrient composition, and the ovarian follicular metabolome.

Resting metabolic rate and body composition changes in weight management programs

UAB Department of Nutrition Sciences

2015 - 2017

Coordinated a long-term clinical study, which monitored physiological response to three different weight management programs by insulin sensitivity, resting metabolic rate, and body composition.

Validation of Enhanced Body Composition Analysis for UAB Core

UAB Departments of Nutrition Sciences & Occupational Therapy

2015 - 2016

Validated a standing position, segmental bioelectrical impedance analyzer analysis for accurate, non-invasive assessment of body composition and total body water in adults.

Undergraduate Research Assistant

The University of Texas at Arlington, *Department of Biomedical Engineering*

Mentor: Liping Tang, PhD

Differentiation of β cells from Mesenchymal Stem Cells Recruited from Peritoneal Dialysis

2014

Contributed to large-scale a project working toward the differentiation of stem cells into pancreatic tissue. Developed a proposal to attenuate an existing protocol used by the group. Performed minor surgeries, bone marrow, and cell extractions on mouse models and human cell sorting and culture.

GRANTS AND FUNDING

Graduate Student Innovator Award - \$10,000 Award

2019

UAB Comprehensive Diabetes Research Center

Awarded a small grant to evaluate the performance of bioimpedance spectroscopy as a clinical method to assess insulin resistance in premenopausal women.

Pilot and Feasibility Award - Submitted

2018

UAB Diabetes Research Center

Submitted two rounds of applications for a randomized trial comparing the efficacy of a group prenatal care model to the standard of care (individual) model with Dr. Sarah Mazzoni in the UAB School of Medicine.

PUBLICATIONS

Peer-Reviewed Manuscripts

Garr Barry, V; Garvey WT, Gower, BA. The accuracy, sensitivity, and specificity of a bioimpedance approach to non-invasively identify women with insulin resistance. (*Submitted – In Review*)

Garr Barry, V; Sweat SK; Pavela, G; Cherrington A; Shelton, R; Ovalle, F; Gower, BA. Perceived Discrimination is Associated With Lower Insulin Sensitivity: A Mediation Analysis *Psychoneuroendocrinology* (*Submitted – In Review*)

Garr Barry, V; Stewart, M.A.; Soleymani, T; Goss, AM; Gower, BA. (2021) Greater Loss of Central Adiposity from Low-Carbohydrate versus Low-Fat Diet in Middle-Aged Adults. *Nutrients* 13(2), 475.

Palmer, KN; **Garr Barry, V**; Marrero, DG; Hannon, TS. (2020). Intervention delivery matters: What mothers at high risk for type 2 diabetes want in a diabetes prevention program—Results from a comparative effectiveness trial. *Diabetes Therapy*, 11(10), 2411-2418.

Garr Barry, V; Peterson, C.M.; Gower, B.A. (2020) Membrane Capacitance from a Bioimpedance Approach: Associations with Insulin Resistance in Relatively Healthy Adults. *Obesity*, 28(11), 2184-2191.

Goss, AM; Gower, BA.; Soleymani, T.; Stewart, MA; Pendergrass M; Lockhart M; Krantz O; Dowla S; Bush, N; **Garr Barry, V**; Fontaine, KR. (2020). Effects of weight loss during a very low carbohydrate diet on specific adipose tissue depots and insulin sensitivity in older adults with obesity: A randomized clinical trial. *Nutrition & Metabolism*, 17(1), 1-12.

Cedillo, YE; **Garr Barry, V**; Maciel, B; Fernández, JR. (2018). Dietary energy-density and adiposity markers among a cohort of multi-ethnic children. *Maternal and Child Health*, 22, (1-11)

Garr Barry, V. (2018). Membrane Capacitance Derived from Bioimpedance Spectroscopy is Associated with Insulin Resistance in Relatively Healthy U.S. Women, but not Men. (Master's Thesis; The University of Alabama at Birmingham) *Proquest*.

Wingo, BC; **Garr Barry, V**; Ellis, AC; Gower, BA. (2018). Comparison of segmental body composition estimated by bioelectrical impedance analysis and DXA. *Clinical Nutrition ESPEN* 28, 141-147.

Peer-Reviewed Abstracts

Garr Barry, V; Langford, J; McLean, M; Van Hofe, J; Harper, L; Gower, BA. (2019). Food Processing Rather Than Energy Intake is Associated with In Vitro Fertilization Outcomes. *The Obesity Society*

Garr Barry, V; Tucker, S; Cloud-Stewart, M; Soleymani, T; Goss, A; Gower, BA (2018). Greater Loss of Central Adiposity from Low-Carbohydrate versus Low-Fat Diet in Middle-Aged Adults. *The Obesity Society*

Garr Barry, V; Gower, BA. (2018). Bioelectrical Capacitance is associated with insulin resistance in non-diabetic women but not men. *American Society of Nutrition*

Garr Barry, V; Gower, BA (2018). Membrane Capacitance is associated with insulin resistance in non-diabetic adults. *International Symposium on Body Composition Research*

Ma, E ; Stewart, M; **Garr, V;** Soleymani, T; Morrow, C; Gower, BA; Garvey, TW. (2016). Effects of Low Fat vs. Very Low Carbohydrate Diets on the Gastrointestinal Microbiome During Acute Weight Loss. *The Obesity Society*

PRESENTATIONS

Poster Presentations

Garr Barry, V; Sweat,SK; Cherrington,A; Shelton,R; Ovalle, F; Gower, BA. The Association Between Perceived Discrimination and Insulin Sensitivity Is Mediated by Stress and Inflammation, but Moderated by Race and Residential Neighborhood. *The Obesity Society Annual Meeting* November 2-5 2020

Garr Barry, V; Gower, BA. Membrane Capacitance is associated with insulin resistance in non-diabetic adults. *UAB School of Health Professions Health Services Administration and Nutrition Sciences Poster Session.* February 4, 2020

Garr Barry, V; Langford, J; Mclean, MR; Harper, LM; Gower, BA. Food Processing Rather than Energy Intake is Associated with In-Vitro Fertilization Outcomes. *The Obesity Society.* November 3-7, 2019

Langford, J; **Garr Barry, V;** Mclean, MR; Harper, LM; Gower, BA. The Association of Dietary Patter with In-Vitro Fertilization Outcomes. *UAB Undergraduate Research Expo.* July 25, 2019

Garr Barry, V; Tucker, S; Stewart, M; Soleymani, T; Goss, AM; Gower, BA. Greater Loss of Central Adiposity from Low-Carbohydrate versus Low-Fat Diet in Middle-Aged Adults. *The Obesity Society.* November 11-14, 2018

Garr Barry, V; Gower, BA. Bioelectrical Capacitance is associated with insulin resistance in non-diabetic women but not men. *American Society of Nutrition.* June 11-13, 2018

Garr Barry, V; Gower, BA. Membrane Capacitance is associated with insulin resistance in non-diabetic adults. *International Symposium on Body Composition Research.* June 25-27, 2018

Oral Presentations

Garr Barry, V. The Possibilities of Bioimpedance in Women's Health. *UAB Graduate School Discoveries in the Making Event.* September 9, 2020 [Youtube Video](#)

Garr Barry, V. The Possibilities of Bioimpedance in Women's Health. *UAB Graduate School Discoveries in the Making Event.* November 12, 2019

Garr Barry, V. Bioimpedance in Women's Health. *UAB Department of Nutrition Sciences-Ruffner Mountain Retreat.* June 26, 2019

Garr Barry, V. Accuracy, sensitivity, and specificity of a non-invasive bioelectrical predictor of insulin resistance". *UAB Diabetes Research Day.* May 7, 2019

Garr Barry, V; Tucker, S; Stewart, M; Soleymani, T; Goss, AM; Gower, BA. Greater Loss of Central Adiposity from Low-Carbohydrate versus Low-Fat Diet in Middle-Aged Adults. *The Obesity Society – Early Career Investigator Competition.* November 11-14, 2018

Garr Barry, V. Bioelectrical Impedance Spectroscopy and Cardiometabolic Health. *Kennesaw State University – Department of Kinesiology*. May 21, 2018

Garr Barry, V. Bioelectrical Impedance Spectroscopy and Cardiometabolic Health. *UAB Department of Nutrition Sciences, Master's Thesis defense*. March 27, 2018

Garr, V; Wingo, BC; Gower, BA. Validation of a Cost-effective Rapid Method for Assessment of Body Composition. *Post-Baccalaureate Research Education Program (PREP) Presentation Days*. April 26, 2016

Garr, V. Obesity, Diabetes, and the role of Maternal-Fetal Programming. *Critical Conditions in Minority Health Panel University of Texas at Arlington Library*. April 14, 2015

Garr, V; Shen, J, Nair, A.; Saxena, R.; Zhang, C.; Borelli, J.; Tang, L. *Exploring Tissue Engineering Possibilities Using Autologous Progenitor Cells in the Peritoneum*. 23rd Annual McNair Research Conference at the University of Wisconsin – Madison. November 1, 2014

Garr, V; Eslinger, C; Yadav, P; Tang, L. *Differentiation of Insulin Producing Cells from Mesenchymal Stem Cells Isolated from Peritoneal Dialysis*. University of Texas-Arlington McNair Scholars Summer Research Presentations. August 8, 2014.

Invited Speaking

Garr Barry, V. My research and experiences as a graduate student in Nutrition Sciences. UAB Nutrition Sciences Club. October 21, 2019

Garr Barry, V. Conversations about Diversity in Academic Spaces. UAB Alpha Gamma Delta Event March 31, 2019

Garr Barry, V. *Realistic Expectations for Graduate School and Navigating Academia*. UAB McNair Scholars Lunch & Learn. September 19, 2018

Garr, V. Choosing an Academic Path and Preparation for Entering College in STEM: *Peach State Louis Stokes Alliance for Minority Participation Research Conference*. October 9, 2015

Garr, V; Johnson, A. *Pathways to success in STEM: Exploring Positive Factors, Professional Development, and Funding*. Peach State Louis Stokes Alliance for Minority Participation Research Conference. October 9, 2015

Garr, V; Johnson, A. *Increasing Diversity in your graduate Programs*. National Association of Geoscience Teachers Rendezvous. University of Colorado Boulder July 18, 2015

Garr, V; Johnson, A. *Preparation for Graduate School Interviews Dos and Dents*. McNair Scholars Seminar Program. The University of Texas at Arlington October 17, 2014

Invited Media Appearances

UAB GradLife Podcast – Episode 13: [Discoveries in the Making](#). November 12, 2019

UAB GradLife Podcast – Episode 10: [What is the Black Graduate Student Association?](#) October 22, 2019

All About STEM Radio Show – [Discussion & interview about experiences in STEM](#). May 22, 2019

SKILLS

Human Physiology Instruments

UAB; Nutrition Obesity Research Center

Performed regular operations, troubleshooting, and training of new investigators on a variety of instruments to include:

Dual-x-ray absorptiometry

Indirect Calorimetry (hooded cart)

Air Displacement Plethysmography (BOD POD)

Bioelectrical Impedance Analysis- standing, supine – developed standard operating procedure

Hyperinsulinemic Euglycemic Clamp – developed a program to automate data analysis for researchers

Applied Statistics

Proficiency with general linear modeling, mediation analysis, and mixed modeling. Statistical packages including SAS, SPSS, XLstat. Developed Stats BootCamp to assist graduate students in the BGSA with dissertation analyses. Topics included: “Talking to your statistician/methodologists,” “Simple Data Cleaning and Visualization”, and “Designing Tables and Figures in SAS.”

Provided statistical consulting for the dissertations of:

Sherilyn Gardner, PhD (2019)

Kiko King, PhD (2018)

Joshua Muhammad, PhD MEng (2017)

Phlebotomy

Completed venipuncture training with the UAB Patient Care Technology program in 2015. Collected, processed, labeled, and stored specimens for studies within the UAB Department of Nutrition Sciences.

Dietary Record Analysis

Received training on analysis programs from the UAB Clinical Research Unit, including Nutrition Data System for Research (NDSR) and Food Works.

HONORS & AWARDS

Samuel B. Barker Award for Excellence in Graduate Studies	2021
BBVA Compass Mortgage Financial Services Endowed Award	2020
UAB President’s Diversity Champion Award (Award video)	2019
1 st Place - The Obesity Society Annual Meeting Early Career Lightning Talks	2018
Ford Foundation Pre-Doctoral Fellowship (Honorable Mention)	2018

PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science (AAAS)	2019 - Present
The Endocrine society	2017 - Present
The Obesity Society (TOS)	2018 - Present
American Society of Nutrition (ASN)	2017 – 2020

MENTORING AND TEACHING

Mentoring

Mentor

2021 - Present

National Science & Technology Medals Foundation – InSTEM Program

Consulting Expert and Mentor for students at the University of Texas at Arlington *InSTEM* program for under-represented minority students.

Research Co-Mentor 2019 - 2020

Undergraduate Research & Honors Program

Mentee: Kaylan Bowman, undergraduate Biomedical Sciences.

Trained mentee in the areas of participant engagement, human sample processing, bioelectrical impedance analysis, and dual-x-ray-absorptiometry for the project entitled, "Precision and reliability of a non-invasive bioelectrical indicator of insulin resistance in women."

Director 2018 - 2020

BLUEprint Connect Mentorship program

Director for a yearlong mentorship program that paired Black undergraduates with Black graduate student mentors provide early exposure to graduate/professional programs. Was awarded UAB's President's Diversity Champion Award for my initiatives as director to improve written and oral communications among students.

Mentor 2018 - 2021

BLUEprint Connect Mentorship program

Mentees: Adrienna Stephens, undergraduate – Health Education (2019-2020);

Jeralyn Langford, undergraduate – Biomedical Sciences (2018-2019);

Michael Kendrick, undergraduate – Public Health (2018-2019);

Held monthly in-person, one-hour (at least) sessions with mentees to discuss their concerns and progress within academia. Attended monthly group sessions with other mentor-mentee pairs to engage in professional/academic development activities.

Research Mentor November 2018 – December 2019

Undergraduate Research & Honors Program; McNair Scholars Program

Mentee: Jeralyn Langford, undergraduate Biomedical Sciences

Trained and supervised mentee's participation in data collection for the project entitled, "Adiposity, diet, and ovarian follicular fluid metabolism." Co-mentored McNair Scholars summer research rotation. Prepared student for poster presentation at the UAB Undergraduate Student Expo, where she won 3rd place and oral presentation at the Regional McNair Scholars Conference.

Mentor

Women in STEM Mentoring Program at UAB

2017 - 2018

Participated as graduate student mentor for two undergraduate students in the UAB College of Science.

Peer Mentor 2017 -2019

UAB Post Baccalaureate Education Program (PREP)

Provided social support for new cohorts of PREP students. As needed, reviewed graduate school applications and PREP presentations.

Teaching

Invited Lecturer 2020

UAB – Department of Nutrition Sciences

Presented one hour lecture on the principals and applications of bioelectrical impedance analysis in a graduate-level body composition course (NTR 750).

Undergraduate Research Assistant 2014

UTA– Department of Chemistry & Biochemistry ASSURE Program

(Achieving Success in Science through Undergraduate Research and Engagement)

Selected to teach freshman chemistry and biology majors critical research skills through inquiry-based labs. Position provided me with instruction on teaching college-level science labs.

Teacher 2013 - 2015
Bricks 4 Kids – Grand Prairie, TX
Designed engaging hands-on inquiry based demonstrations and exercises for STEM (science, technology, engineering, and math, emphasizing physics) enrichment programs for eight to thirty participants in kindergarten to fifth grade.

Learning Coach 2014 - 2015
Read2Win – Fort Worth, TX
Taught basic reading and language arts skills to first-grade students in the Fort-Worth Independent school district. Held independent coaching sessions with students below grade level for reading.

LEADERSHIP AND SERVICE

National

Advisory Council Member 2021 - Present
National Science & Technology Medals Foundation – InSTEM Program
Provides guidance and feedback for the development and execution of the *InSTEM* program; an auxiliary support program and network for underrepresented minority students in STEM.

Contributor 2019 - Present
Obesity and Energetic Offerings – Indiana University School of Public Health – Bloomington and the University of Alabama at Birmingham’s Nutrition Obesity Research Center
Weekly content contributor to a national collection of peer-reviewed articles related to obesity and energetics, focusing on intergenerational transmission of obesity.

Consultant 2017 - Present
STEM Human Resources Development
Provided diversity training sessions on academic development of diverse students for K-12 programs and diversity and inclusion in STEM higher education.

Synthesizing Information Team 2014 - 2016
Institute for Broadening Participation
Provided support for branding, marketing of social media, outreach, materials, and website content. Supported publishing of materials to build loyalty to non-for-profit organizations with goals of connecting students elementary through post-graduate level to opportunities in STEM education.

Local

President 2019 - 2021
UAB Black Graduate Student Association (BGSA)
Elected president of a campus-wide organization that aims to increase the well-being of and social support for Black students on campus. Started an initiative to evaluate the performance metrics of UAB’s Black graduate students.

Student Leadership Advisory Council 2018 - 2021
UAB Graduate School
Served as a graduate student leader at monthly sessions to advise the UAB Graduate School dean and other leaders on the matters that are important to graduate students on campus. Disseminated information from the Graduate School leaders back to students in the BGSA.

Diversity Equity & Inclusion (DEI) Committee 2018 - 2021
UAB School of Health Professions
Served as one of two graduate student members of the DEI committee. The committee’s objective is to assess and provide solutions to issues of diversity and equity among faculty, staff, and students of the SHP.

Student Affairs Committee (SAC)

2018 - 2019

UAB School of Health Professions

Served as a student representative from the Department of Nutrition Sciences to the SHP SAC committee. The committee's objective is to provide resources and assistance to SHP departments with engagement and retention of students.

Student Justice Awareness Committee

2018 - 2019

UAB

Served as a graduate student leader that determined activities and initiatives that should be financially supported on the UAB campus related to diversity, justice, and equity.

Emerging Leader & Scholar

2013 - 2014

UTA Center for African American Studies - Emerging Leader Initiative

Participated in specialized personal development/leadership training programs and community outreach/civic engagement activities. Performed 30+ hours of service-learning in community outreach programs as well as workshops to build successful academic achievement.

VOLUNTEERING AND COMMUNITY ENGAGEMENT

UAB Obstetrics and Complication Clinic

2017 - 2019

Worked with obstetricians to implement group prenatal care classes for low-income women with gestational diabetes.

UAB Medicine Wellness 720 Program

2017 - 2018

Performed body composition estimates using bioimpedance for UAB employees participating in a monthly wellness incentive program.