CV/BIOGRAPHICAL SKETCH

NAME: Broskey, Nicholas T.

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Saint Vincent College, *Latrobe, PA*	B.S.	05/2009	Biology
University of Pittsburgh, *Pittsburgh, PA*	M.S.	07/2010	Exercise Physiology
University of Lausanne, *Lausanne, Switzerland*	Ph.D.	08/2015	Life Sciences/ Metabolism
Pennington Biomedical Research Center, *Baton Rouge, Louisiana*	Postdoc	08/2019	Metabolism/Pregnancy

A. Personal Statement

Dr. Nicholas Broskey conducts translational science with a focus on skeletal muscle physiology and the integration of whole-body and cellular metabolism. Particularly, Dr. Broskey is interested in the role of mitochondria in health and disease and how lifestyle (e.g., exercise and diet) interventions can help ameliorate conditions of metabolic disease through changes in mitochondrial bioenergetics. His research skillset spans biochemistry and exercise physiology with additional training in conducting maternal/infant research. As a predoctoral trainee in the lab of Dr. Francesca Amati, he focused on prescribing aerobic exercise interventions and subsequently exploring skeletal muscle mitochondrial outcomes in elderly individuals at risk for type 2 diabetes. Using muscle biopsy samples, he quantified mitochondrial content with electron microscopy and measured capacity *in vivo* with ^{31}P-magnetic resonance spectroscopy, as well as other skeletal muscles techniques such as fiber type staining with immunohistochemistry and other basic lab techniques. This experience established the foundation for his clinical research expertise and his skillset for conducting translational research. As a postdoctoral fellow, he garnered expertise in pregnancy and infant research in the Reproductive Endocrinology & Women's Health Laboratory at Pennington Biomedical Research Center under the direct mentorship of Dr. Leanne Redman, an international expert in women's health and human physiology. During his postdoctoral fellowship, Dr. Broskey also secured funding for two pilot projects geared at maternal-infant health in the context of gestational diabetes and physical activity. Through these pilots, he was able to further his cell biology expertise using umbilical cord-derived mesenchymal stem cell (MSC) models, a unique model that when differentiated into a myogenic or adipogenic phenotype represents fetal tissue. His future research plans, now as a tenured Associate Professor in the Department of Kinesiology at East Carolina University, involve delving further into mechanisms of metabolic disease prevention across the lifespan. Dr. Broskey is a Principal Investigator for an NIH R01, using the MSC model, that is an ancillary study to an ongoing trial of randomizing women with obesity to exercise during pregnancy. He is also recent was a MPI on a previously completed NIH study exploring mechanisms of obesity risk using whole-body and primary skeletal muscle myotubes before and after bariatric surgery.

B. Positions, Scientific Appointments, and Honors

Positions and Employment

2025-present	Associate Professor (tenured), Department of Kinesiology, East Carolina University, Greenville, NC
2024 - present	Interim Director, East Carolina Diabetes & Obesity Institute, East Carolina University, Greenville, NC
2019 - 2025	Assistant Professor, Department of Kinesiology, East Carolina University, Greenville, NC
2015 - 2019	Postdoctoral Fellowship, Pennington Biomedical, Baton Rouge, LA
2009 - 2010	Research Associate, Division of Endocrinology & Metabolism, University of Pittsburgh Medical Center, Pittsburgh, PA

Honors

2024	Outstanding Researcher Award, College of Health and Human Performance, East Carolina University
2024	Institutional Nomination for the American Diabetes Association Pathway to Stop Diabetes Award, Accelerator Level

2018	Institutional Nomination for the American Diabetes Association Pathway to Stop Diabetes Award, Initiator Level
2018	Awardee, The Obesity Society Early Career Grant Challenge, Annual Meeting of The Obesity Society, Nashville, TN, USA
2015	Louisiana Public Facilities Authority, Endowed Postdoctoral Fellowship
2013	Best Poster, Annual Meeting, Swiss Society of Endocrinology & Diabetology, Bern, Switzerland

Professional Memberships and Services

2022 – present	Ad hoc review, American Diabetes Association Postdoctoral Fellowships
2022 - present	Member, American Diabetes Association
2010 - present	Member, American College of Sports Medicine

C. Contributions to Science

1. Skeletal Muscle Metabolism and Metabolic Disease: My early and ongoing contributions to science reflect my emerging interest in exercise, skeletal muscle physiology, and mitochondrial biology in the context of aging and metabolic disease. This began during my doctoral training and continues to be a part of my ongoing research agenda. Through my work in the current R01 with Dr. Joseph Houmard, we are exploring the role of fasting plasma lactate as an early marker for metabolic disease risk.

2. Comprehensive Metabolic Phenotyping in Adult Populations: Part of my postdoctoral training was establishing the foundation of whole-body metabolism using objective assessments of energy expenditure (respiratory chamber, doubly labeled water), and glycemic control (oral glucose tolerance test, hyperinsulinemic-euglycemic clamp) in various populations ranging from metabolic diseases and healthy populations.

3. Pregnancy Research in Women with Metabolic Diseases: Most of my postdoctoral fellowship was spent on my new area of research, the metabolic link between mother and infants. This involved conducting studies with obesity in pregnancy as well as gestational diabetes. During the first two years of my fellowship, I secured two pilot and feasibility projects, which set the framework of my expertise on the umbilical cord mesenchymal stem cells. Some of our ongoing studies provided the platform to conduct translational research exploring the link between maternal and infant metabolism.

4. Pregnancy Research on Exercise During Pregnancy: While at ECU, we have initiated projects related to exercise during pregnancy and the role it plays in improving maternal and infant health outcomes. This is also a continuation of my postdoctoral pilot NORC grant (Mito Moms) studying the effect of aerobic exercise on infant mitochondrial bioenergetics in the MSCs. Our efforts focus on characterizing mechanisms for poor health outcomes as well as translating this information to find methods for early detection. We are beginning efforts focused on tissue and cellular changes from the maternal environment, mediated through the placenta, to determine good or poor pregnancy outcomes. Leveraging upon pregnancy research and these biospecimens collected at delivery, I recently received a R01 to continue our work using the umbilical cord derived mesenchymal stem cells as a model of fetal cellular metabolism.

Complete List of Published Work in MyBibliography:
https://www.ncbi.nlm.nih.gov/pubmed/?term=broskey+N