Grace E. Shearrer – Curriculum Vitae

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Education

Dates	*Degree*	*Institution*
2012- 2016	Doctor of Philosophy	The University of Texas at Austin *Department of Nutritional Sciences* **Dissertation: The associations between sugar sweetened beverage intake satiety, metabolic health, and reward processing**
2007-2012	Bachelor of Science	The University of Wyoming *Department of Nutritional Sciences* *Department of Zoology and Physiology*

Research and Professional Experience

2019-present	Research Assistant Professor The University of North Carolina at Chapel Hill- *Department of Nutritional Sciences*
2016-2019	Post-Doctoral Researcher Advisor: Dr. Kyle Burger The University of North Carolina at Chapel Hill- *Department of Nutritional Sciences*
2017	Co-Director UNC fMRI Analysis Workshop The University of North Carolina Chapel Hill- *The Neuropsychology of Ingestive Behavior Laboratory*
2013- 2016	Magnetic Resonance Imaging Technician Facilities Manager: Dr. Jeff Luci The University of Texas at Austin- *Imaging Research Center*
2013- 2016	Graduate Research Assistant Advisor: Dr. Jaimie Davis The University of Texas at Austin- *Department of Nutritional Sciences*
2013-2014	Teaching Assistant Obesity and Metabolic Health Instructor: Dr. Jaimie Davis The University of Texas at Austin- *Department of Nutritional Sciences*
2014	Teaching Assistant Clinical Nutrition Instructor: Dr. Monica Meadows The University of Texas at Austin- *Department of Nutritional Sciences*
2013	Teaching Assistant Food and Culture Instructor: Dr. Deanna Staskel The University of Texas at Austin- *Department of Nutritional Sciences*
2012	Teaching Assistant Vitamins and Minerals Instructor: Dr. Sara Sweitzer The University of Texas at Austin- *Department of Nutritional Sciences*

2010-2012	Teaching Assistant Organic Chemistry I Instructor: Dr. Robert Corcoran University of Wyoming- *Department of Chemistry*
2010-2012	Teaching Assistant Organic Chemistry II Instructor: Dr. Robert Corcoran University of Wyoming- *Department of Chemistry*
2011-2012	Teaching Assistant Human systems physiology Instructor: Dr. Donal Skinner University of Wyoming- *Department of Zoology and Physiology*
2011-2012	Teaching Assistant Integrative physiology Instructor: Dr. Donal Skinner University of Wyoming *Department of Zoology and Physiology*

Certifications

2013-present	Phlebotomist
2011-2012	Dual X-Ray absorptiometry technician

Professional Societies

2016-present	Society for Ingestive Behavior	Member
2016-present	The Obesity Society	Member
2015-2016	Society for Ingestive Behavior	Student Member
2013-2016	The Obesity Society	Student Member
2010-2012	The Endocrine Society	Student Member

Awards and Honors

2018	Society for Ingestive Behavior New Investigator Travel Award winner
2017	The Obesity Society Ethan Sims Young Investigator Finalist
2017	Neurohack week travel scholarship
2016	National Institute of Health BRAIN initiative summer course on interdisciplinary computational neuroscience
2016	University of Texas at Austin Graduate School 2016 Summer Fellowship
2015	Karen and Charles Matthews Endowed Presidential Fellowship in Nutrition
2012	INBRE undergraduate research fellowship
2011	EPSCOR undergraduate research fellowship

Manuscripts Published

1. Sadler JR, **Shearrer GE**, Stice E, Burger KS. (2018) *Individual differences in appeal of energy dense foods predicts lower body mass change during adolescence.* Accepted at Appetite
2. **Shearrer GE**, Stice E, Burger KS. (2018) *Adolescents at high-risk for obesity show greater striatal response to increased sugar content in milkshakes*. American Journal of Clinical Nutrition. 107(6):859-866. PubMed PMID: 29771283
3. House BT, **Shearrer GE**, Boisseau JB, Bray MS, Davis JN. (2018) *Decreased eating frequency linked to increased visceral adipose tissue, body fat, and BMI in Hispanic college freshmen*. BMC Nutrition. 4(1). https://doi.org/10.1186/s40795-018-0217-z
4. Sadler JR, **Shearrer GE**, Burger KS. (2018) *Body mass variability is represented by distinct functional connectivity pattern*s. NeuroImage. 181. 55-63. https://doi.org/10.1016/j.neuroimage.2018.06.082
5. **Shearrer GE**, Daniels MJ, Toledo-Corral C, Spruijt-Metz D, Weigensberg MJ, Davis JN. (2016) *The association between body fat deposition, cortisol response, and sugar sweetened beverage (SSB) intake in a minority youth population*. Physiology and Behavior. doi:10.1016/j.physbeh.2016.09.020.
6. **Shearrer GE**, House BT, Luci J, Davis JN. (2016) *Feasibility of fat imaging in toddlers*. PLOS

one. 11(2);e0149744. doi: 10.1371/journal.pone.0149744

7. **Shearrer GE**, O'Reilly GA, Belcher B, Daniels M, Goran MI, Spruijt-Metz D, Davis JN. (2015) *The impact of sugar sweetened beverage intake satiety in minority adolescents*. Appetite. 1(97); 43-48. 10.1016/j.appet.2015.11.015
8. Burger KS, **Shearrer GE**, Sanders A. (2015*) Brain-based etiology of weight regulation*. Current Diabetes Reports. 15(11):100. doi: 10.1007/s11892-015-0667-5.
9. **Shearrer GE**, Whaley SE, Miller SJ, House, BT, Held, T, Davis JN. (2014) *Association of gestational diabetes and breastfeeding on obesity prevalence in predominately Hispanic low-income youth.* Pediatric Obesity. 10(3); 165-171. doi: 10.1111/ijpo.247.
10. Miller SJ, Batra AK, **Shearrer GE**, House BT, Martinez LT, Pont SJ, Goran MI, Davis JN. (2015) *Dietary fiber linked to decreased inflammation in overweight minority youth*. Pediatric Obesity. 11(1); 33-39. doi: 10.1111/ijpo.12017.
11. House BT, **Shearrer GE**, Miller SJ, Pasch KE, Goran MI, Davis JN. (2015) *Increased eating frequency linked to decreased obesity and improved metabolic outcomes*. Int J Obesity. 39(1); 136-141. doi: 10.1038/ijo.2014.81
12. Davis JN, Koleilat M, **Shearrer GE**, Whaley SE. (2013) *Association of infant feeding and dietary intake on obesity prevalence in low-income toddlers*. Obesity. 22(4); 1103-1111. doi: 10.1002/oby.20644.

Manuscripts in Review

Shearrer GE, Sadler JR, Burger KS. *Alterations in ventral attention network connectivity in individuals with prediabetes*. In review at Neuropsychopharmacology

Books and Chapters

Burger KS, **Shearrer GE**, Gilbert JR. (2018) *Brain, environment, hormone-based appetite, ingestive behavior, and body weight*. Textbook of energy balance, neuropeptide hormones, and neuroendocrine function. Springer, 247-369.

Conference Poster Presentation

Shearrer GE, House BT, Luci J, Davis JN. *Feasibility of fat imaging in toddlers.* Experimental Biology April 22, 2013 *Boston, MA*

Shearrer GE, Whaley SE, Miller SJ, House, BT, Held, T, Davis JN. *Association of gestational diabetes and breastfeeding on obesity prevalence in predominately Hispanic low-income youth.* The Obesity Society November 13, 2013 *Atlanta, GA*

Shearrer GE, O'Reilly GA, Spruijt-Metz D, Davis JN. *The relationship between sugar sweetened beverage intake and appetite.* Experimental Biology March 30, 2014 *Boston, MA*

Shearrer GE, Cohen JR, Gilbert JR , Jones LJ, Burger KS.
That's rich: differences in rich club organization across body mass index. Society for the Scientific Study of Ingestive Behavior July 18, 2017 *Montreal, Quebec*

Shearrer GE, Cohen JR, Gilbert JR, Jones LJ, Burger KS.
Efficient and small world brain networks across the weight spectrum. Society for the Scientific Study of Ingestive Behavior July 18, 2017 *Montreal, Quebec*

Seminars, Invited Lectures, Orals

Shearrer GE, Sadler JR, Burger KS. Later onset of puberty is related to visual and self-control functional brain connectivity and low BMI in adulthood. *The Obesity Society*. Nashville, TN. November 15, 2018

Shearrer GE. Diet and Cognition: Neuro-correlates of reward learning. *Ninth annual thematic meeting on addictions*. Dartmouth, Hanover, NH. September 26, 2018

Shearrer GE, Sadler JR, Nansel T, Lipsky L, Burger KS. The impact of body mass on neural responses during negative prediction error. *Society for the Scientific Study of Ingestive Behavior: New Investigator Travel Award Symposium*. Bonita Springs, FL, July 11, 2018

Shearrer GE, Stice E, Sadler JR, Burger KS. Adolescents at high-risk for obesity show greater striatal response to increased sugar content in milkshakes. *The Obesity Society: Ethan Sims Finalist Symposium*. Washington DC, November 5, 2017

Shearrer GE, Daniels MJ, Toledo-Corral C, Spruijt-Metz D, Weigensberg MJ, Davis JN. The association between body fat deposition, cortisol response, and sugar sweetened beverage (SSB) intake in a minority youth population. *The Obesity Society* Los Angeles, CA November 5, 2015

Shearrer GE. Nutrition and Cognition *KIN 395: Cognition and exercise across the lifespan.* University of Texas October 29, 2015

Shearrer GE. Sugar Sweetened Beverages: refreshing and distressing
University of Wyoming Neuro-physiology departmental lecture. University of Wyoming October 22, 2015

Shearrer GE. Nutrition and Cognition *KIN 395: Cognition and exercise across the lifespan* University of Texas November 11, 2014

On Going Research Support

NICHD HHSN275201800002I PI: Burger 6/18-5/23
Development of Eating Behaviors in Young Children
A longitudinal examination of food reward sensitivity, attentional bias and eating habit formation in children from age 2 to age 5.
Role: **Co-PI** (Total: $3,197,861)

R01 DK112317 PI: Burger 9/17-6/22
Neurobehavioral Plasticity to Regular Sugar-Sweetened Beverage Intake: An fMRI Experiment
This randomized controlled fMRI study examines whether daily sugar sweetened beverage intake alters responsivity of oral somatosensory, gustatory, and reward brain regions, and reduces responsivity of inhibitory regions to anticipated receipt, and receipt of palatable food.
Role: PDC

American Diabetes Association 1-17-JDF-031 PI: Burger 1/17-1/20
A multimodel examination of bromocriptine on homeostatic and hedonic mechanisms of food intake in individuals at high risk for type 2 diabetes.
This cross-over trial examines the effect of the type 2 diabetes drug bromocriptine on reward learning, ad libitum intake of palatable food, and gut endocrinology in overweight and obese adults.
Role: PDC

Completed Research Support

UNC Core Facilities Advocacy Committee Award PI: **Shearrer** 05/18
Biomedical Research Imaging Center Eyetracker
This is a one-time award to purchase a piece of specialty equipment for use by a core. Dr. Shearrer spearheaded the effort.
Role: **PI** ($40,000)

NICHD HHSN275201300015C PI: Burger, Siega-Riz 10/13-10/18
Diet, Obesity and Weight Change in Pregnancy
This prospective study examines the role of food reward responsivity and food reinforcement value in dietary intake, and weight change during pregnancy through 1 year postpartum. It aims to study the moderating effects of genetic variants, food environment on weight change in mothers and introduction of foods into the infant's diet.
Role: PDC

1R21DK098719-01A1, NIDDK PI: Davis 04/14-04/16
Sugar Sweetened Beverages: Impact on Reward, Satiety, and Metabolism in Children
This is a cross sectional study of 50 overweight and obese Hispanic children. Looking at the influence of sugar sweetened beverage on satiety hormones and neural reward systems.
Role: GR

Products of Engaged Scholarship

BrainBits iOS (iPad/iPhone) application designed to test for behavioral inhibition via a tailored stop signal task. The output was optimized to calculate the results and provide raw data in an efficient format. Available for free at the Apple App store.
BIDS converter application: A self-contained application to convert DICOMS (raw fMRI data) to the preferred and standard functional neuroimaging data structure; 'Brain Imaging Data Structure; BIDS'. Available for free here: https://github.com/NikkiBytes/BIDS-application

Continuing Education and Workshops

2017 Neurohack Week
University of Washington
2017 Nypipe Workshop and Hackathon
Massachusetts Institute of Technology
2016 Interdisciplinary computational neuroscience
National Institute of Health BRAIN initiative, University of Missouri
2016 Introduction to Power Analysis
Summer Statistics Institute, University of Texas at Austin

2016 Introduction to Computer Programming for Scientists
Center for Computational Biology and Bioinformatics, University of Texas at Austin
2015 Bacteria Genomics
Center for Computational Biology and Bioinformatics, University of Texas at Austin
2014 Introduction to Biological Computing Course
Center for Computational Biology and Bioinformatics, University of Texas at Austin
2014 Introduction to Grant Writing
Summer Statistics Institute, University of Texas at Austin

Ad Hoc manuscript reviewer

International Journal of Molecular Sciences
Journal of Magnetic Resonance Imaging
NeuroImage
Nutrients

Research Statement

Eating behavior is a delicate balance between homeostatic feeding mechanisms encouraging us to stay alive, and hedonic consumption encouraging us to stay alive and well. Dysregulation of either hedonic or homeostatic feeding mechanisms results in pathologies such as metabolic syndrome, obesity, and type 2 diabetes. **My program of work focuses on the interplay between hedonic and homeostatic feeding mechanisms, focusing on endocrinology and cognition**. As such my research requires a multidisciplinary approach. Therefore, my work frequently draws concepts from psychology, cognitive neuroscience, computer science, and data science to elucidate the relationship between the brain, behavior, endocrinology, and diet. For the last decade, I have assessed self-report (dietary recalls, visual analogue scales), neuroimaging (functional magnetic resonance imaging), physiological correlates (appetitive hormones, insulin, cortisol), and behavioral measures (ad libitum intake) to understand how the brain, body, and food itself impact ingestive behavior and subsequently obesity and type 2 diabetes. Importantly, my work focuses on underrepresented populations at high risk for type 2 diabetes, such as children, adolescents, and mothers. My work follows three themes: 1) alterations in the dopaminergic reward learning system; 2) critical time periods in growth and development as naturalistic models of insulin resistance (pregnancy, puberty); 3) finding early life risk factors for the development of type 2 diabetes and obesity. Further, I am a proponent for advancing analytic techniques from neuroscience and computer science to advance nutrition research. This includes creating adaptive paradigms for nutrition neuroimaging, developing open source applications for data analysis and acquisition, and accessible applications to share my research with the public.