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grace.shearrer@gmail.com | Assistant Professor | Adolescent Behavior and Nutrition

Personal details

grace.shearrer@gmail.com
gshearre@uwyo.edu

303-332-6334 (Cell)

Website: <https://www.m2aenad.app/>

Current Professional Experience

- ❖ 2021-present - Assistant Professor
 - *Department of Family and Consumer Science, Concentration Human Nutrition and Food*
 - College of Agriculture, Life Sciences and Natural Resources
 - The University of Wyoming
 - *Neuroscience Intercollegiate Graduate Program*
 - The University of Wyoming
 - *Founding Adjunct Faculty*
 - School of Computing
 - The University of Wyoming
 - *Adjunct Faculty, Gender and Women's Studies*
 - College of Arts and Sciences
 - The University of Wyoming
 - *Founder and Director of the Maternal to Adolescent Eating, Nutrition, And Development (M2AENAD) Lab*

Career summary

Adolescent Behavior and Nutrition | PhD in Nutrition | Researcher, Mentor, Teacher

Dating back nearly a decade, **my research portfolio has focused on how non-physiological systems - brain based hedonic behaviors - alter the physiological motivation to eat and weight regulation homeostasis before obesity onset.** Over my career, I have shown sugar sweetened beverage intake is a reciprocal risk factor for excess weight gain through increased hedonic brain activity, decreased endocrine regulation, and decreased satiety. In adolescents, pubertal development appears to accelerate hedonic brain response to a reward, and subsequently shifts from the reward receipt to the cue predicting the reward. I am currently developing a model to test how pubertal development increases reward-related behaviors using non-invasive eye tracking. I hypothesize that insulin resistance during puberty is the underlying accelerating factor. My work has been recognized at the national Obesity Society meeting and international Society for the Study of Ingestive Behavior meeting.

Education

- ❖ 2012-2016 - Doctorate in Philosophy
 - The University of Texas at Austin *Department of Nutritional Sciences*
 - **Dissertation: The associations between sugar sweetened beverage intake, satiety, and metabolic health in minority youth**

- ❖ 2007-2012 - Bachelor of Science in Family and Consumer Sciences
 - The University of Wyoming
 - **Majors: Human Nutrition and Food - Pre-Medicine Career Track and Human Physiology**

Academic professional experience

- ❖ 2019-2020 - Research Assistant Professor
 - The University of North Carolina at Chapel Hill *Department of Nutrition*
 - The University of North Carolina at Chapel Hill *Biomedical Research Imaging Center*
- ❖ 2016-2019 - Post Doctoral Fellow
 - The University of North Carolina at Chapel Hill *Center for Women's Health Research*
 - Neuropsychology of Ingestive Behavior Laboratory
- ❖ 2017 - Co-Director UNC fMRI Analysis Workshop
 - University of North Carolina at Chapel Hill
 - Funded in collaboration with Laura and John Arnold Foundation
- ❖ 2013 - 2016 - Magnetic Resonance Imaging Technician
 - The University of Texas at Austin Imaging Research Center

Teaching Experience

- ❖ The University of Wyoming
 - FCSC 2141 - Nutrition Controversies
 - Fall 2021, 2022
 - Instructor
 - FCSC 4210 - Therapeutic Nutrition I: Assessment
 - Fall 2021, 2022, 2023
 - Instructor
 - FCSC 3145 - Sports Nutrition and Metabolism
 - Spring 2021, 2022
 - Instructor
 - FCSC 4147 - Nutrition and Weight Control
 - Spring 2021, 2022, 2023, 2024
 - Instructor
- ❖ The University of Washington School of Medicine
 - WWAMI - Energetics and homeostasis Laramie
 - Spring 2021, 2022
 - Fall 2022
 - Guest Lecturer
- ❖ The University of North Carolina at Chapel Hill
 - NUTR 600 - Human Metabolism: Macronutrients
 - Fall 2020
 - Guest Lecturer
 - NUTR 812 - Obesity: Cell to Society
 - Spring 2020
 - Co-Lecturer
 - PSYC 831 - Statistical Methods in Psychology

- Spring 2020
- Guest Lecturer
- NUTR 885 - Doctoral Seminar
 - Fall 2019
 - Co-Lecturer
- NUTR 691H - Honors Research in Nutrition
 - Mentor
 - Spring 2019 - present
- NUTR 600 - Human Metabolism: Macronutrients
 - Fall 2019
 - Guest Lecturer
- NUTR 240 - Introduction to Human Nutrition
 - Spring 2019
 - Guest Lecturer
- ❖ The University of Texas at Austin
 - KIN 395: Cognition and exercise across the lifespan
 - Fall 2015
 - Guest Lecturer
 - NTR 365: Obesity and Metabolic Health
 - Spring 2013, 2014
 - Teaching assistant
 - KIN 395: Cognition and exercise across the lifespan
 - Fall 2014
 - Guest Lecturer
 - NTR 218: Assessment of Nutritional Status
 - Fall 2014
 - Teaching assistant
 - NTR 316: Culture and Food
 - Fall 2013
 - Teaching assistant
 - NTR 365: Vitamins and Minerals
 - Fall 2012
 - Teaching assistant
- ❖ The University of Wyoming
 - CHEM 2420 - Organic Chemistry I
 - Fall 2009, 2010
 - Laboratory instructor
 - CHEM 2440 - Organic Chemistry II
 - Spring 2010, 2011
 - Laboratory instructor
 - ZOO 3115 - Human Systems and Physiology
 - Fall 2011
 - Teaching assistant
 - ZOO 4125 - Integrative Physiology
 - Spring 2012
 - Teaching assistant

Invited speaking appearances

- Beyond Anorexia: Rethinking Eating Disorders
 - Olivia Caldwell Foundation
 - June 15, 2023
- Beyond Anorexia: Rethinking Eating Disorders
 - Project ECHO. Online
 - April 26, 2023
- Healthy Honey: Understanding how honey is different from other sugars
 - UW Extension - Put some sparkle in your spring event. Casper, WY
 - April 22, 2023
- Beyond Anorexia: Rethinking Eating Disorders
 - Casper College Wellness Conference. Casper, WY
 - March 31, 2023
- Sparkling Spring Refresher: Using edible flowers and herbs in agua frescas and tea concentrates
 - UW Extension - Put some sparkle in your spring event. Casper, WY
 - April 2, 2022
- Feeding the developing mind and body.
 - University of Wyoming Neuroscience Seminar. Laramie, WY
 - September 2, 2021
- Diet and Cognition: Neural-correlates of reward learning.
 - Ninth annual thematic meeting on addictions. Dartmouth, Hanover, NH.
 - September 26, 2018
- Sugar Sweetened Beverages: refreshing and distressing.
 - University of Wyoming Neuro-physiology departmental lecture. Laramie, WY
 - October 22, 2015

Major research interests

Established research interests

1. **Sugar intake on metabolic, endocrine, and neural pathways in adolescents**

Increased autonomy, rapid growth, and high availability of sugary foods highlight adolescence. With a combination of secondary data analysis from across the US, I have found that increased sugar intake is associated with increased visceral adiposity, higher cortisol awakening response, increased feelings of hunger, and decreased gut hormones ghrelin and PYY. In adolescents at high risk for weight gain by virtue of parental overweight or obese status, I found increased BOLD response in reward and gustatory regions compared to those at low risk to a high sugar beverage. Furthermore, those adolescents who were at high risk gained more weight at a 3 y follow up compared to the low risk group. In a slightly older group of college students, a high sugar meal (compared to fasted) was associated with increased connectivity between the oral somatosensory cortex and dorsolateral prefrontal cortex (dlPFC, drive/attention/motivation). Overall, this suggests the brain increases communication between sensory regions and stimuli control regions with sugar intake. This may result in increased motivation to consume

more sugar. Overall, intake of sugar appears to promote further sugar intake and is related to unfavorable hormonal and metabolic profiles. Familial risk for obesity is associated with increased neural response to high sugar beverages associated with increased weight gain, possibly putting the children of parents with high BMI at risk for overconsumption of sugar foods. I am currently studying the effect of bromocriptine on dopaminergic brain signaling and insulin status. Data will be complete in winter, 2020.

2. Pregnancy and the postpartum period as critical stages for insulin resistance for in mother and child

My work has shown that diet and gestational diabetes (GDM) affect both mother and child. Children who were breastfed, even if the mother had GDM, were less likely to be obese at age 4 compared to children who were not breastfed. This is particularly impactful as children of mothers with GDM are more likely to be overweight or obese, however breastfeeding appears to be protective. In the mothers, intake of sugar (in particular sugar sweetened beverages) appears to increase risk of weight retention in the postpartum period. Finally, in the first study of its kind, I found that postpartum weight does not present the same BOLD response to milkshake flavor as traditional weight gain from overeating. This suggests that postpartum weight may operate differently from traditional weight gain, and may require novel interventions. I am currently a Co-I on the follow up to the Pregnancy, Eating, and Attitudes study (PEAS), SPROUTS. This contract with NICHD is following the children of the PEAS cohort over the years 3-5 years to examine how eating behaviors develop and the effect of early life environment. Data from this study will provide important insight into how eating behaviors develop and how this influences weight gain.

Preliminary and future research interests

3. The relationship between puberty, insulin resistance, and the brain

Using the Human Connectome Project (HCP) dataset, I have found that the OFC, dlPFC, and precuneus are sensitive to both changes in glycemic control and pubertal status. These are brain regions associated with insulin resistance, the primary taste cortex, and decision making. Using the Adolescent Brain and Cognitive Development (ABCD) dataset, I found that caudate response to the anticipation of a reward compared to the receipt of a reward was associated with central obesity (high deposition of VAT) and pubertal development. In an additional non-imaging dataset, using data driven methods, testosterone levels, weight, and waist circumference explained most of the variation in self-reported pubertal status (pubertal development scale) in girls, whereas in boys self-reported voice change explained the most variation. Thus, testosterone, waist circumference, weight status, and voice change should be measured to validate self-reported pubertal status.

Ongoing Research Support

❖ R01 RA-20-185

- Submission date: 06/22
- PI: Burger (\$3,599,099)
- Relation of individual differences in fMRI-Assessed Satiating Signaling to Obesity Risk and Future Weight Gain

- The proposed study will test whether youth at risk for obesity show weaker satiety signaling while consuming a meal, whether participants with weaker satiety signaling will show elevated future weight gain, and whether excess weight gain results in an attenuation in satiation signaling.
- **Role: Co-I**
- ❖ INBRE Phase 4 Thematic Research Award
 - Submission date 11/22
 - **PI: Shearrer (\$175,000)**
 - Growth, Insulin Resistance, and Reinforcement Learning (GIRRL) Study
 - A longitudinal study to assess the relationship between pubertal insulin resistance and reinforcement learning using eye tracking and probabilistic reinforcement learning.
- ❖ American Diabetes Association Junior Faculty Award
 - Submission date: 08/29/22
 - **PI: Shearrer (\$414,000)**
 - Mobile regulation of craving training (mROC-T) to improve dietary intake in rural adolescent girls
 - A longitudinal study to assess the efficacy of a mobile phone based cognitive behavior intervention to improve dietary intake and prevent insulin resistance.
- ❖ USDA Conference grant
 - Submission date: 08/22
 - PI: Lindsay
 - Western Region Mental Health and Nutrition Network conference
 - A conference to connect mental health and nutrition experts around the western US.
 - **Role: Co-I** (\$50,000)
- ❖ NICHD HHSN275201800002I
 - PI: Burger
 - 6/18-5/23 **Special note: This has been extended due to COVID-19*
 - 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-I** (Total: \$3,197,861)

Completed Research Support

- ❖ UNC Nutrition Obesity Research Core Pilot and Feasibility Grant
 - **PI: Shearrer (Total: \$39,000)**
 - 4/20-4/21 **Special note: This was given back to the UNC NORC after taking position at the University of Wyoming*
 - The impact of attentional bias and network brain connectivity during food advertisements exposure on eating in the absence of hunger
 - Eating in the absence of hunger paradigm with functional MRI and eye tracking to assess the effect of food compared to toy advertisements on snacking in children 7-9 y.
- ❖ NICHD LRP Program for Clinical Research- Extramural
 - PI: **Shearrer (Total: \$9,910)**
 - 7/17-6/19

- Neurobehavioral Correlates of Gestational Weight Retention
- The motivation of this study is to examine the existing known relationship between food responsivity/impulsivity and sensitivity to negative prediction error and their abilities to predict weight gain in the postpartum period, with the ultimate goal to discover brain-behavior based risk factors for overeating and weight retention.
- ❖ UNC Core Facilities Advocacy Committee Award
 - **PI: Shearrer (\$40,000)**
 - 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.

Not funded proposals

- ❖ NIDDK R03
 - Submission date: 06/22
 - PI: Shapiro (Potential: \$224,740)
 - The brain body connection study 2 – reproducibility and metabolic correlates
 - A pilot investigation to replicate previous work showing synchronicity between pancreatic insulin secretion and hypothalamic blood oxygen level dependent (BOLD) response
 - **Role: Co-I**
- ❖ OASH: Office on Women's health Addressing eating disorders in adolescent girls and the COVID-19 pandemic
 - Submission: 07/22
 - PI: DeDiego (Potential: \$500,000)
 - Building a Network of Knowledge for Rural and Frontier Communities: Piloting Telehealth Approaches to Education, Detection, and Evidence-Based Treatment for Eating Disorders
 - Increase knowledge of how to treat and diagnose eating disorders and increasing availability of eating disorder screening and treatment around Wyoming.
 - **Role: Co-I**
- ❖ Wyoming NASA Space Grant Consortium: Faculty research initiation grant proposal
 - Submission date: 02/2021
 - Role: PI (\$20,000)
 - From the sea to space: preventing circadian disruption and bone loss with omega-3s and fiber
 - A preclinical model to investigate the use of fiber and omega-3 fatty acid supplementation to decrease bone loss and circadian disruption in low gravity.
- ❖ National Institute of Food and Agriculture (NIFA) Children, Youth and Families at Risk (CYFAR) Sustainable Community Project (SCP) Grant Program
 - Submission date: 01/2021
 - **Role: PI (Potential \$500,000)**
 - Developing a community-based afterschool program to improve diet and mental health quality in children

- An afterschool program for disadvantaged children ages (11-13y) to learn nutrition/cooking and mental health first aid through STEM education.
- ❖ Mountain West Clinical Translational Research Infrastructure Network Pilot
 - Submission date: 11/19/21
 - **Role: PI (Potential: \$60,000)**
 - Mobile regulation of craving training (mROC-T) to improve dietary intake in rural adolescent girls
 - A longitudinal study to assess the efficacy of a mobile phone based cognitive behavior intervention to improve dietary intake and prevent insulin resistance.

Extension Activities

- ❖ HATCH WDC55
 - **Role: Member**
 - 10/2021 to 09/2023
 - Western Regional Mental Health Network
 - The long term goal of this project is to develop a theory of change to explicate connections between diet quality, food access, and mental health. Ultimately we aim to identify prevention and intervention programs to improve mental health and diet quality.
- ❖ HATCH Multistate W4003
 - **Role: Head WY** (Total: \$7000)
 - 10/21-09/22
 - Parental practices supporting positive eating behaviors in adolescents
 - The long term goal of this project is to identify parental (parenting style and weight) risk factors for excess weight gain over one year in pubertal girls to develop targeted obesity intervention and prevention for both girls and their parents.

Published Manuscripts

1. **Shearrer GE**. The Interaction of Glycemia with Anxiety and Depression Is Related to Altered Cerebellar and Cerebral Functional Correlations. *Brain Sci.* 2023 Jul 18;13(7):1086.
2. Herzl E, Schmitt EE, **Shearrer GE**, Keith JF. The Effects of a Western Diet vs. a High-Fiber Unprocessed Diet on Health Outcomes in Mice Offspring. *Nutrients.* 2023 Jun 24;15(13):2858.
3. Papantoni A, **Shearrer GE**, Sadler JR, Stice E, Burger KS. Longitudinal Associations Between Taste Sensitivity, Taste Liking, Dietary Intake and BMI in Adolescents. *Front Psychol.* 2021;12:389.
4. Lipsky LM, Burger KS, Faith MS, Siega-Riz AM, Liu A, **Shearrer GE**, et al. Pregnant Women Consume a Similar Proportion of Highly vs Minimally Processed Foods in the Absence of Hunger, Leading to Large Differences in Energy Intake. *J Acad Nutr Diet.* 2021 Mar 1;121(3):446–57.
5. Lipsky LM, Burger KS, Faith MS, **Shearrer GE**, Nansel TR. Eating in the Absence of Hunger Is Related to Worse Diet Quality throughout Pregnancy. *J Acad Nutr Diet.* 2021 Mar 1;121(3):501–6.

6. Sadler JR, **Shearrer GE**, Papantoni A, Yokum ST, Stice E, Burger KS. Correlates of neural adaptation to food cues and taste: the role of obesity risk factors. *Soc Cogn Affect Neurosci* [Internet]. 2021 Mar 3 [cited 2021 Aug 27];(nsab018). Available from: <https://doi.org/10.1093/scan/nsab018>
7. Schwedhelm C, Lipsky LM, **Shearrer GE**, Betts GM, Liu A, Iqbal K, et al. Using food network analysis to understand meal patterns in pregnant women with high and low diet quality. *Int J Behav Nutr Phys Act*. 2021 Jul 23;18(1):101.
8. **Shearrer GE**, Burger KS, Sadler JR, Papantoni A. Earlier onset of menstruation is related to increased body mass index in adulthood and altered functional correlations between visual, task control, and somatosensory brain networks. 2019 Sep 26 [cited 2020 Jun 9]; Available from: <https://osf.io/djrqq>
9. **Sadler JR**, Shearrer GE, Papantoni A, Gordon-Larsen P, Burger KS. Behavioral and physiological characteristics associated with learning performance on an appetitive probabilistic selection task. *Physiol Behav*. 2020 May 28;112984.
10. Sadler JR, **Shearrer GE**, Acosta NT, Papantoni A, Cohen JR, Small DM, et al. Network organization during probabilistic learning via taste outcomes. *Physiol Behav*. 2020 May 23;112962.
11. Nguyen CT, Luckett DJ, Kahkoska AR, **Shearrer GE**, Spruijt-Metz D, Davis JN, et al. Estimating individualized treatment regimes from crossover designs. *Biometrics*. 2020 Sep;76(3):778–88.
12. Sadler JR, Stice E, **Shearrer GE**, Burger KS. Individual differences in appeal of energy dense foods predicts lower body mass change during adolescence. *Appetite*. 2019 Feb 1;133:184–90.
13. **Shearrer GE**, Nansel TR, Lipsky LM, Sadler JR, Burger KS. The impact of elevated body mass on brain responses during appetitive prediction error in postpartum women. *Physiol Behav*. 2019 Jul 1;206:243–51.
14. Sadler JR, **Shearrer GE**, Burger KS. Alterations in ventral attention network connectivity in individuals with prediabetes. *Nutr Neurosci*. 2019 Apr 28;1–8.
15. Masterson T, Bobak C, Rapuano K, **Shearrer GE**, Gilbert-Diamond D. Association between regional brain volumes and BMI z-score change over one year in children. 2019 Apr 3 [cited 2019 Aug 24]; Available from: <https://osf.io/c5nk4>
16. House BT, **Shearrer GE**, Boisseau JB, Bray MS, Davis JN. Decreased eating frequency linked to increased visceral adipose tissue, body fat, and BMI in Hispanic college freshmen. *BMC Nutr*. 2018 Mar 6;4:10.
17. Sadler JR, **Shearrer GE**, Burger KS. Body mass variability is represented by distinct functional connectivity patterns. *Neuroimage*. 2018 Nov 1;181:55–63.
18. **Shearrer GE**, Stice E, Burger KS. Adolescents at high risk of obesity show greater striatal response to increased sugar content in milkshakes. *Am J Clin Nutr*. 2018 Jun 1;107(6):859–66.
19. Davis JN, **Shearrer GE**, Tao W, Hurston SR, Gunderson EP. Dietary variables associated with substantial postpartum weight retention at 1-year among women with GDM pregnancy. *BMC Obes*. 2017 Aug 3;4:31.
20. **Shearrer GE**, Daniels MJ, Toledo-Corral CM, Weigensberg MJ, Spruijt-Metz D, Davis JN. Associations among sugar sweetened beverage intake, visceral fat, and cortisol awakening response in minority youth. *Physiol Behav*. 2016 Dec 1;167:188–93.
21. **Shearrer GE**, House BT, Gallas MC, Luci JJ, Davis JN. Fat imaging via magnetic resonance imaging (MRI) in young children (ages 1-4 years) without sedation. *Plos One*. 2016 Feb 22;11(2):e0149744.

22. Miller SJ, Batra AK, **Shearrer GE**, House BT, Cook LT, Pont SJ, et al. Dietary fibre linked to decreased inflammation in overweight minority youth. *Pediatr Obes*. 2016 Feb;11(1):33–9.
23. **Shearrer GE**, O'Reilly GA, Belcher BR, Daniels MJ, Goran MI, Spruijt-Metz D, et al. The impact of sugar sweetened beverage intake on hunger and satiety in minority adolescents. *Appetite*. 2016 Feb 1;97:43–8.
24. Burger KS, **Shearrer GE**, Sanders AJ. Brain-based etiology of weight regulation. *Curr Diab Rep*. 2015 Nov;15(11):100.
25. **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. *Pediatr Obes*. 2015 Jun;10(3):165–71.
26. House BT, **Shearrer GE**, Miller SJ, Pasch KE, Goran MI, Davis JN. Increased eating frequency linked to decreased obesity and improved metabolic outcomes. *Int J Obes*. 2015 Jan;39(1):136–41.
27. Davis JN, Koleilat M, **Shearrer GE**, Whaley SE. Association of infant feeding and dietary intake on obesity prevalence in low-income toddlers. *Obesity*. 2014 Apr;22(4):1103–11.

Google Scholar Profile

https://scholar.google.com/citations?user=34Ges_MAAAAJ&hl=en

PubMed Bibliography

https://pubmed.ncbi.nlm.nih.gov/?sort=pubdate&size=100&term=Shearrer+GE&cauthor_id=32473929

Manuscripts under review

1. *Ghasem Pour S, Mansoor R, Lipsky LM, Faith MS, Siega-Riz AM, Nansel TR, Burger KS, **Shearrer GE**. Assessing stress and eating competency in mothers during pregnancy and at six months postpartum. *BMC Pregnancy and Childbirth*

* Denotes first author is a mentee

Manuscripts in progress and/or preprints

Book Chapters

1. Burger KS, **Shearrer GE**, Gilbert JR. (2020) *Chapter 7: Human Neurobiological Approaches to Hedonically Motivated Behaviors*. The Cambridge Handbook of Substance and Behavioral Addictions. Cambridge University Press, ahead of print
2. 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.

Open science pre-registrations

1. **Shearrer, G.E.** (2020, May 12). ABCD testosterone MID and puberty. Retrieved from 10.17605/OSF.IO/S4YK3

2. **Shearrer, G. E.** (2019, October 2). The effect of attentional bias and network connectivity to food advertisements on eating in the absence of hunger. Retrieved from 10.17605/OSF.IO/XV6YK
3. Burger, K. S., Sadler, J. R., & **Shearrer, G. E.** (2019, April 4). Multivariate decoding derived atlas of gustatory processing. Retrieved from osf.io/yst62
4. **Shearrer, G. E.** (2019, March 13). Comparison of neural topology between pubertal and weight status. Retrieved from osf.io/5bjft
5. **Shearrer, G. E.** (2018, June 13). Association between onset of menses and BOLD response to a palatable taste and food images. Retrieved from osf.io/gcw7m
6. **Shearrer, G. E.** (2018, June 13). K means Puberty analysis with ABCD data (aka the alphabet). Retrieved from osf.io/4yfq7
7. Sadler, J. R., **Shearrer, G. E.**, & Burger, K. S. (2017, March 28). Analysis. Retrieved from osf.io/g5v6r
8. **Shearrer, G. E.**, & Burger, K. S. (2017, February 2). A comparison of neural connectivity between obese, overweight, and normal weight adults. Retrieved from osf.io/z5vdd

Center for open science: Open Science Framework Profile

osf.io/3s75z

Products of scholarly engagement

1. **ROC-Teens!**: An android application implementation of the regulation of craving training. This was funded through the American Diabetes Association. Web based version here: <https://thunkable.site/w/dOV4Ra0fv>
2. **HEIR (R)**: A self-contained application to convert diet data from NDSR into a standard format with the Healthy Eating Index. In preparation for submission to CRAN. Available for free here: https://github.com/grace-shearrer/SPROUTS_EF
3. **BrainBits iOS (iPad/iPhone)**: application designed to test for behavioral inhibition via 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.
4. **BIDS converter application (python)**: 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>
5. **Probabilistic taste task (python)**: A program developed in python for the PsychoPy ecosystem. This task is an adaptation of a traditional probabilistic learning task, however the reward and punishment are task based. Available for free here: https://github.com/jennysadler/bevel_task
6. **Human connectome project graph explorer (R shiny app)**: An interactive, web based application allows users to explore a variety of graph metrics in relation to BMI status in the Human Connectome Project. This is primarily used as a teaching tool for those interested in topological metrics. Available for free here: <https://q-racer.shinyapps.io/app1/>

Honors and awards

- ❖ 2023 - Mortar Board "Top Prof"
- ❖ 2021 - Academic Management Institute cohort member

- ❖ 2018 - Society for Ingestive Behavior New Investigator Travel Award Winner
- ❖ 2017 - The Obesity Society Ethan Sims Young Investigator Finalist
- ❖ 2017 - Neurohack Week Travel Award Winner
- ❖ 2016 - National Institute of Health BRAIN Initiative Summer Course on Interdisciplinary Computational Neuroscience
- ❖ 2016 - University of Texas at Austin Graduate School Summer Fellowship
- ❖ 2016 - Karen and Charles Matthews Endowed Presidential Fellowship in Nutrition
- ❖ 2012 - University of Wyoming INBRE Undergraduate Research Fellowship
- ❖ 2011 - University of Wyoming EPSCOR Undergraduate Research Fellowship

Conference orals

** Mentee

1. **Shearrer GE**, Akhmadjonova M, Papantoni A, Burger KS. Bromocriptine increases intersubject connectivity in brain areas related to taste and self-control. *Society for the Study of Ingestive Behavior*. Portland, OR. 2023
2. **Akhmadjonova M, Ghasem Pour S, Christy SM, Lipsky L, Faith M, Nansel T, Burger KS, **Shearrer GE**. Interaction of home food environment and ability to delay reward on dopamine 1 receptor signaling. *The Obesity Society Meeting*. San Diego, CA October, 2022
3. **Shearrer GE**, Sadler JR, Papantoni A, Burger KS. Central Obesity and Puberty Associated with Caudate Response During Anticipation but not Reward. *The Obesity Society*. Online. November 4, 2020.
4. **Shearrer GE**, Sadler JR, Burger KS. Altered brain modularity across body mass index and pubertal status in adolescents. *Society for the Study of Ingestive Behavior*. Utrecht, Netherlands. July 10, 2019
5. **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
6. **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
7. **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
8. **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

Mentoring

- ❖ Graduate students
 - Afroditi Papantoni, University of North Carolina Chapel Hill
 - 2022 - Current
 - Role: Committee Member
 - Muzayyana Akhmadjonova, University of Wyoming PhD in Neuroscience

- 2022- Current
- Role: **Mentor**
- Sara Ghasempour, University of Wyoming Master of Human Nutrition and Food Program
 - 2022 - Current
 - Role: **Mentor**
- Elianna Paninos, University of Wyoming Master of Human Nutrition and Food Program
 - 2022 - Current
 - Role: Committee Member
- Georgia Kirkpatrick, University of Wyoming PhD in Neuroscience
 - 2022- 2023
 - Role: Committee Member
- Mackenzie Amrine, University of Wyoming Master of Kinesiology and Health
 - 2022- 2023
 - Role: Committee Member
- Elizabeth Hertzl, University of Wyoming Master of Human Nutrition and Food Program
 - 2021-2022
 - Role: Committee Member
- Julia Baker, University of North Carolina Masters of Public Health Program Thesis
 - 2020
 - Role: **Thesis mentor**
- ❖ Undergraduate students
 - Haley Harris, University of Wyoming McNair Scholar
 - 2022-2023
 - Role: **Mentor**
 - Ryesa Mansoor, University of North Carolina BSPH Honors Thesis
 - 2019-2020
 - Role: **Mentor**
 - Lia Bauert, University of North Carolina BSPH Honors Thesis
 - 2018-2019
 - Role: **Mentor**
 - Lily Jones, University of North Carolina BSPH Honors Thesis
 - 2017-2018
 - Role: First reader
- ❖ Carolina Assisting in Development and Mentoring an Innovative Research Experience in Science (ADMIREs)
 - High School Mentee (name withheld for privacy of a minor)
 - 2019-2020
 - Role: **Mentor**

Society memberships

- ❖ American Diabetes Association
 - Member since 2022
- ❖ The Obesity Society

- Member since 2012
- Abstract reviewer
- ❖ Society for the Study of Ingestive Behavior
 - Member since 2015
 - Program Committee Member
 - Diversity and Inclusion Committee Member
- ❖ Organization of Human Brain Mapping
 - Member since 2018
 - Open Science Special Interest Group member
- ❖ Center for Open Science Ambassador
 - Member since 2016
 - Open science ambassador

Scholarly engagement

- ❖ University of Wyoming Writing Fellowship, Laramie, Wyoming 2021
- ❖ Organization of Human Brain Mapping hack week, Rome, Italy, 2018
- ❖ Neurohack week, Seattle, Washington, 2017
- ❖ MIT Nipy Hackweek, Boston, Massachusetts, 2016
- ❖ NIH BRAIN Initiative Electrophysiology Course, Columbia, Missouri, 2016
- ❖ University of Texas Summer Statistics Institute, Austin, Texas, 2015
- ❖ Phlebotomy, Southwestern Phlebotomy Training, Austin, Texas, 2013

Conference posters

** Mentee

1. **Shearrer GE**, Akhmadjonova M, Hall L, Rajic B, Tregallas J, Green-Cree M, Nadeau KJ, Shapiro ALB. *The putamen increases influence over a brain network during insulin pulsation: a multilayer temporal network model*. The Obesity Society Meeting October, 2022 San Diego, CA
2. **Ghasem Pour S, Mansoor R, Akhmadjonova M, Faith M, Lipsky L, Nansel T, Burger KS, **Shearrer GE**. *Association of stress on eating competence in mothers during pregnancy and 6 months postpartum*. The Obesity Society Meeting October, 2022 San Diego, CA
3. **Shearrer GE**. *The interaction of mental and physical health: Depression, anxiety, glycemia, body mass index, and functional connectivity*. Society for the Scientific Study of Ingestive Behavior July 09, 2022 Porto, Portugal
4. **Shearrer GE**. *The interaction of mental and physical health: Depression, anxiety, glycemia, body mass index, and functional connectivity*. Front range neuroscience group meeting. December 6, 2021 Fort Collins, CO
5. **Shearrer GE**, Gilbert JR, Burger KS. *Earlier Puberty Predicts Visual/Self-control Functional Brain Correlation and High BMI in Adulthood*. NIH Neuroimaging and Modulation in Obesity and Diabetes Research 10th Anniversary Meeting April 14, 2019 Bethesda, Maryland, USA
6. **Shearrer GE**, Cohen JR, Gilbert JR, Jones LJ, Burger KS. *That's rich: differences in rich club organization across body mass index*. Organization for Human Brain Mapping Meeting June 11, 2019 Rome, Italy

7. **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, CA*
8. **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*
9. **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*
10. **Shearrer GE**, House BT, Luci J, Davis JN. *Feasibility of fat imaging in toddlers*. Experimental Biology April 22, 2013 *Boston, MA*

Departmental Service

- ❖ University of Wyoming
 - Graduate Advisory Board
 - Neuroscience Program
 - 2023 - current
 - Graduate school liaison
 - Department of Family and Consumer Sciences
 - 2022- current
 - UW 2-13 Health Science Committee
 - Role: Member
- ❖ UNC Chapel Hill
 - Diversity and Inclusion Committee
 - Role: Member

Ad hoc journal reviewer

- ❖ Nutrients
- ❖ American Journal of Clinical Nutrition
- ❖ Appetite
- ❖ Pediatric Obesity
- ❖ NeuroImage
- ❖ International Journal of Molecular Sciences
- ❖ Journal of Magnetic Resonance Imaging

Research skills

- ❖ Diet and behavior
 - Multipass 24-hour recalls with NDS-R software
 - Eating in the absence of hunger protocols
- ❖ MR Imaging
 - MRI technician
 - Ability to develop Siemens based imaging protocols
 - Experience in both functional neuroimaging and fat and lean mass imaging
- ❖ fMRI Biostatistics
 - Co-director of UNC fMRI statistics workshop
 - Ability to develop novel fMRI paradigms using python and psychopy

- Ability to develop high level neuroimaging analysis pipelines in FSL
- Competent in analysing neuroimaging data using workbench connect and visualizing using wb_view
- Competent in analysing neuroimaging data using nipy
- ❖ Eye-tracking
 - Has procured 4 SR Research 1000 eyelink research grade eye-trackers
 - Ability to program eye-tracking experiments in SR Research Experiment Builder
- ❖ Phlebotomy
 - Certified through Southwest Phlebotomy
 - 6 years of practice
- ❖ Computer programming
 - Competent in Python
 - Competent in R
 - Proficient in Unix/Linux

References

Collaborators and Mentors

- ❖ Hedy Kober - Mentor
 - hedy.kober@yale.edu
- ❖ Kyle Burger - Postdoc mentor
 - ksburger@email.unc.edu
- ❖ Jaimie Davis - PhD mentor
 - jaimie.davis@austin.utexas.edu
- ❖ Donal Skinner - Undergraduate mentor
 - dcs@ohio.edu
- ❖ Allison Shapiro - Collaborator
 - allison.shapiro@cuanschut.edu
- ❖ Anna Maria Siega-Riz - Collaborator
 - asiegariz@umass.edu
- ❖ Dana Small - Collaborator
 - dana.small@yale.edu

Non-collaborators

- ❖ Jennifer Temple
 - jltemple@buffalo.edu
- ❖ Alain Dagher
 - alain.dagher@mcgill.ca