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**PERSONAL STATEMENT:**

I am an Assistant Professor in the Department of Human Nutrition, Foods, and Exercise and Director of the Embodied Brain Laboratory at Virginia Polytechnic Institute and State University (Virginia Tech). My diverse training in neuroscience, dance, and yoga have led me to develop a research program that focuses on the examination of the interconnection between the body and brain, specifically how mind-body-movement practices impact brain function and physiology.

The two-fold aims of The Embodied Brain Lab are to identify the neural and behavioral mechanisms 1) through which mind-body-movement practices optimize brain health and wellness; and 2) that optimize motivational engagement in physical activity and other health behaviors. The laboratory conducts these examinations in both healthy and clinical human populations as well as preclinical animal models.

To date, my research in both humans and rodents has established a bidirectional relationship between exercise and the brain. Specifically, I discovered that the medial prefrontal cortex and nucleus accumbens regulate the motivation for physical activity. In addition, I have shown that both acute and long-term physical activity improves cognitive functioning and affective state and that increases in brain state synchrony underlie the functional-based improvements with exercise. Further, I have shown that mindfulness-based interventions improve the brain in several ways including enhanced mood state, attention, working memory, and recognition memory, as well as decreased stress responsivity to acute psychosocial stressors. Current research projects focus on 1) the effects of dance on affective state, cognitive functioning, social connectivity, and inter-brain synchrony, and 2) the involvement of hippocampal sharp-wave ripples in the motivation for physical activity.

**EDUCATION:**

**RUTGERS UNIVERSITY, Newark, NJ (September 2007 – November 2012)**

- **Degree:** Doctor of Philosophy, Behavioral and Neural Science
- **GPA:** 3.75
- **Honors:** Presidential Fellowship, Rutgers University: Highest honor awarded to incoming doctoral students
- **Doctoral Thesis:** Investigation of the behavioral processes and neurobiological substrates involved in the motivation for voluntary wheel running in the rat

**MIDDLEBURY COLLEGE, Middlebury, VT (February 2001 – February 2005)**

- **Degree:** Bachelor of Arts
- **Double Major:** Neuroscience / Dance
- **GPA:** 3.75; Magna Cum Laude
- **Honors:** College Scholar; Psychology National Honor Society; 2002 CRC Press Freshman Chemistry Achievement Award; 2000 George Washington University Excellence in Science and Math Award; 2000 Foundation for Educational Opportunity Scholarship; 2000 Haddonfield New Jersey Lions Club Achievement Award
- **Honors Thesis:** The relationship of yoga and smoking to respiratory function and mood

**VIBHUTI YOGA SCHOOL, INC., Newton, NJ (February 2011 – January 2012)**

- **Degree:** Certified Yoga Teacher, 200 Hour
- **Description:** Hatha yoga teacher training at The Breathing Room under Paula Tepedino

## **RESEARCH / WORK EXPERIENCE:**

**Institute for Creativity, Arts & Technology, Virginia Tech, Blacksurg, VA (September 2023 – present)**  
**Fellow**

**Virginia Tech Autism Clinic & Center for Autism Research, Blacksburg, VA (January 2023 – present)**  
**Affiliate Faculty**

**Center for Health Behaviors Research, Fralin Biomedical Research Institute at Virginia Tech, Roanoke, VA (September 2021 – present)**  
**Fellow**

**Department of Human Nutrition, Foods, and Exercise, Virginia Tech, Blacksburg, VA (August 2021 – present)**  
**Assistant Professor**

**School of Neuroscience, Virginia Tech, Blacksburg, VA (April 2020 – present)**  
**Affiliate Faculty**

**Virginia Tech, Blacksburg, VA (August 2019 – present)**  
**Faculty of Health Sciences, Blacksburg, VA**

**Center for Health Behaviors Research, Fralin Biomedical Research Institute at Virginia Tech, Roanoke, VA**  
**Senior Research Associate (August 2018 – August 2021)**

- Investigated the effects of episodic future thinking on health behaviors in a variety of clinical populations including obesity, diabetes, and substance use disorders in the laboratory of Dr. Warren K. Bickel

**Middlebury College, Middlebury, VT**  
**Visiting Assistant Professor in Neuroscience (January 2018 – June 2018)**

**New York University, Center for Neural Science, New York, NY**  
**Postdoctoral Associate / Assistant Research Scientist (December 2012 – December 2017)**

- Investigated the effects of acute and chronic exercise on the human brain using behavioral and electrophysiological techniques in the laboratory of Dr. Wendy A. Suzuki

**Science writer for [www.foreverfitscience.com](http://www.foreverfitscience.com) (December 2014 – December 2017)**

- Wrote articles pertaining to the effects of exercise on the body and brain for this website devoted to health and wellness

**Statistical consultant for Brain Thrive (August 2016 – December 2017)**

- Analyzed large data sets for this start-up business focused on how we can use exercise in our daily lives to influence mood and cognition

**Rutgers University, Center for Molecular and Behavioral Neuroscience, Newark, NJ**  
**Graduate fellow (September 2007 – November 2012)**

- Investigated the motivation for physical activity in a rodent model using behavioral, neurochemical and systems-level approaches in the laboratory of Dr. Joan I. Morrell

**Thomas Jefferson University, Department of Family and Community Medicine, Philadelphia, PA**  
**Clinical Research Specialist (July 2005 – June 2007)**

- Served as the lab manager for Dr. Marjorie E. Marenberg for her work regarding the relationship between vascular disease and mild cognitive impairment (MCI) as well as for the *Alzheimer's Disease Neuroimaging Initiative (ADNI)*

**Counseling Services of Addison County (CSAC), Middlebury, VT**  
**Community Associates Staff Substitute (February 2005 – June 2005)**

- Supervised individuals with developmental disabilities and various mental health issues in group homes and community settings

**Central Nervous System Research Institute (CRI), Clementon, NJ**  
**Research Assistant (June 2000 – January 2001; Summer 2001)**

- Served as the research assistant on a variety of ongoing clinical trials

## **GRANT FUNDING:**

**Renée Fleming Neuroarts Investigator Award (Awarded April 2024)**

Role: Principal Investigator

- DJing and Hip Hop music production as a clinical intervention for individuals with attention deficit hyperactivity disorder

**Whole Health Consortium (Awarded January 2023)**

Role: Principal Investigator

- Stressed out moms - Targeting the body to treat the brain and prevent intergenerational transmission of mental health issues

**4-VA Collaborative Research Grant (Awarded June 2023)**

Role: Principal Investigator

- Building collaborative infrastructure between VT and VCU to improve access to care for rural maternal-child-family health through expansion of community-based mobile research and care

**Institute for Creativity, Arts, and Technology (Awarded April 2023)**

Role: Principal Investigator

- Epiphany machine: Real-time EEG brain scanning for a live dance performance

**Institute for Creativity, Arts, and Technology (Awarded April 2023)**

Role: Co-Investigator

- Carving out creativity: Exploring body-mind connections to scale across boundaries in art

**4-VA Collaborative Research Grant (Awarded March 2023)**

Role: Co-Investigator

- Building collaborative infrastructure between VT and VCU to improve access to care for rural maternal-child-family health through expansion of community-based mobile research and care

**Institute for Society, Culture and Environment at Virginia Tech (Awarded May 2022)**

Role: Principal Investigator

- Decreasing intergenerational trauma through dance: A program for mothers with PTSD and their children

**Integrated Translational Health Research Institute of Virginia (Awarded September 2021)**

Role: Principal Investigator

- Examining the clinical utility of dance to support social skills and behavioral and neural synchrony in individuals with autism spectrum disorder

**Pilot Feasibility for VT/Carillion Collaborations and Health Behaviors Related Studies (Awarded May 2020)**

Role: Principal Investigator

- Encouraging self-care with healthy lifestyle change in obese pregnant women to improve maternal and infant outcomes

**Virginia Tech Pathways Grant (Awarded 2020)**

Role: Co-Principal Investigator

- Funding for *Moving Body, Moving Mind*, a new course developed by me and Professor Scotty Hardwig at Virginia Tech

**Virginia Tech Adaptive Brain and Behavior Professional Development Grant (Awarded October 2019)**

Role: Principal Investigator

- For development of the non-profit organization, Huddle Up Moms

**Virginia Tech Adaptive Brain and Behavior Research Grant (Awarded September 2019)**

Role: Principal Investigator

- Identifying neural mechanisms underlying exercise motivation in normal and sedentary rodents

**Delay Discounting as a Target for Self-Regulation in Prediabetes (09/01/2015 – 06/30/2020)**

4UH3DK109543-04 (MPI: Epstein, Bickel); University at Buffalo (NIH-NIDDKD Flow-thru)

Role: Co-Investigator

- The overall goal of this project is to translate findings on delay discounting to the prevention of Type 2 diabetes.

**A Remotely Delivered Episodic Future Thinking Intervention to Improve Management of Type 2 Diabetes (07/26/2018 – 06/30/2020)**

5R21NR018349-02 (PI: Stein), NIH-NIDA

Role: Co-Investigator

- The overall goal of this project is to use a remotely delivered episodic future thinking intervention to improve treatment adherence and adherence-related outcomes in type 2 diabetes.

## **TEACHING EXPERIENCE:**

***Moving Body, Moving Mind (DANC2104 / HNFE2104), Virginia Tech (Spring 2024)***

***Exercise Physiology (HNFE3804), Virginia Tech (Fall 2023)***

- Guest lecturer

***Translational Science in Human Nutrition, Foods and Exercise (HNFE 5204), Virginia Tech (Fall 2023)***

- Guest lecturer

***Moving Body, Moving Mind (DANC2104 / HNFE2104), Virginia Tech (Fall 2023)***

***Moving Body, Moving Mind (DANC2104 / HNFE2104), Virginia Tech (Spring 2023)***

***Moving Body, Moving Mind (DANC2104 / HNFE2104), Virginia Tech (Fall 2022)***

***Moving Body, Moving Mind (DANC2104 / HNFE2104), Virginia Tech (Spring 2022)***

***Moving Body, Moving Mind (DANC2104 / HNFE2104), Virginia Tech (Fall 2021)***

***Moving Body, Moving Mind (DANC2104 / HNFE2104), Virginia Tech (Spring 2021)***

***Mechanisms of Learning and Memory (NEUR3114), Virginia Tech (Fall 2020)***

- Guest lecturer

***Introduction to Dance Techniques (CINE2024), Virginia Tech (Fall 2020)***

- Guest lecturer

***Exercise Physiology (HNFE3804), Virginia Tech (Fall 2020)***

- Guest lecturer

***Meraki Living-Learning Community, Virginia Tech (Spring 2020)***

- Guest lecturer

***Mechanisms of Learning and Memory (NEUR3114), Virginia Tech (Fall 2019)***

- Guest lecturer

***Exercise Physiology (HNFE3804), Virginia Tech (Fall 2019)***

- Guest lecturer

***Nutrition and Physical Performance (HNFE), Virginia Tech (Spring 2019)***

- Guest lecturer

***Cellular and Molecular Neuroscience (NSCI 0251), Middlebury College (Spring 2018)***

- Taught all lectures and lab sections for this undergraduate course in neuroscience

***How movement affects the mind: the effects of physical activity on brain physiology and function, Middlebury College (January 2018)***

- Developed and taught this course for a January Term session at Middlebury

***Brain and Behavior, New York University (Spring 2017)***

- Taught all lab sections for this undergraduate course in the life sciences

***Exercise and the Brain, Middlebury College (January 2015)***

- Taught this January Term course for Middlebury College hosted at New York University

***Science of Technology, New York University (Fall 2013)***

- Taught a series of lectures for this undergraduate course regarding electrophysiology

***Introduction to Clinical Psychology, Rutgers University (Spring 2012)***

- Served as the teaching assistant for this undergraduate course in clinical psychology

***Neurobiology, Rutgers University (Fall 2011)***

- Served as the teaching assistant for this writing-intensive undergraduate class

### **Critical Thinking, Rutgers University (Spring 2009)**

- Served as the teaching assistant for this graduate course on critical thinking in neuroscience

### **COURSE DEVELOPMENT:**

#### **Moving Body, Moving Mind (DANC2104 / HNFE2104), Virginia Tech**

Course Description: Methods of working intentionally towards cultivating optimal brain states. Mind/body practices to develop connections between contemporary neuroscience, movement, and meditative practices. Studies in the intersection of consciousness, movement, and thought. Introduction to yoga, meditation, authentic movement, experiential anatomy, and somatic work. Emphasis on holistic perspectives of the body through active listening, ethical reasoning, healthy self-image, and attention to the practices of intentional embodiment.

#### **How Movement Affects the Mind: The Effects of Physical Activity on Brain Physiology and Function, Middlebury College**

Course Description: The human brain evolved in an environment where movement was required for survival. Though western culture lends itself to a sedentary lifestyle, research has revealed that physical activity enhances the brain in myriad of ways. In this course, we will examine the effects of physical activity on brain structure, physiology, and function. How does exercise affect our behavior and what are the mechanisms underlying these effects? We will explore these answers from the cellular/molecular to the structural/functional level in both the healthy as well as the disordered brain.

### **INVITED TALKS:**

#### **Science on Tap, Virginia Tech, Blacksburg, VA (July 2023)**

*Moving Minds: Dance and interpersonal synchrony*

#### **Friday Friends, Virginia Tech, Blacksburg, VA (February 2023)**

*Moving of the minds: Dance and inter-brain synchrony*

#### **Women's Health Speaker Series, Virginia Commonwealth University, Richmond, VA (January 2023)**

*Dance on the brain: Enhancing intra- and inter-brain synchrony with a focus on the parent-child dyad*

#### **WICT Leadership Conference, New York, NY (October 2022)**

*Your best self- The neuroscience of leadership: Mind-Body-Movement*

#### **Future Bodies Symposium, Blacksburg, VA (October 2022)**

*Dancing at and around the university: Dance as object and method of research*

#### **Virginia Tech Lifelong Learning Institute, Blacksburg, VA (October 2022)**

*Neurobehaviors related to hedonic hunger and obesity*

#### **iTHRIV Scholars Symposium, Blacksburg, VA (October 2022)**

*Examining the clinical utility of dance to support social skills and behavioral and neural synchrony in individuals with autism spectrum disorder*

#### **Embodied Underground, University of Berkeley, Online (October 2022)**

*Dance on the brain: Enhancing intra- and inter-brain S=synchrony*

#### **Virginia Tech Neurodevelopmental Symposium, Blacksburg, VA (August 2022)**

*The importance of movement in human development*

#### **Virginia Tech Ethics Week, Blacksburg, VA (April 2022)**

*Research ethics in animals and humans*

#### **Dance Science Symposium, University of Massachusetts Amherst, Online (March 2022)**

*Dance on the brain: Enhancing mental health and interpersonal synchrony*

#### **Mid-Atlantic Teaching Artists Virtual Retreat, Online (September 2020)**

*Healing minds, moving bodies: Measuring the mental health effects of online dance classes during the COVID-19 pandemic*

#### **Virginia Tech (December 2019)**

*The behavioral and neural underpinnings of obesity and sedentary behavior*

#### **Middlebury College (April 2018)**

*Rhythms of body, rhythms of brain*

### **North Dakota State University (February 2018)**

*How movement affects mind: The effects of physical activity on brain function and physiology*

### **Virginia Tech (January 2018)**

*How movement affects mind: The effects of physical activity on brain function and physiology*

### **New College of Florida (December 2017)**

*How movement affects mind: The effects of physical activity on brain function and physiology*

### **New York University (April 2016)**

*Examining the effects of long-term exercise on hippocampal functioning; data blitz presented at the Annual Neuroscience Retreat*

### **Learning and Memory Conference, Park City, Utah (January 2016)**

*A single bout of exercise improves prefrontal but not hippocampal functioning; data blitz presentation*

### **Middlebury College (December 2015)**

*Exercise and the brain: a bi-directional relationship*

### **New York University (April 2014)**

*The effects of 8 weeks of aerobic exercise with affirmations on learning, memory, cognition and mood in individuals with traumatic brain injury; data blitz presented at the Annual Neuroscience Retreat*

## **PUBLICATIONS:**

Arndt KC, Gilbert ET, Klaver LMF, Kim J, Buhler CM, **Basso JC**, McKenzie S, English DF. Granular retrosplenial cortex layer 2/3 generates high-frequency oscillations dynamically coupled with hippocampal rhythms across brain states. *Cell Rep.* 2024 Mar 26;43(3):113910. doi: 10.1016/j.celrep.2024.113910. Epub 2024 Mar 8. PMID: 38461414.

**Basso JC**, Satyal MK, McKee KL, Lynn S, Gyamfi D, Bickel WK. Dissociation and other trauma symptomatology are linked to imbalance in the competing neurobehavioral decision systems. *Front Psychol.* 2024 Jan 31;14:1317088. doi: 10.3389/fpsyg.2023.1317088. PMID: 38356995; PMCID: PMC10864435.

Smith AJ, Tasnim N, Psaras Z, Gyamfi D, Makani K, Suzuki WA, **Basso JC**. Assessing Human Spatial Navigation in a Virtual Space and its Sensitivity to Exercise. *J Vis Exp.* 2024 Jan 26;(203). doi: 10.3791/65332. PMID: 38345261.

Kausel L, **Basso JC**, Grinspun N, Alain C. Effects of performing arts training on the brain,(socio) cognitive and motor functions across the lifespan. *Frontiers in Human Neuroscience.* 2023;17.

Buhler CM, **Basso JC**, English DF. Hippocampal sharp wave-ripple dynamics in NREM sleep encode motivation for anticipated physical activity. *bioRxiv.* 2023 Mar 14:2023-03.

Satyal MK, **Basso JC**, Wilding H, Athamneh LN, Bickel WK. Examining neurobehavioral differences that support success in recovery from alcohol and other substance use disorders. *Journal of Substance Use and Addiction Treatment.* 2023 May 1;148:209007.

Lynn S, **Basso JC**. Development and validation of the multidimensional impacts of movement scale (MIMS) for yoga, weightlifting, and running. *Frontiers in Psychology.* 2023 Mar 1;14:1078996.

Lynn S, **Basso JC**. Effects of a Neuroscience-Based Mindfulness Meditation Program on Psychological Health: Pilot Randomized Controlled Trial. *JMIR Formative Research.* 2023 Jan 19;7(1):e40135.

Humphries A, Tasnim N, Rugh R, Patrick M, **Basso JC**. Acutely enhancing affective state and social connection following an online dance intervention during the COVID-19 social isolation crisis. *BMC psychology.* 2023 Dec;11(1):1-2.

Lynn S, Satyal MK, Smith AJ, Tasnim N, Gyamfi D, English DF, Suzuki WA, **Basso JC**. Dispositional mindfulness and its relationship to exercise motivation and experience. *Frontiers in Sports and Active Living.* 2022 Nov 29;4:934657.

**Basso JC**, Oberlin DJ, Satyal MK, O'Brien CE, Crosta C, Psaras Z, Metpally A, Suzuki WA. Examining the Effect of Increased Aerobic Exercise in Moderately Fit Adults on Psychological State and Cognitive Function. *Frontiers in Human Neuroscience.* 2022 Jul 12;16:833149.

Rugh R, Humphries A, Tasnim N, **Basso JC**. Healing minds, moving bodies: measuring the mental health effects of online dance during the COVID-19 pandemic. *Research in Dance Education.* 2022 Jun 9:1-21.

Athamneh LN, Freitas-Lemos R, **Basso JC**, Keith DR, King MJ, Bickel WK. The phenotype of recovery VI: The association between life-history strategies, delay discounting, and maladaptive health and financial behaviors among individuals in recovery from alcohol use disorders. *Alcoholism, Clinical and Experimental Research*. 2022 Jan;46(1):129-140.

**Basso JC**, Satyal MK, Athamneh L, Bickel WK. Changes in temporal discounting, hedonic hunger, and food addiction during recovery from substance misuse. *Appetite*. 2022 Feb 1;169:105834.

Bickel WK, Freitas-Lemos R, Tomlinson DC, Craft WH, Keith DR, Athamneh LN, **Basso JC**, Epstein LH. Temporal discounting as a candidate behavioral marker of obesity. *Neuroscience and Biobehavioral Reviews*. 2021 Oct;129:307-329.

Satyal MK, **Basso JC**, Tegge AN, Metpally AR, Bickel WK. A novel model of obesity prediction: Neurobehaviors as targets for treatment. *Behavioral Neuroscience*. 2021 Jun;135(3):426-442.

Turner JK, Athamneh LN, **Basso JC**, Bickel WK. The phenotype of recovery V: Does delay discounting predict the perceived risk of relapse among individuals in recovery from alcohol and drug use disorders. *Alcoholism, Clinical and Experimental Research*. 2021 May;45(5):1100-1108.

**Basso JC**, Satyal MK, Rugh R. Dance on the brain: enhancing intra-and inter-brain synchrony. *Frontiers in human neuroscience*. 2021:586.

Athamneh LN, Freitas Lemos R, **Basso JC**, Tomlinson DC, Craft WH, Stein MD, Bickel WK. The phenotype of recovery II: The association between delay discounting, self-reported quality of life, and remission status among individuals in recovery from substance use disorders. *Experimental and clinical psychopharmacology*. 2022 Feb;30(1):59.

Bickel WK, Athamneh LN, Snider SE, Craft WH, DeHart WB, Kaplan BA, **Basso JC**. Reinforcer pathology: implications for substance abuse intervention. *Recent advances in research on impulsivity and impulsive behaviors*. 2020:139-62.

Bickel WK, Athamneh LN, **Basso JC**, Mellis AM, DeHart WB, Craft WH, Pope D. Excessive discounting of delayed reinforcers as a trans-disease process: Update on the state of the science. *Current Opinion in Psychology*. 2019 Dec 1;30:59-64.

**Basso JC**, McHale A, Ende V, Oberlin DJ, Suzuki WA. Brief, daily meditation enhances attention, memory, mood, and emotional regulation in non-experienced meditators. *Behavioural brain research*. 2019 Jan 1;356:208-20.

**Basso JC**, Morrell JI. Using wheel availability to shape running behavior of the rat towards improved behavioral and neurobiological outcomes. *Journal of Neuroscience Methods*. 2017 Oct 1;290:13-23.

**Basso JC**, Suzuki WA. The effects of acute exercise on mood, cognition, neurophysiology, and neurochemical pathways: A review. *Brain Plasticity*. 2017 Jan 1;2(2):127-52.

**Basso JC**, Shang A, Elman M, Karmouta R, Suzuki WA. Acute exercise improves prefrontal cortex but not hippocampal function in healthy adults. *Journal of the International Neuropsychological Society*. 2015 Nov;21(10):791-801.

**Basso JC**, Morrell JI. The medial prefrontal cortex and nucleus accumbens mediate the motivation for voluntary wheel running in the rat. *Behavioral neuroscience*. 2015 Aug;129(4):457.

Barrett AM, Goedert KM, **Basso JC**. Prism adaptation for spatial neglect after stroke: translational practice gaps. *Nature Reviews Neurology*. 2012 Oct;8(10):567.

Morrell JI, **Basso JC**, Pereira M. Both high and low doses of cocaine derail normal maternal caregiving—lessons from the laboratory rat. *Frontiers in psychiatry*. 2011 May 30;2:30.

## **PUBLISHED ABSTRACTS:**

Tasnim N, Gyamfi D, Makani K, Lattig KT, Singh N, Rockwell LB, English DF, **Basso JC** (2023, November). Examining the neurological and behavioral effects of musical theater training on people with disabilities. Poster session presented at the annual meeting of the Society for Neuroscience Conference, Washington, DC.

Culligan JRS, Tasnim N, Winter P, Upthegrove T, Sands L, Knapp B, English DF, **Basso JC** (2023, November). Musical approaches to getting in sync: Using music therapy to re-establish interpersonal behavioral and neural synchrony for persons with dementia and their caregivers. Poster session presented at the annual meeting of the Society for Neuroscience Conference, Washington, DC.

Smith A, Buhler C, English DF, **Basso JC** (2023, November). Dynamic coordination of respiration and cortical rhythms in

- innately rewarding exercise. Poster session presented at the annual meeting of the Society for Neuroscience Conference, Washington, DC.
- Gilbert ET, Arndt KC, Kim J, **Basso JC**, McKenzie SA, Buzsaki G, English DF (2023, November). Axo-axonic cell influence on pyramidal cell activity in CA1 sharp-wave ripples. Poster session presented at the annual meeting of the Society for Neuroscience Conference, Washington, DC.
- Arndt KC, Gilbert ET, Klaver LM, Akbar E, Buhler C, **Basso JC**, McKenzie SA, English DF (2023, November). Extracting spikes from the noise brain: quantifying the effects of neuronal dynamics on spike sorting quality. Poster session presented at the annual meeting of the Society for Neuroscience Conference, Washington, DC.
- Buhler C, **Basso JC**, English DF (2023, November). Hippocampal sharp wave-ripple dynamics in NREM sleep encode motivation for anticipated physical activity. Poster session presented at the annual meeting of the Society for Neuroscience Conference, Washington, DC.
- Tasnim N, Smith A, Gyamfi D, Arndt KC, English DF, **Basso JC** (2023, May). Dance on the brain: Examining how dance enhances social skills through behavioral and neural synchrony. Presented at the annual American College of Sports Medicine conference, Denver, CO.
- Basso JC**, Smith A, Tasnim N, Gyamfi D, Arndt KC, English DF (2023, May). Exploring flow state through cognitive assessments and electroencephalography hyperscanning in professional dancers of Memphis Jookin'. Presented at the annual American College of Sports Medicine conference, Denver, CO.
- Pasquerella L, Tasnim N, **Basso JC** (2023, April). Examining the effects of strategic and self-paced sports participation on mental health and cognitive functioning in adolescents. Poster session presented at Children's National Hospital Research, Education and Innovation Week 2023, Washington, DC.
- Buhler C, Smith A, Arndt KC, Gilbert E, **Basso JC**, English DF. (2022, November). Sharp wave-ripple dynamics encode the motivation for physical activity. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Arndt KC, Gilbert E, Klaver LM, Buhler C, **Basso JC**, McKenzie SA, English DF. (2022, November). Circuit dynamics of high frequency oscillations in the granular retrosplenial cortex. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Gilbert E, Klaver LM, Arndt K, Buhler C, **Basso JC**, McKenzie SA, English DF. (2022, November). CA1 pyramidal neurons control the participation of axo-axonic interneurons in sharp wave-ripples. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- English DF, Klaver LM, Akbar E, Arndt KC, Gilbert E, Buhler C, **Basso JC**. (2022, November). Non-stationarity in neuronal dynamics and behavior produce predictable errors in spike sorting. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Smith A, Tasnim N, Gyamfi D, English DF, **Basso JC**. (2022, November). Dance on the brain: examining the ability for dance to enhance social skills through modifications in behavioral and neural synchrony. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Tasnim N, Smith A, Gyamfi D, English DF, **Basso JC** (2022, November). Flow state in dance: An exploratory analysis of psychological state and electroencephalography hyperscanning with members of Memphis Jookin': The Show. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Tasnim N, Smith A, Rugh R, Gyamfi D, **Basso JC** (2022, October). Memphis Jookin' and flow state in dance. Talk presented at the annual meeting of the National Dance Education Organization Conference, Atlanta, GA.
- Melese L, **Basso JC**, Bickel WK (2022, July). Delay discounting as a target for self-regulation in prediabetes. Poster presented at the VT Annual Summer Research Symposium, Blacksburg, VA.
- Melese L, **Basso JC**, Bickel WK (2022, July). Delay discounting as a target for self-regulation in prediabetes. Poster presented at the FBRI Summer Research Symposium, Roanoke, VA.
- Humphries A, **Basso JC** (2021). Using virtual dance technique to improve mental health and social connection during the COVID-19 crisis. Presented at the annual American College of Sports Medicine conference, Online.



- Lynn S, **Basso JC**, Athamneh LN, Bickel WK (2021). Heightened state and trait mindfulness is associated with success in recovery. Presented at the annual College on Problems of Drug Dependence conference, Online.
- Basso JC**, Satyal, MK, Good, DJ, English, DF, and Bickel, WK (2020, June). An Investigation of Exercise Motivation In Normal Weight and Obese Humans and Rodents. Poster session presented at the annual American College of Sports Medicine conference, Online.
- Satyal, MK, **Basso, JC**, and Bickel, WK (2020, June). Phenotype of Recovery: Heightened hedonic hunger in early substance use recovery may lead to overweight or obese outcomes. Poster presentation at the annual College on Problems of Drug Dependence conference, Online.
- Basso JC**, Satyal MK, Metpally A, Bickel WK (2019, November). Examining the neurobehavioral mechanisms underlying obesity. Poster session presented at the annual Obesity Society meeting, Las Vegas, NV.
- Basso JC**, Satyal MK, Metpally A, Bickel WK (2019, October). High rates of temporal discounting among individuals with heightened dissociative symptomatology. Poster session presented at the annual meeting of the Society for Neuroscience Conference, Chicago, IL.
- Basso JC**, O'Brien CE, Crosta C, Das A, Sewnauth S, Neal E, Ellen J, Oberlin DJ, Suzuki WA (2018, November). Exercise-induced changes in delta, theta, alpha, and beta frequencies predict improvements in general positive affect. Poster session presented to be presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Basso JC**, Crosta C, Raskin M, Wang A, Kadakia D, Choi J, Milburn E, Trivedi R, Suzuki WA (2017, November). The effects of a semester of aerobic exercise on fitness, cognition, mood, and GPA in college students. Poster session presented at the annual meeting of the Society for Neuroscience Conference, Washington, DC.
- Basso JC**, Lee TR, Crosta C, Payne N, Kadakia D, Trivedi R, Wang T, Suzuki WA (2016, November). A randomized controlled study examining the effects of enhancing fitness on mood and recognition memory in healthy adults. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Crosta C, **Basso JC**, Raskin M, Sehmbey P, Suzuki WA (2016, November). A randomized controlled study comparing the effects of continuous aerobic exercise, high-intensity interval training, and walking on mood and cognition. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- McHale AC, **Basso JC**, Ende VJ, Suzuki, WA (2016, November). A randomized controlled study examining 13 minutes of daily meditation training on attention, mood and the emotional response to acute stress. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Basso JC**, Crosta C, Lee TR, McHale A, Payne N, Shen S, Singh N, Suzuki WA (2015, October). Examining the effects of long-term high-intensity aerobic training on behaviors associated with the prefrontal cortex, hippocampus and striatum using electroencephalography. Poster session presented at the annual meeting of the Society for Neuroscience Conference, Chicago, IL.
- Basso JC**, Shang A, Lee Y, Small SA, Brickman AM, Ashman TA, Suzuki WA (2013, November). The effects of 8 weeks of aerobic exercise with affirmations on learning, memory, cognition and mood in individuals with traumatic brain injury. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Basso JC**, Morrell JI (2012, October). Emerging systems level understanding of the motivation to engage in voluntary wheel running in the rat. Poster session at the annual meeting of the Society for Neuroscience Conference, New Orleans, LA.
- Basso JC**, Callahan JW, Farrar AM, Abercrombie ED, Morrell JI (2011, November). Voluntary wheel running throughout rearing in the rat alters baseline monoamine content and content levels in response to cocaine in brain regions that mediate motivation. Poster session at the annual meeting of the Society for Neuroscience Conference, Washington, DC.
- Basso JC**, Morrell JI (2010, November). Motivation for voluntary wheel running is indicated by analysis of this behavior across gender, wheel exposure history, and time availability of the wheel. Poster session presented at the annual meeting of the Society for Neuroscience Conference, San Diego, CA.
- Basso JC**, Morrell JI. (2009, October). Sex differences in cocaine preference of adult rats emerge only after mid-adolescence, and adult cocaine preference can be decreased by exposure to an enriched environment during the postnatal period. Poster session presented at the annual meeting of the Society for Neuroscience Conference,

Chicago, IL.

Marenberg M, Clark C, **Basso J**, Fiorenzo L, Grugan P, Rader D (2008, July). The Relationship of coronary calcification and cognitive performance in a multiethnic elderly cohort. Poster session presented at the annual meeting of the Alzheimer's Association International Conference on Alzheimer's Disease, Chicago, IL.

Marenberg M, **Basso J**, Nathanson G, Grugan P (2006, May). Prevalence of MCI in a racially diverse primary care population: age, gender, and race trends. Poster session presented at the annual meeting of The American Geriatrics Society, Chicago, IL.

Marenberg M, Clark C, **Basso J**, Grugan P, Nathanson G, Rader D (2007, June). Association of high density lipoprotein with MCI and verbal memory in an ethnically diverse cohort. Poster session presented at the annual Alzheimer's Association International Conference on Prevention of Dementia, Washington, D.C.

## **INTERNET PUBLICATIONS:**

### **E-books**

Highlights from the 2017 Society for Neuroscience Meeting (November 2017)

- In this E-book, as one of the official bloggers of the 2017 Society for Neuroscience Meeting in Washington, DC, I discuss all things relevant to brain health and wellness.
- [https://issuu.com/fasttwitchgrandma/docs/neuroscience\\_ebook](https://issuu.com/fasttwitchgrandma/docs/neuroscience_ebook)

American College of Sports Medicine Conference Summary (June 2017)

- Over 6,000 sports medicine professionals came together in Denver, CO Spring 2017 to discuss topics ranging from Mental Health to Female Elite Athletes. This E-book summarizes each day's keynote presentations and showcases the conference's amazing lineup of celebrity speakers. Dive deep into topics such as Exercise Psychology, Neurobiological Effects of Physical Activity, and The Science Behind Lasting Motivation of Sustained Physical Activity.
- <https://foreverfitscience.com/research/american-college-sports-medicine-conference-ebook-edition/>

### **Thrive Global**

Covid-19, stress, and substance use disorders: Tips to help us all destress (April 2020)

- <https://thriveglobal.com/stories/covid-19-stress-and-substance-use-disorders-tips-to-help-us-all-destress/>

6 reasons you should incorporate meditation into your daily routine (February 2019)

- <https://thriveglobal.com/stories/reasons-to-include-meditation-in-daily-routine/>

**Huddle Up Moms** (<https://www.huddleupmoms.org/blog>)

Bring joy to your movement routine (September 2020)

Infertility Awareness Week: Navigation your infertility journey (April 2020)

Infertility Awareness Week: A practical guide to understanding infertility (April 2020)

**International Quit and Recovery Registry** (<https://www.quitandrecovery.org/blog>)

The link between Covid-19 and smoking (March 2020)

**Forever Fit Science** (<https://foreverfitscience.com/>)

Cross-train for ultramarathon success (October 2017)

Exercise and Celiac Disease (October 2017)

Exercise as an alternative for pain killers (October 2017)

Exercise helps decrease neuroinflammation (September 2017)

Lifestyle recommendations to prevent cognitive decline (September 2017)

Obesity and dopamine dysfunction (August 2017)

Fountain of youth cells in the brain? (August 2017)

Dance harmony in Woodstock (August 2017)

Using exercise to help individuals with Autism Spectrum Disorder (July 2017)

Dance to help Parkinson's disease (July 2017)

A conversation between dance and neuroscience (July 2017)

Using meditation to enhance attention, emotional regulation, and self-awareness (July 2017)

Cultivating meaning through improvisational dance (June 2017)

Exercise and the autonomic nervous system (May 2017)

Exercise enhances the brain's activity during daydreaming (May 2017)

Bad diets impair our memory, but exercise may help (April 2017)

How do we move? (April 2017)

Having trouble losing weight with exercise? Evolution may be to blame! (March 2017)

Want good skin! Go exercise! (March 2017)

Exercise and digestive health (February 2017)

Exercise recommendations for diabetes (February 2017)

Exercise your heart this Valentine's Day (February 2017)

The power plate – a way to power your workout (January 2017)

Think positive thoughts for a better workout (January 2017)

Exercise: A magic pill to help protect the brain from cellular pathology (January 2017)

Carbon dating in the human brain: Implications for exercise-induced increases in brain size (December 2016)

Drink and be merry...and exercise! (December 2016)

Learning about exercise at the 2016 Society for Neuroscience meeting (December 2016)

Exercise as a way to reduce the cost of healthcare (November 2016)

Both continuous aerobic exercise and high-intensity interval training increase the number of new neurons (October 2016)

Can exercise protect against "inflammaging"? (October 2016)

A 16-week training program to help promote health and well-being (October 2016)

Exercise for a healthy immune system (September 2016)

Why does exercise make me feel so good (September 2016)

Exercise and reactive oxygen species – a complicated relationship (August 2015)

Exercise is the fountain of youth (July 2016)

Exercise is medicine: A summary of the 2016 annual meeting of the American college of Sports Medicine (July 2016)

Fat-burning exercise may be the key to make us smarter (July 2016)

Exercise for a better night's rest (July 2016)

Exercise your pain away (June 2016)

Exercise and Parkinson's disease (May 2016)

Exercising with Alzheimer's disease (March 2016)

Fitness helps the brain function as we age (February 2016)

Exercise your gut (microbiome) (February 2016)

Exercise to feel, think and act like a young brain (December 2015)

Get motivated to exercise: Rats do it, you can too (December 2015)

Exercise helps improve cognition in healthy individuals as well as those with cognitive deficits (November 2015)

Exercise for better blood flow to the brain (September 2015)

Use it or lose it: Exercise for new neurons (August 2015)

Yoga: A mind-body practice that improves the brain (June 2015)

Strengthen your muscles, strengthen your mind (May 2015)

Exercise your way to happiness (January 2015)

Exercise leads to a smaller waistline and a bigger brain (December 2014)

High-intensity interval training, a more efficient way to train your body and brain (December 2014)

## **PODCASTS:**

### **Being Patient (July 2023)**

- How Dance and Yoga Change the Brain; <https://www.youtube.com/watch?v=bYDfEAFCSxk>

### **The Business of Vulnerability (June 2023)**

- Exploring the Healing Power of Dance: Uniting Arts and Sciences in Brain Research; <https://www.audacy.com/podcast/the-business-of-vulnerability-1b26b/episodes/exploring-the-healing-power-of-dance-uniting-arts-and-sciences-in-brain-research-f97a8>

### **This is Your Brain with Dr. Phil Stieg (September 2022)**

- Everybody Dance Now!; <https://drphilstieg.com/podcast-1>

### **Podcast Recovery (July 2020)**

- The Meeting After the Meeting; <https://music.amazon.com/podcasts/11933286-a86c-4460-98e4-5047963ef6ff/episodes/e64d3d1d-a58c-4b18-832b-75ed17e2574d/podcast-recovery-the-meeting-after-the-meeting---julia-b---iqrr>

### **Busy Living Sober (June 2020)**

- Episode 177 with Dr. Julia Basso – Looking at the Alcoholic Brain; <http://busylivingsober.com/podcasts/2020/6/18/episode-177-with-dr-julia-basso-looking-at-the-alcoholic-brain>

### **The Thoughtful Counselor (November 2019)**

- Episode 148: Beyond 'It's good for you' – How exercise impacts the brain and body with Julia Basso; <https://thethoughtfulcounselor.com/2019/11/ep148-beyond-its-good-for-you-how-exercise-impacts-the-brain-and-body-weight-julia-basso/>
- Utilized for Continuing Education (CE) credit at Palo Alto University

## **WEBSITE DEVELOPMENT:**

**Embodied Brain Laboratory:** <https://www.embodiedbrainlab.com>

**Huddle Up Moms:** <https://www.huddleupmoms.org/>

- A non-profit organization whose missions is to empower, educate, and support mothers in Southwest Virginia.

**International Quit and Recovery Registry:** <https://www.quitandrecovery.org/>

- A non-profit organization dedicated to learning from success in addiction recovery.

## **NON-PROFIT ORGANIZATIONS:**

**Huddle Up Moms (July 2019-August 2021); [www.huddleupmoms.org](http://www.huddleupmoms.org)**

*Executive Director of Research and Content Development*

- An organization whose mission is to empower, educate, and support mothers in Southwest Virginia by fueling meaningful connections within our community.

## **SERVICE & OUTREACH:**

**Grant / Manuscript / Book Reviews**

**Book chapter review for Professor Andrea Olsen (February 2021)**

- Balancing your nervous system

**Manuscript review for Neuroscience (December 2020)**

- Exposure to running wheels prevents ethanol rewarding effects: the role of CREB and deacetylases SIRT-1 and SIRT-2 in the nucleus accumbens and prefrontal cortex

#### **Book review for Johns Hopkins University Press (July 2020)**

- Opening: Finding your path to a happier, healthier life

#### **Manuscript review for Quarterly Journal for Experimental Psychology (May 2020)**

- Meditation-induced cognitive-control states regulate working memory task performance

#### **Manuscript review for Psychology Research and Behavior Management (September 2019)**

- Conscious emotional bonding intelligence: Ten basic emotions according to neuroscientific criteria

#### **Grant review for the National Science Center, Poland (May 2019)**

- Seeing the world through rose colored glasses: How acute aerobic exercise influences emotional processing and emotional biases in healthy and depressed adults? An advanced brain source space approach

#### **Events**

##### **Huddle Up Moms Resource Summit (October 2020)**

- Hosted this event that brought together a variety of maternal health providers in the Roanoke, VA area to create a network for women in all stages of pregnancy and postpartum.

##### **Mom Expo, Roanoke, VA (2019)**

- Teaching about the psychological and brain changes that occur during pregnancy and the postpartum period

##### **Society for Neuroscience Conference, Washington, DC (2017)**

- Official blogger for the annual Society for Neuroscience Conference

##### **American Association for the Advancement of Science (AAAS), Washington, DC (2016)**

- Teaching about the science of fitness to over 35,000 guests at the 138<sup>th</sup> annual Easter Egg Roll at the White House

##### **Dance your PhD (2013)**

- Finalist in the annual Dance Your PhD contest sponsored by *Science* and AAAS

##### **braiNY - Greater NYC Chapter of the Society for Neuroscience**

- Teaching interactive events doing yoga and discussing its beneficial effects on brain physiology and function

##### **The DANA Foundation**

- Organizer for events hosted during the annual Brain Awareness Week

##### **BioBase & BioBus**

- Teaching science to girls and young women in the New York City Area

##### **The Leading Strand**

- Collaborated with product designer, Kelsey Hunter, to design Exley, a chat bot that tracks your mood, sleep, eating habits, and cognitive function as it relates to your daily exercise habits

##### **Interactive Telecommunication Program (ITP) at the NYU Tisch School of the Arts**

- Collaborated with students in the ITP program to create Neuron Leap, an interactive game that depicts how exercise affects brain function

#### **PROFESSIONAL AFFILIATIONS:**

Society for Neuroscience

American College of Sports Medicine

National Dance Education Organization

#### **STUDENTS & TRAINEES:**

I am serving or have served as the thesis advisor for the following students. I have also mentored over 50 undergraduate and high school students throughout my tenure. My laboratory currently hosts research assistantships for high school, undergraduate, and graduate students, and we are constantly recruiting for talented students. I also serve on the thesis committee for several additional students in various programs throughout Virginia Tech.

##### Current Students (Chair):

*Mackenzie Aychman (September 2023 – Present)*

Degree: MA  
Program: Human Nutrition, Foods, and Exercise

*Alana Smith (January 2023 – Present)*  
Degree: PhD  
Program: School of Neuroscience  
Co-Mentored with Dr. Daniel English

*Noor Tasnim (September 2022 – Present)*  
Degree: PhD  
Program: Translational Biology, Medicine, and Health

*Chelsea Buhler (September 2021 – Present)*  
Degree: PhD  
Program: Human Nutrition, Foods, and Exercise  
Co-Mentored with Dr. Daniel English

Past Students:

*Sarah Lynn (May 2020 – May 2022)*  
Degree: PhD  
Program: Human Nutrition, Foods, and Exercise  
Thesis: Examining the Effects of Mindfulness Education on Cognitive Function and Affective State

*Ashlee Humphries (May 2020 – May 2021)*  
Degree: MS  
Program: Online Master of Agricultural and Life Sciences  
Thesis: The Effects of Online Dance on Mental Health and Social Connectedness  
Available from:  
[https://vtechworks.lib.vt.edu/bitstream/handle/10919/110501/Lynn\\_S\\_D\\_2022.pdf?sequence=1&isAllowed=y](https://vtechworks.lib.vt.edu/bitstream/handle/10919/110501/Lynn_S_D_2022.pdf?sequence=1&isAllowed=y)

*Medha Satyal (May 2019 – September 2021)*  
Degree: PhD  
Program: Translational Biology, Medicine and Health  
Thesis: The Neurobehavioral and Neurophysiological Effects of Exercise in Healthy and Obese Populations  
Available from: [https://vtechworks.lib.vt.edu/bitstream/handle/10919/107802/Satyal\\_MK\\_D\\_2022.pdf?sequence=1](https://vtechworks.lib.vt.edu/bitstream/handle/10919/107802/Satyal_MK_D_2022.pdf?sequence=1)

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