

**Research VA Advanced Postdoctoral Fellowship
War Related Illness and Injury Study Center
Washington DC VA Medical Center**



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<https://www.warrelatedillness.va.gov/>

Fellowship Year Begins: September 2021

Training Setting

The War Related Illness and Injury Study Center (WRIISC) is a National VA Post-Deployment Health Resource that offers tertiary level care and is housed within the Washington DC VA Medical Center. This national program, with sites in DC, NJ, and CA, has both a clinical and research component. The WRIISC-DC team includes clinical (e.g., integrative medicine, neurology, nutrition, deployment health, neuropsychology, social work, environmental exposure, and health coaching) and research (e.g., neuroscience, exercise physiology, neuroimaging, and cognitive science) staff.



Fellows that join our interdisciplinary team have the opportunity to directly assist our unique population. The DC VA Medical Center is a 205-bed hospital that provides care to more than 78,000 Veterans on an outpatient basis. While WRIISC-DC, conducts many studies on its own, post-docs would have exposure to other research and collaborative opportunities in the Medical Center. Currently, there are approximately 300 active projects being conducted by more than 90 principal investigators and their teams to address multiple medical conditions that afflict Veterans such as: HIV/AIDS, TB, hypertension, diabetes mellitus, heart disease, stroke, and rehabilitation medicine to TBI, PTSD, alcoholism, substance abuse and mental health, and age-related illnesses. Accepted fellows are expected to participate in research activities as follows:

- 40% Within the predetermined research scope and methodology, conduct research experiments.
- 20% Collect and analyze data, including periodical/literature search and utilizing specialized skills in related field to analyze the collected data.
- 20% Participate/assist in manuscript writing for publication in scientific journals and/or presentations. May also assist in grant writing.
- 15% Lab maintenance, including equipment maintenance, and ordering of supplies as needed.
- 5% Other duties as assigned, which may include attending Scientific Conferences and Meetings.

Research Overview

Fellows can expect to gain an advanced understanding of brain-behavior relationships; generate and implement a feasible research project within the time constraints of the fellowship including writing a VA Career Development Award; learn to interpret, adapt, and incorporate new research findings from the literature and established data sets for first-author publication; support ongoing research protocols through data collection; and engage in grant writing for WRIISC studies that are under development.

Application and Selection Procedures

The WRIISC-DC Research Fellowship begins in September 2021. This is a two-year, full-time program with VA benefits, including 13 days annual leave, 13 days sick leave, health insurance, and 10 federal holidays. Current stipend/salary is \$51,237 for Year One, increasing to \$54,006 for Year Two. Our program is designed to provide two full years of postdoctoral training. However, advancement to the second year is contingent on successful completion of first year requirements.

Eligibility

To be considered for our postdoctoral training program, applicants must have completed a doctoral degree or be on track to complete the PhD prior to the program. WRIISC fellows have the opportunity to explore their research interests in a variety of fields including clinical psychology, exercise physiology, rehabilitation, education and behavioral and cognitive neuroscience. Certification of U.S. citizenship and drug screening are required for all VA Postdoctoral Fellows. In addition, VA employment requires that males born after December 31, 1959 must have registered for selective service by age 26. Please review VA eligibility requirements before applying.

https://www.va.gov/OAA/Advanced_Fellowships/Home.asp

Current positions

We are looking for two fellows who are interested in understanding TBI / occupational exposures and/or exercise interventions for clinical populations and will be primarily involved in one of the following research studies:

- TBI and blast exposure research: Exploration of a comprehensive battery of blood biomarkers, proteomics, neuropsychological assessments, actigraphy, EEG and eye-tracking data and MRI sequences to characterize blast exposure sequelae and resiliency to adverse health outcomes in individuals with TBI and those with Explosive Ordnance Disposal training (EOD-Track).
- Individualization of exercise interventions for Veterans with chronic multi-symptom illness (CMI): This pilot study will explore the optimal manner to administer exercise interventions for Veterans with CMI using heart rate variability (HRV) as an objective measure of recovery to determine which days are optimal for exercising. The effects on symptomology, health-related/executive functioning, sleep, autonomic functioning, and brain activity will be examined to inform the development of a larger randomized control trial.

Application Materials

Please submit the materials in electronic format to Dr. Costanzo (Michelle.Costanzo@va.gov)

- A cover letter that describes:
 - Your background, research experience, technical skills, professional interests, and research goals.
 - Specific reasons you are interested in training at the WRIISC-DC
 - Methodological experience with assessment (e.g. behavior, physiological, neuroimaging) and intervention (e.g. exercise, nutrition, behavioral), including settings you have worked in and patient populations you have worked with
- Curriculum vitae
- One research work sample (e.g., a published article – first author preferred, chapter, posters or presentation)

Please contact Dr. Costanzo (Michelle.Costanzo@va.gov), with any questions about the application process.

WRIISC-DC Research Experience

Fellows will have the opportunity to enhance their research skills through a variety of educational, mentoring, and training activities. Fellows will be involved in multiple projects relevant to the WRIISC that may involve programmatic research, research that informs VA policy, environmental exposure research, neuroimaging research, and other topics. In addition, fellows are encouraged to develop a mentored research project based on their own interests. Fellows will mentor study coordinators in research activities, practice presentation skills in research meetings, collaborate with other WRIISC team members on presentations/posters, and assist with protocol and grant application writing.

In-house studies:

The following studies are conducted primarily at WRIISC-DC but include collaborators from other universities such as the University of Maryland and Georgetown University.

Complementary and Alternative Medicine (CAM) for Sleep, Health Functioning, and Quality of Life in Veterans with Gulf War Veterans' Illnesses: The objective of this study is to test the efficacy of combined auricular acupuncture and iRest® Yoga Nidra (CAM) compared to Gulf War Health Education (GWHE) for improving health-related functioning among Veterans with Gulf War Illnesses (GWI).

WRIISC-DC Data Repository: Repository for data acquired during a comprehensive clinical evaluation which Veterans provide consent to be used for research purposes. Data available for analysis include questionnaires from the intake evaluation, neuropsychological assessment, exposure evaluation, and follow-up questionnaires.

Clinical Bio-Behavioral Assessment of Inhibitory Control in PTSD: A Pilot Study of the Anti-Saccade Paradigm: Investigation of a cognitive control test (anti-saccade) imbedded in social/emotional salient stimuli with faces, examining eye tracking performance in Veterans with PTSD.

Enhancing executive function and self-regulation success through the promotion of brain health behaviors: A telehealth pilot study for Veterans with chronic multi-symptom illness: The objective of this pilot study is to examine the effectiveness of a telehealth intervention intended to augment several factors related to brain health and cognition in Veterans with chronic multi-symptom illness. We aim to harness new technologies and distance-bridging approaches to develop a targeted intervention to improve executive function by promoting health behaviors (e.g. physical activity and mindfulness meditation) to augment cognitive control in order to facilitate self-regulation.

Predictors of Response to Insomnia Treatments for Gulf War Veterans: This study aims to address the insomnia problem in Gulf War Veterans by providing critical information for evidence-based personalization of Cognitive Behavior Therapy for Insomnia (CBT-I). Two treatments will be compared in a randomized clinical trial with parallel groups designed over three sites that include, WRIISC California, WRIISC New Jersey and WRIISC Washington DC

The Comparative Health Assessment Interview (CHAI) Study: CHAI's primary objective is to assess the effect of military service, deployment and combat on the health and well-being of OEF/OIF/OND Veterans and their adolescent children across multiple domains including mental health and suicide risk

Multi-modal Observational study of Veterans with TBI with varying symptoms: Exploration of a comprehensive battery of neuropsychological assessments, actigraphy, EEG and eye-tracking data and

MRI sequences to not only evaluate patterns of neural activity and behavior that predict TBI exposure but offer a multi-modal view of structural/functional measures of brain health.

Individualization of an exercise program guided by heart rate variability in veterans with chronic multi-symptom illness: The purpose of this pilot study is to compare a predefined traditional exercise program with a heart rate variability (HRV)-guided exercise program to determine the feasibility of using autonomic activity via HRV to maximize training adaptation and exercise prescription adherence.

Biomedical Research, Artificial Intelligence and Neuroimaging (BRAIN) Study: Investigating the relationships between mental health and routine clinical measures such as vitals, fitness, and lab reports along with radiological scans and clinical notes is the primary aim of the proposed study. In this study, we aim to take a machine learning approach to quantitatively build models that predict different neuro-pathological conditions and the risk of developing such conditions. We plan to use the VA Corporate Data Warehouse (VACDW) to perform a retrospective analysis using machine learning, natural language processing, and artificial intelligence techniques.

Project IN-DEPTH: VA NIH Investigative Deep Phenotyping Study of Gulf War Veteran Health
The VA and the National Institute of Neurological Disorders and Stroke (NINDS) at the National Institutes of Health (NIH) have started to develop a research collaboration using state-of-the-art methods. The primary objective of the GW protocol is to explore the clinical and biological phenotypes of Gulf War Illness (GWI) in Veterans of Operations Desert Shield/Desert Storm (ODS/S, deployed August 1990 – June 1991). The study is composed of two independent protocols: the first, led by the VA to ensure patient safety and determine eligibility and the second, led by the NIH to acquire the data necessary for phenotyping and hypothesis generation.

Assessing the Effectiveness of Health Coaching; The Washington DC War Related Illness and Injury Study Center (DC WRIISC) programmatic approach to evaluating longitudinal health coaching outcomes: The objective of the quasi-experimental study is to examine the impact of a clinical health coaching program aimed at promoting adherence to the clinical recommendations and increasing health behaviors in treatment-seeking Veterans receiving care at the DC WRIISC.

Collaborative Research:

The following studies are performed at collaborating institutions but include WRIISC collaborators. Fellows will have exposure to scientists from these collaborating institutions and the opportunity to participate in the research activities.

A complex measure for a complex problem: Cortical activation and the Levenshtein Distance during the Tower of Hanoi puzzle (partnership with UMD): Development of EEG cognitive task that could be an outcome measure for intervention studies

Computational Modeling of Inhibitory Control Deficits in Veterans with Post-traumatic Stress Disorder: The primary goal of this collaboration with the Department of Computer Science at the University of Maryland is to develop a neurocomputational model able to simulate prefrontal cortical and relevant sub-cortical activity related to cognitive control. This model will incorporate a variety of functionalities (e.g. working memory, goal-directed behavior, inhibitory control, top-down direction of attention) associated with cognitive information processing and will inform the underlying prefrontal mechanisms of cognitive impairments related to post deployment injury in Veteran populations (e.g. post-traumatic stress disorder).

Explosive Ordnance Disposal (EOD) Tech Service Member and Veteran Brain Health Working Group: Specialists are at particularly high risk for both concussive and sub concussive blast exposures, as well as PTSD, due to the frequently stressful, life-threatening nature of their work. In response to the concerns of EOD Veterans and Service Members, a working group has developed to create a recommended battery of standardized health evaluations and coordinate future research efforts. The outcome of these collective endeavors includes potential for new clinical trials, development of clinical data repositories and novel partnerships between federal and academic institutions (e.g. Walter Reed Army Institute of Research, Naval Medical Research Center, Walter Reed Military Medical Center, National Institutes of Health, Uniformed Services University).

External manuscripts related to outside investigator-driven collaborations

WRIISC Researchers are encouraged to maintain relationships with colleagues from prior positions both outside and within the VA and foster new ways to expand the research program, for example through accessing publicly available datasets and datasets from prior collaborations after obtaining DUAs. These manuscripts represent the efforts of WRIISC researcher involvement on projects outside the scope of those defined within the research program and contributes towards yearly evaluations.

Resources

A variety of neuropsychological assessment, medical symptomatology, treatment adherence, sleep, exercise, EEG, eye-tracking, and war-related exposure data are currently being analyzed. We have the following data acquisition modalities in-house and are exploring novel remote data acquisition methodologies for the post-COVID era: 64-channel EEG Brain Vision system, 3T MRI, eye-tracking, Remote Measures: Ballistocardiography (Emfit QS), remote EEG (Muse 2), and Actigraphy.

Educational Activities

- **WRIISC-DC Journal Club:** Fellows will participate in a periodic meeting with WRIISC-DC staff and colleagues from outside departments to present research findings and discuss journal articles covering clinical and research interests of the group (e.g., exposure, health coaching, neuropsychological assessment, neuroimaging, etc.). Fellows will present an article of interest at least twice per year.
- **Professional Conference Attendance:** Throughout the training year, fellows will have the opportunity to attend professional conferences with funding typically covered by the WRIISC for one conference per year. Following return from a professional conference, the fellow is expected to provide an informal presentation of relevant material to the fellowship faculty.

Additional educational activities at/near the DC VAMC campus include: DC VAMC Neurology Grand Rounds, DC VAMC Pathology Brain Cutting Conference, MedStar National Rehabilitation Hospital Didactics and Journal Club, TeleECHO Integrative Cognitive Rehabilitation Seminars, Georgetown-Howard Universities Center for Clinical and Translational Science (GHUCCTS) Monthly Statistical Seminar Series, GHUCCTS Research Grand Rounds. Attendance is encouraged, but not required

Performance Evaluation

Fellows will receive formal, face to face feedback regarding progress being made in the fellowship twice yearly. Formal feedback will include written evaluation that includes ratings in professional competency areas related to research and scholarly inquiry. Fellows who receive ratings below developmentally appropriate minimums in each competency area will be given specific feedback and training to improve their skills in these areas. If necessary, remediation plans designed to assist with any difficulty

demonstrating development in professional competencies will be created by training faculty and completed by the fellow before the conclusion of the training program.

Training Faculty

Michelle Costanzo, Ph.D. – WRIISC-DC Research Director

Ryan Brewster, Ph.D. – WRIISC-DC Neuropsychology Fellowship Director

Matthew Reinhard, Psy.D. – WRIISC-DC Director

Charity Breneman, Ph.D., MSPH — Senior Exercise Physiologist and Epidemiologist

Immanuel Samuel, Ph.D., -- Research Bioengineer and Neuroscientist

Recent Trainees

2020-present fellow: Applied Physiology Kamila Migdal, Ph.D., University of Delaware

*2018-2020 fellow: Kinesiology: Kyle Jaquess, Ph.D., University of Maryland, College
Cognitive Motor Park
Neuroscience Initial Placement: Assistant Professor (tenure-track)
Juniata College*