Quarterly news and updates from the
Stanford Alzheimer's Disease Research Center
and the Healthy Brain Aging Study

MIND MATTERS

2023 Spring Issue

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A·D·R·C for healthy brain aging

Celebrating International Women's Day—March 8th

This month, we celebrated International Women's Day. Many women make the work of the Stanford Alzheimer's Disease Research Center possible—from doctors, to researchers, to administrative staff. We celebrate their contributions to our center!

We take this opportunity, too, to celebrate the contributions of women in the past. Born in Denmark, **Dr. Lysia K.S. Forno** received her MD in 1943, from the University of Copehagen, during the Nazi occupation. After a rotating internship, she trained in internal medicine, psychiatry, neurosurgery, and neurology at various Danish hospitals (1944–1947). She then served as a clinical assistant in Neurology at the Aarhus Municipal Hospital and Aarhus University Neurology Clinic (1947–1950). In 1957, Dr. Forno began her association with the Stanford University School of Medicine, where she worked with Dr. Knox Finley. She was a research associate in Neuropathology, Department of Pathology, and worked part-time while balancing neuropathology with the care of her 2 young children. In 1960, Lysia began her tenure as a staff physician (neuropathologist) at the VA Medical Center, Palo Alto. Although she was called "emeritus" from 1989 on, she continued as a full-time neuropathologist until her retirement in 2007. She enjoyed long productive and mutually respectful collaborations and clinical interactions with many colleagues and caregivers at the VA.

Lysia K.S. Forno, MD

February 14, 1918–May 8, 2015

Lysia generously shared her knowledge and expertise in collaborative studies in a broad range of topics in clinical neuropathology and basic neuroscience, including human and experimental neuropathies, encephalitides, sleep disorders, Alzheimer and other neurodegenerative diseases, hepatic encephalopathy, and other metabolic disorders. Lysia's lifetime major research focus was in numerous projects on neuron degeneration and the neural pathways and neurotransmitters involved in human Parkinson disease (PD) and experimental parkinsonism. She did pioneering work on Lewy bodies and the animal model of MPTP-induced parkinsonism in the squirrel monkey and in rodents.

Many pathology and neurology residents passed through Lysia's laboratory. She was the mainstay of training in neuropathology for generations of Stanford students, residents, and fellows. The list of her highly accomplished trainees includes numerous distinguished professors of neurology and neuropathology.

Summary from—Herrick MK, Sobel RA. Lysia K.S. Forno, MD February 14, 1918-May 8, 2015. J Neuropathol Exp Neurol. 2015 Dec;74(12):1180-2. doi: 10.1093/jnen/74.12.1180. PMID: 26904767.

Participant Appreciation Day 2022

Thank you to everyone who was able to join us this past November for our 5th annual Participation Appreciation Day!

If you were not able to join, or if you'd like to revisit any of the presentations, you will find a link to a recording here under **"2022 Conference Slides".** Topics covered included promoting brain health across the lifespan, aducanumab as a treatment for Alzheimer's, mild cognitive impairment and it's progression to dementia, caregiving strategies and resources, and more.

The goal of Participant Appreciation Day is to show our appreciation for your involvement in our research and to provide you with research updates and updates on happenings at our center. Our hope going in to 2023 is to offer a hybrid version of this day (both in-person and online) to allow for maximum attendance. More details to come!

UPDATE

Thank you for your continued patience and involvement in the Healthy Brain Aging Study. We are working diligently to reintegrate in-person visits to the Stanford ADRC. We hope to see you soon!

Save the date

2023 Walk to End Alzheimer's— Silicon Valley

Join the Alzheimer's Association on Saturday, October 14h, 2023 for their annual Walk to End Alzheimer's.

Click here for more information and to register.

ADRC CORES

Research Education Component

The Stanford ADRC **Research Education Component** (REC) provides a formalized training program to prepare the next generation of researchers for careers in aging, Alzheimer's disease, and Alzheimer's disease-related disorders. The REC program is led by Dr. Kathleen Poston, MD, MS and Dr. Kaci Fairchild, PhD, ABPP. Since 2020, the REC program has supported six fellows in launching careers stemmed around innovative and novel research approaches.

Read about Drs. Poston and Fairchild, and the exciting research interests of the REC fellows below!

Dr. Kathleen Poston, MD, MS

The Poston lab was established in 2009 with the goal of improving patients' lives through scientific discovery. As a movement disorders trained clinician-scientist, Dr. Kathleen Poston uses her expertise of the patient's symptoms and experience to guide research questions, which predominantly focus on the non-motor aspects of Parkinson's disease and Dementia with Lewy Bodies. She uses brain imaging to understand the structural and functional changes that occur when patients begin to experience cognitive changes. She uses biological data from blood draws (plasma) or from lumbar punctures (cerebral spinal fluid) to understand changes in proteins that can identify which patients are likely to develop changes in cognition. For instance, neurodegenerative dementias are classified based on proteins deposited in the brain. When people with dementia die and researchers study their brains under the microscope, they frequently see more than one these proteins deposited. This is important because people with different proteins will likely have different responses to treatment. To better understand this problem, Poston Lab researcher have combined plasma, cerebral spinal fluid, and brain imaging to determine which patients are likely to have multiple causes underlying their cognitive changes, and determine the relationship with future cognitive decline. This research will help clinical trials aimed at treating cognition by identifying the right participants for the right therapies.

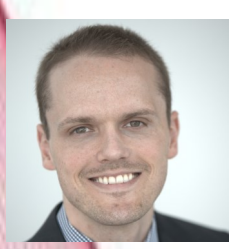
Dr. Kaci Fairchild, PhD, ABPP

The primary focus of Dr. Fairchild's lab is to reduce the negative impact of cognitive impairment and neuropsychiatric disorders in older adults and their loved ones. This work is accomplished through a three-tiered approach that includes the development and evaluation of interventions that promote healthy function and prevention of future cognitive impairment through: 1) the identification of risk and resilience factors for late life cognitive impairment; 2) the development of non-pharmacological interventions (e.g., physical activity, cognitive training, neurostimulation) for cognitive impairment and neuropsychiatric disorders; and 3) the identification of mechanisms of treatment response (e.g., who benefits from these treatments and how the benefits are derived). As the development of dementia is likely multi-factorial, potential interventions should also be multi-factorial in design. Physical exercise and cognitive training have great potential as interventions for the rehabilitation of memory and protection against neurodegeneration. Water-based exercise is an ideal physical activity as it has minimal weight-bearing stress and thus accommodates those with physical challenges that would otherwise be excluded from or unable to fully engage in exercise. Cognitive training can improve memory, planning, and speed of processing. Dr. Fairchild's current clinical trial at the Palo Alto VA combines these two treatments into a multi-component intervention for older Veterans with MCI. This first of its kind randomized clinical trial has the potential to extend the promising benefits of physical and mental exercise to older adults at risk for dementia, regardless of any mobility challenges that may exist.

ADRC REC FELLOWS

Alesha Heath, PhD (2022-2023)

Dr. Heath is a post-doctoral researcher in Psychiatry and Behavioral Sciences at Stanford School of Medicine and the MIRECC at the VA Palo Alto. She holds a PhD from the University of Western Australia and Sorbonne University. Her research in Alzheimer's disease is transdisciplinary with a focus on understanding cause and identifying potential biomarkers, as well as investigating the mechanisms of neuromodulatory therapies in preclinical and clinical studies.



Jeff Nirschl, MD, PhD (2022-2023)

Dr. Nirschl, M.D., Ph.D. is a neuropathology fellow and post-doctoral researcher in the Medical AI and ComputeR Vision Lab (MARVL) led by Dr. Serena Yeung at Stanford University, Palo Alto, CA. As a physician-scientist and researcher he has built his career at the interface of bioinformatics, cell biology, computer vision, and healthcare with a focus on computational and digital pathology.

Ramy Hussein, PhD (2021-2022)

Dr. Hussein is a former Machine Learning Researcher in the Radiological Sciences Laboratory at Stanford University. He works on problems at the intersection of Artificial Intelligence and Medicine, with a focus on medical image analysis. Ramy is interested in developing and optimizing AI algorithms for the early diagnosis and prediction of cerebrovascular and neurodegenerative diseases, with more focus on Ischemic Stroke and Alzheimer's Disease.

Joe Winer, PhD (2021-2022)

Dr. Winer completed his PhD in Psychology at UC Berkeley. In his PhD, Joe combined objective and subjective sleep assessment with PET imaging to investigate connections between sleep disruption and Alzheimer's disease in the context of healthy aging. In his REC Fellowship, Joe is exploring how tracking sleep and other factors in everyday life can provide information about brain health and cognitive trajectories in aging and neurodegenerative diseases.

Ehsan Adeli, PhD (2020-2021)

Dr. Adeli is a Clinical Assistant Professor at the Department of Psychiatry and Behavioral Sciences at Stanford School of Medicine. He is affiliated with the Computational Neuroscience Lab (CNS Lab) is Psychiatry and the Stanford Vision and Learning (SVL) Lab, Stanford AI Lab (SAIL) in the Department of Computer Science. His research interest lies at the intersection of computational neuroscience and computer vision applied to healthcare applications.

Tammy Tran, PhD (2020-2021)

Dr. Tran is a Postdoctoral Fellow working with Drs. Anthony Wagner and Elizabeth Mormino. Her research focuses on examining the neural mechanisms underlying memory encoding in young adults and how these processes may change in aging and Alzheimer's disease. As part of the Stanford Aging and Memory study, she investigates how structural brain changes are related to biofluid and imaging biomarkers of disease.

Additional Opportunities to Participate in Research

Stanford ADRC Affiliated Studies

Study: Healthy Brain Aging Study **Study status:** Open, enrollment ongoing

Contact: Veronica Ramirez vramirez1@stanford.edu or (650) 721-2409

Study: Alzheimer Gut Microbiome Project **Study status:** Open, enrollment ongoing

Contact: Veronica Ramirez vramirez1@stanford.edu or (650) 721-2409

Study: Sleep and Physical Activity Study **Study status:** Open, enrollment ongoing

Contact: Joseph Winer jwiner@stanford.edu

Study: Longitudinal Early-Onset Alzheimer's Disease Study (LEADS) **Study status:** Open, enrollment ongoing

Contact: Savneet Takhar sktakhar@stanford.edu or (650) 304-7428

Contact: Stephanie Tran trans@stanford.edu or (650) 521-7287

Study: Asian Cohort Study **Study status:** Open, enrollment ongoing

Contact: Veronica Ramirez vramirez1@stanford.edu or (650) 721-2409

Study: Neighborhoods Study **Study status:** Open, enrollment ongoing

Contact: Nicole Caceres ncaceres@stanford.edu or (650) 736-2893

Study: Eyes in Alzheimer's Disease and Mild Cognitive Impairment **Study status:** Open, enrollment ongoing

Contact: Moss Lab moss_lab_studies@stanford.edu

Clinical Trials

Study: Janssen Research & Development (Autonomy Study) **Study status:** Open, enrollment ongoing

Contact: Santi Decunto; decunto@stanford.edu; (650) 421-1284

Study: Indiana University and NIA (LEADS) **Study status:** Open, enrollment ongoing

Contact: Stephanie Tran; trans@stanford.edu; (650) 521-7287