



Kathleen Poston, MD, MS

Associate Professor of Neurology and, by courtesy, of Neurosurgery, at the Stanford University Medical Center

Neurology & Neurological Sciences

CLINICAL OFFICES

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ACADEMIC CONTACT INFORMATION

- **Academic Contact**

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Bio

BIO

Dr. Kathleen Poston is Associate Professor of Neurology & Neurological Sciences and (by courtesy) Neurosurgery at Stanford University Medical Center. She received her Bachelor's of Science in Bioengineering at the University of Pennsylvania, her Master's Degree in Biomedical Engineering and her MD at Vanderbilt University where she received the Medical Student Prize for Excellence in Neurology. She completed her Neurology residency training at UCSF, where she was Chief Resident. She also completed a fellowship in clinical Movement Disorders under the mentorship of Dr. Stanley Fahn at Columbia University and post-doctoral research training in Functional Neuroimaging with Dr. David Eidelberg at the Feinstein Institute.

Dr. Poston's research focuses on the development of novel neuroimaging biomarkers to improve diagnostic accuracy and monitor the efficacy of investigational treatments for Parkinson's Disease and other movement disorders. Her current studies focus on cognitive and memory problems in people with Parkinson's disease. She has been awarded grant funding by the NIH and the Michael J. Fox Foundation for Parkinson's disease research. She is co-investigator for the Stanford Alzheimer's disease Center (ADRC), which is funded by the National Institute for Aging and will focus on early cognitive problems in both Parkinson's disease and Alzheimer's disease. She is also co-investigator for the NINDS funded Morris K. Udall Center of Excellence for Parkinson's disease Research.

CLINICAL FOCUS

- Neurology
- Parkinson Disease
- Dementia with Lewy Bodies
- Parkinsonian Disorders
- Multiple System Atrophy
- Palsy, Progressive Supranuclear
- Corticobasal Syndrome

ACADEMIC APPOINTMENTS

- Associate Professor - Med Center Line, Neurology & Neurological Sciences

- Associate Professor - Med Center Line (By courtesy), Neurosurgery
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Lysia Forno Award for Teaching Excellence, Stanford University (2009-2010)

PROFESSIONAL EDUCATION

- Residency: Univ of California San Francisco CA
- Internship: Univ of California San Francisco CA
- Fellowship: Columbia University Medical Center NY
- Medical Education: Vanderbilt University School of Medicine (2002) TN
- Board Certification: Neurology, American Board of Psychiatry and Neurology (2007)
- Post-Doc, Feinstein Institute , Functional Neuroimaging (2009)
- BSE, University of Pennsylvania , Bioengineering
- MS, Vanderbilt University , Bioengineering (1998)

LINKS

- Poston Lab: <http://neurology.stanford.edu/labs/postonlab/>
- ADRC: <http://med.stanford.edu/adrc.html>
- Pacific Udall Center: <https://udallcenter.stanford.edu/>
- Get a Second Opinion: <https://stanfordhealthcare.org/second-opinion/overview.html>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Poston's research interests include the development, validation and application of functional and structural neuroimaging as biomarkers for the diagnosis and treatment of movement disorders. Specifically, her research focuses on using FDG PET and fMRI to understand abnormal brain networks that lead to both motor and cognitive dysfunction in patients with parkinsonism. She is also interested in the development of novel imaging analysis techniques for establishing diagnosis and monitoring disease progression in early parkinsonian disorders, such as Parkinson's disease, multiple system atrophy, progressive supranuclear palsy, and corticobasal degeneration. Such techniques can be used in the development and testing of novel therapeutic interventions, such as gene transfer therapy in Parkinson's disease.

Teaching

STANFORD ADVISEES

Med Scholar Project Advisor

Cordelia Erickson-Davis

Postdoctoral Faculty Sponsor

Christian La, Patricia Linortner, Sephira Ryman

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Neurosciences (Phd Program)

Publications

PUBLICATIONS

- **An increased rate of longitudinal cognitive decline is observed in Parkinson's disease patients with low CSF A53T and an APOE epsilon4 allele.** *Neurobiology of disease*
Shahid, M., Kim, J., Leaver, K., Hendershott, T., Zhu, D., Cholerton, B., Henderson, V. W., Tian, L., Poston, K. L.
2019
- **Dopamine-Related Dissociation of Cortical and Subcortical Brain Activations in Cognitively Unimpaired Parkinson's Disease Patients OFF and ON Medications.** *Neuropsychologia*
Kim, J., Zhang, K., Cai, W., YorkWilliams, S., I Ua Cruadhlaioich, M. A., Llanes, S., Menon, V., Poston, K. L.
2018
- **Longitudinal Change of Clinical and Biological Measures in Early Parkinson's Disease: Parkinson's Progression Markers Initiative Cohort** *MOVEMENT DISORDERS*
Simuni, T., Siderowf, A., Lasch, S., Coffey, C. S., Caspell-Garcia, C., Jennings, D., Tanner, C. M., Trojanowski, J. Q., Shaw, L. M., Seibyl, J., Schuff, N., Singleton, A., Kieburtz, et al
2018; 33 (5): 771–82
- **Sex differences in progression to mild cognitive impairment and dementia in Parkinson's disease.** *Parkinsonism & related disorders*
Cholerton, B., Johnson, C. O., Fish, B., Quinn, J. F., Chung, K. A., Peterson-Hiller, A. L., Rosenthal, L. S., Dawson, T. M., Albert, M. S., Hu, S., Mata, I. F., Leverenz, J. B., Poston, et al
2018
- **7T MRI subthalamic nucleus atlas for use with 3T MRI** *JOURNAL OF MEDICAL IMAGING*
Milchenko, M., Norris, S. A., Poston, K., Campbell, M. C., Ushe, M., Perlmutter, J. S., Snyder, A. Z.
2018; 5 (1): 015002
- **Distinct alterations in Parkinson's medication-state and disease-state connectivity** *NEUROIMAGE-CLINICAL*
Ng, B., Varoquaux, G., Poline, J., Thirion, B., Greicius, M. D., Poston, K. L.
2017; 16: 575–85
- **Compensatory neural mechanisms in cognitively unimpaired Parkinson disease.** *Annals of neurology*
Poston, K. L., YorkWilliams, S., Zhang, K., Cai, W., Everling, D., Tayim, F. M., Llanes, S., Menon, V.
2016; 79 (3): 448-463
- **Do CSF Biomarkers Predict Progression to Cognitive Impairment in Parkinson's disease patients? A Systematic Review.** *Neuropsychology review*
Leaver, K., Poston, K. L.
2015; 25 (4): 411-423
- **Differential diagnosis of parkinsonism: a metabolic imaging study using pattern analysis** *LANCET NEUROLOGY*
Tang, C. C., Poston, K. L., Eckert, T., Feigin, A., Frucht, S., Gudesblatt, M., Dhawan, V., Lesser, M., Vonsattel, J., Fahn, S., Eidelberg, D.
2010; 9 (2): 149-158
- **Cognitive Performance in Parkinson's Disease in the Brain Health Registry.** *Journal of Alzheimer's disease : JAD*
Cholerton, B., Weiner, M. W., Nosheny, R. L., Poston, K. L., Scott Mackin, R., Tian, L., Ashford, J. W., Montine, T. J.
2019
- **Lewy Body Dementia Association's Research Centers of Excellence Program: Inaugural Meeting Proceedings.** *Alzheimer's research & therapy*
Peterson, B., Armstrong, M., Galasko, D., Galvin, J. E., Goldman, J., Irwin, D., Paulson, H., Kaufer, D., Leverenz, J., Lunde, A., McKeith, I. G., Siderowf, A., Taylor, et al
2019; 11 (1): 23
- **Comparative sensitivity of the MoCA and Mattis Dementia Rating Scale-2 in Parkinson's disease.** *Movement disorders : official journal of the Movement Disorder Society*
Hendershott, T. R., Zhu, D., Llanes, S., Zabetian, C. P., Quinn, J., Edwards, K. L., Leverenz, J. B., Montine, T., Cholerton, B., Poston, K. L.
2019; 34 (2): 285–91
- **Ultra-Low-Dose 18F-Florbetaben Amyloid PET Imaging Using Deep Learning with Multi-Contrast MRI Inputs.** *Radiology*

- Chen, K. T., Gong, E., de Carvalho Macruz, F. B., Xu, J., Boumis, A., Khalighi, M., Poston, K. L., Sha, S. J., Greicius, M. D., Mormino, E., Pauly, J. M., Srinivas, S., Zaharchuk, et al
2018: 180940
- **Episodic recognition memory and the hippocampus in Parkinson's disease: A review.** *Cortex: a journal devoted to the study of the nervous system and behavior*
Das, T., Hwang, J. J., Poston, K. L.
2018; 113: 191–209
 - **Information processing deficit in older adults with HIV infection: A comparison with Parkinson's disease.** *Neuropsychology*
Sundaram, S., Muller-Oehring, E. M., Fama, R., Bronte-Stewart, H. M., Poston, K. L., Goodcase, R., Martin, T., Prabhakar, V., Karpf, J., Schulte, T.
2018
 - **Further study of the Montreal Cognitive Assessment's domain-specific metrics could allow for international data comparison and collaboration** *PARKINSONISM & RELATED DISORDERS*
Hendershott, T. R., Poston, K. L.
2018; 48: 101
 - **Slower saccadic reading in Parkinson's disease** *PLOS ONE*
Jehangir, N., Yu, C., Song, J., Shariati, M., Binder, S., Beyer, J., Santini, V., Poston, K., Liao, Y.
2018; 13 (1): e0191005
 - **FREQUENCY-DEPENDENT DIFFERENCES IN BRAIN SIGNAL OSCILLATIONS: RELATION TO HIV INFECTION, PARKINSON'S DISEASE, AND ALCOHOL**
Muller-Oehring, E. M., Hong, J. Y., Bronte-Stewart, H. M., Poston, K. L., Pfefferbaum, A., Sullivan, E. V., Schulte, T.
WILEY.2017: 68A
 - **gene therapy trial for Parkinson's disease.** *JCI insight*
Niethammer, M., Tang, C. C., LeWitt, P. A., Rezai, A. R., Leehey, M. A., Ojemann, S. G., Flaherty, A. W., Eskandar, E. N., Kostyk, S. K., Sarkar, A., Siddiqui, M. S., Tatter, S. B., Schwalb, et al
2017; 2 (7)
 - **Early uptake Amyloid PET imaging correlates strongly with cerebral blood flow based on arterial spin labeling MRI: a simultaneous PET/MRI study**
Zaharchuk, G., Fan, A., Gulaka, P., Guo, J., Poston, K., Greicius, M., Sha, S., Vasanawala, M., Zeineh, M.
SAGE PUBLICATIONS INC.2017: 224–25
 - **Domain-specific accuracy of the Montreal Cognitive Assessment subsections in Parkinson's disease.** *Parkinsonism & related disorders*
Hendershott, T. R., Zhu, D., Llanes, S., Poston, K. L.
2017
 - **Abnormal eye movement behavior during reading in Parkinson's disease** *PARKINSONISM & RELATED DISORDERS*
Yu, C. Y., Lee, T., Shariati, A., Santini, V., Poston, K., Liao, Y.
2016; 32: 130–32
 - **Effects of Dopaminergic Medication on Working Memory in Patients with Parkinson's Disease with and without Mild Cognitive Impairment**
Sherman, E., Zhang, K., Everling, D., Marshall, A., YorkWilliams, S., Menon, V., Poston, K.
LIPPINCOTT WILLIAMS & WILKINS.2016
 - **The effects of dopamine on digit span in Parkinson's disease.** *Journal of clinical movement disorders*
Warden, C., Hwang, J., Marshall, A., Fenesy, M., Poston, K. L.
2016; 3: 5-?
 - **Task-rest modulation of basal ganglia connectivity in mild to moderate Parkinson's disease.** *Brain imaging and behavior*
Müller-Oehring, E. M., Sullivan, E. V., Pfefferbaum, A., Huang, N. C., Poston, K. L., Bronte-Stewart, H. M., Schulte, T.
2015; 9 (3): 619-638
 - **Task-rest modulation of basal ganglia connectivity in mild to moderate Parkinson's disease** *BRAIN IMAGING AND BEHAVIOR*
Mueller-Oehring, E. M., Sullivan, E. V., Pfefferbaum, A., Huang, N. C., Poston, K. L., Bronte-Stewart, H. M., Schulte, T.
2015; 9 (3): 619-638
 - **Gene delivery of neurturin to putamen and substantia nigra in Parkinson disease: A double-blind, randomized, controlled trial** *ANNALS OF NEUROLOGY*

- Olanow, C. W., Bartus, R. T., Baumann, T. L., Factor, S., Boulis, N., Stacy, M., Turner, D. A., Marks, W., Larson, P., Starr, P. A., Jankovic, J., Simpson, R., Watts, et al
2015; 78 (2): 248-257
- **A disease-specific metabolic brain network associated with corticobasal degeneration** *BRAIN*
Niethammer, M., Tang, C. C., Feigin, A., Allen, P. J., Heinen, L., Hellwig, S., Amtage, F., Hanspal, E., Vonsattel, J. P., Poston, K. L., Meyer, P. T., Leenders, K. L., Eidelberg, et al
2014; 137: 3036-3046
 - **Dissociated Effect of Dopamine on Cognitive Resting State Networks in PD**
Poston, K. L., Price, C., YorkWilliams, S., Everling, D., Fenesy, M., Marshall, A., Cruadhlaioich, M., Menon, V., Greicius, M. D.
WILEY-BLACKWELL.2014: S45-S46
 - **What light have resting state fMRI studies shed on cognition and mood in Parkinson's disease?** *Journal of clinical movement disorders*
YorkWilliams, S., Poston, K. L.
2014; 1: 4-?
 - **DOPAMINERGIC MODULATION OF WORKING MEMORY IN PARKINSON'S DISEASE PATIENTS**
Poston, K., Tayim, F., YorkWilliams, S., Lambert, J., Menon, V.
MIT PRESS.2013: 192
 - **Functional brain networks and abnormal connectivity in the movement disorders** *NEUROIMAGE*
Poston, K. L., Eidelberg, D.
2012; 62 (4): 2261-2270
 - **Network correlates of disease severity in multiple system atrophy** *NEUROLOGY*
Poston, K. L., Tang, C. C., Eckert, T., Dhawan, V., Frucht, S., Vonsattel, J., Fahn, S., Eidelberg, D.
2012; 78 (16): 1237-1244
 - **Dopaminergic Modulation of Basal Ganglia Connectivity in Parkinson's Disease**
Poston, K. L., Shire, W., Joseph, R., Menon, V., Greicius, M.
WILEY-BLACKWELL.2012: S138-S139
 - **AAV2-GAD gene therapy for advanced Parkinson's disease: a double-blind, sham-surgery controlled, randomised trial** *LANCET NEUROLOGY*
LeWitt, P. A., Rezaei, A. R., Leehey, M. A., Ojemann, S. G., Flaherty, A. W., Eskandar, E. N., Kostyk, S. K., Thomas, K., Sarkar, A., Siddiqui, M. S., Tatter, S. B., Schwalb, J. M., Poston, et al
2011; 10 (4): 309-319
 - **Fragile X-Associated Tremor/Ataxia Syndrome (FXTAS) with Myoclonus** *MOVEMENT DISORDERS*
Poston, K. L., McGovern, R. A., Goldman, J. S., Caccappolo, E., Mazzoni, P.
2010; 25 (4): 514-516
 - **Abnormalities in Metabolic Network Activity Precede the Onset of Motor Symptoms in Parkinson's Disease** *JOURNAL OF NEUROSCIENCE*
Tang, C. C., Poston, K. L., Dhawan, V., Eidelberg, D.
2010; 30 (3): 1049-1056
 - **FDG PET in the Evaluation of Parkinson's Disease.** *PET clinics*
2010; 5 (1): 55-64
 - **Action tremor of the legs in essential tremor: Prevalence, clinical correlates, and comparison with age-matched controls** *PARKINSONISM & RELATED DISORDERS*
Poston, K. L., Rios, E., Louis, E. D.
2009; 15 (8): 602-605
 - **Network biomarkers for the diagnosis and treatment of movement disorders** *NEUROBIOLOGY OF DISEASE*
Poston, K. L., Eidelberg, D.
2009; 35 (2): 141-147
 - **Movement disorder emergencies** *16th Symposium on the Treatment of Parkinsons Disease*
Poston, K. L., Frucht, S. J.
SPRINGER HEIDELBERG.2008: 2-13

- **Zydis selegiline in the management of Parkinson's disease** *EXPERT OPINION ON PHARMACOTHERAPY*
Poston, K. L., Waters, C.
2007; 8 (15): 2615-2624