Laboratory focus
The Cognitive and Occupational Performance Laboratory generates knowledge to guide the development of more effective and comprehensive rehabilitation programs for individuals with Parkinson disease (PD) or other neurological disorders and cognitive dysfunction. Rigorous translational approaches are used to understand functional cognition, occupational performance and participation in these conditions and to develop and test complex behavioral interventions to support them. The lab has collaborations that capitalize on its expertise related to cognition, PD, occupational performance and participation and is involved in the program development and evaluation efforts of the St. Louis Chapter of the American Parkinson Disease Association.

Questions explored in laboratory
1. How do neurocognitive deficits manifest in everyday life to affect occupational performance and participation?
2. How can we assess functional cognition in people with neurological conditions?
3. What interventions address functional cognition and support occupational performance and participation in people with neurocognitive dysfunction?
4. How can we best promote transfer/generalization of learning from laboratory or clinical contexts to everyday life?
5. What are the mechanisms of and potential intervention strategies for prospective memory in Parkinson disease without dementia?

Current and recent funding

Title: Training prospective memory in Parkinson disease: A pilot randomized controlled trial
Principal Investigator: Erin Foster, PhD, OTD, OTR/L
Funding Source: WUSM Program in Occupational Therapy Young Investigator Pilot Award, 9316A
Project Period: 10/01/2017-09/30/2019
Total Award: $627,766

Title: Investigations of dementia in Parkinson disease
Principal Investigator: Joel Perlmutter, MD
OT Investigator: Erin Foster, PhD, OTD, OTR/L
Funding Source: NIH NINDS R01 NS075321
Project Period: 05/01/2011-04/30/2021
Total Award: $14,909,932

Title: Remediating age related cognitive decline: Mindfulness-based stress reduction and exercise
Principal Investigator: Eric Lenz, MD
Funding Source: NIH NIA R01 AG049369
Project Period: 09/30/2014-06/30/2019
Total Award: $97,563,429

Contributions to rehabilitation science
Dr. Foster’s research contributes to the understanding of everyday cognitive function in PD. Her studies have demonstrated that cognitive deficits in non-demented individuals with PD are associated with poorer performance of and reduced participation in complex activities of daily living. This work has formed the foundation for the development of cognitive intervention strategies to improve everyday function and quality of life in PD. One line of Dr. Foster’s research is related specifically to prospective memory, as it is a highly relevant cognitive process for real-world functioning. Her studies in this area have contributed significantly to the understanding of prospective memory function in PD and healthy aging in both experimental and more naturalistic contexts. Her lab has begun developing and testing intervention strategies for prospective memory based on this work and has extensive knowledge and experience with the measurement of prospective memory across the lifespan and in healthy populations and those with PD.

Dr. Foster’s research also involves the development and use of functionally relevant cognitive assessments. This work has produced translational assessment models, clinically relevant assessments and measurement models that can be used to understand the connections between brain structure/function, laboratory-based behavior and function in everyday life.

Representative publications