

Mapping non-motor function in the STN with deep brain stimulation

Deep brain stimulation of the subthalamic nucleus (DBS STN) in individuals with Parkinson's disease (PD) can have dramatic beneficial effects on motor function. However, it may also negatively affect cognition and mood, two domains that are impaired in PD, even in early stages. These effects may be due in part to the location of the contact(s) on the DBS electrode within the functionally heterogeneous STN region. Direct tests of this hypothesis are limited. We are using DBS STN and a novel, validated method for locating the site of contacts within the STN to address questions about the neural circuitry underlying cognitive and mood dysfunction in PD. These methods provide a unique opportunity to map the relationship between STN regions and these non-motor functions.

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Tamara Hershey, Ph.D. is an Associate Professor in the Departments of Psychiatry, Neurology and Radiology at Washington University School of Medicine. Dr. Hershey's work falls within the fields of cognitive and clinical neuroscience. One major area of interest is in the effects of diabetes on the brain during development. Her work examines the cognitive and neural risks of both severe hypoglycemia and chronic hyperglycemia during childhood and adolescence in type 1 diabetes. Another line of research addresses the neuropathophysiologic underpinnings of cognitive and mood dysfunction in diseases relevant to dopamine and the basal ganglia, such as Parkinson disease and Tourette syndrome.