

Deep Brain Stimulation Effects On Noun And Verb Naming In Parkinson`S Disease

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Introduction: Embodied semantics theory suggests that action language requires the involvement of sensorimotor brain regions. Accordingly, Parkinson's disease (PD) patients have action language deficits. Noun production is preserved, whereas patients perform worse in action verbs compared to healthy controls. We aimed to investigate the effects of subthalamic nucleus deep brain stimulation (STN DBS) on noun and verb naming in PD and whether the effects are similar to the alterations in motor symptoms. **Methods:** Nine PD patients with bilateral STN DBS were included. Patients were tested while "on" medication. Patients performed picture naming tasks consisting of object nouns and action verbs during bilateral on, bilateral off, only left side and only right side stimulation. Motor symptoms were assessed with Unified Parkinson's Disease Rating Scale (UPDRS)- Part III during all stimulation conditions. Accuracy and reaction times (RTs) were analyzed for naming performance. **Results:** Naming performance was overall better in nouns compared to verbs. Stimulation conditions, however, did not have significant effects on naming. Word group and stimulation conditions also did not have interaction effects. Motor symptoms, on the other hand, were significantly improved by stimulation; UPDRS-Part III scores differed in between all conditions. Both noun and verb naming performance did not correlate with UPDRS- Part III scores during any of the stimulation conditions. **Conclusion:** Parkinson's disease patients seem to perform better in nouns than verbs while picture naming. Nevertheless, STN DBS does not seem to affect noun and verb naming as it affects motor symptoms.