

The effects of deep brain stimulation on speech motor programming in patients with Parkinson's disease
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The purpose of this study was to measure the effects of deep brain stimulation (DBS) on retrieval and maintenance of speech motor programs in individuals diagnosed with Parkinson's disease (PD) and hypokinetic dysarthria. Recent literature suggests that a portion of the underlying mechanism of hypokinetic dysarthria in individuals with PD may be related to deficits in speech motor programming, including switching and maintaining programs (Spencer & Rogers, 2005; Van der Merwe, 1997). Furthermore, since DBS has been shown to influence a variety of the motor symptoms of PD in the limbs, we posited that DBS may also improve motor speech function due to the normalizing effect of DBS on basal ganglia output to thalamocortical motor areas. In order to test the ability to retrieve and maintain speech motor programs, two priming conditions were tested (i.e., 'switch' or 'no switch') in two DBS states (i.e., 'on' and 'off' stimulation), with patients off dopamine. Primary dependent variables included speech reaction time (SRT) and response accuracy. Results suggest that 'switching' motor programs requires additional preparatory activities for speech production in comparison to the 'no switch' condition and that DBS improves SRT in the 'no switch' condition.)