

Effect of Etiology on the Impact of Deep Brain Stimulation

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Parkinson's Disease (PD) is characterized by marked clinical diversity, including subtypes of tremor predominant (PD-T) and akinetic predominant (PD-A). The impact of deep brain stimulation (DBS) on speech is notoriously variable. This pilot study was designed to explore how etiological subtypes may impact the effect of DBS on conversational speech. Participants were six individuals, two with each of the following etiologies; PD-T, PD-A and essential tremor (ET). Conversational speech was assessed with DBS on and off. Measures reflected rate, prosody, fluency, and voice. In general, the effect of DBS did not appear to be impacted by etiology. Individuals with PD-T and ET spoke more quickly in the off condition, while, as expected, individuals with PD-A did so in the on condition. Across subtypes, the majority demonstrated greater fundamental frequency and intensity variation in the off condition. The effect of DBS stimulation on fluency was not at all consistent within subtype. Individuals with ET demonstrated the poorest voice quality overall, worsening in the off condition. In this small sample, it was not possible to distinguish the effects of DBS on speech according to etiology. As with previous studies, large individual differences mask a consistent benefit or detriment.