

Effects of altered auditory feedback on festinating speech in Parkinson's disease
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Altered auditory feedback (AAF), including time-delay (DAF) and frequency-shift (FSF) may reduce festinating dysarthria in Parkinson's disease (PD). Previous research examined immediate effects of DAF and FSF in speakers with hypokinetic dysarthria, and considered the impact of impaired cognition on benefits from DAF. This prospective, longitudinal study addressed short- and long-term effects of AAF on speech rate, naturalness, intelligibility, and speech disability (modified *Voice Handicap Index, mVHI*) in 6 men with PD and festinating speech. Participants provided repeated-baseline data, received a binaural AAF device optimally set for improved speech, wore it daily, and returned monthly for 6 months for retesting and adjustment of the device. Two participants were non-compliant for wearing the device and withdrew from the study before its completion. The four who completed the study reported or demonstrated improved speech while wearing the device. Three participants purchased it at the conclusion of the study and continued to report benefits 2 years later. Cognitive testing supported the notion that impaired divided auditory attention has a negative impact on success with AAF. These results provide the first report of long-term outcomes for persons with PD using an AAF device, and suggest that benefits are enduring and worthwhile for selected users.