

Eye movements and prosody during reading in individuals with Parkinson's disease

Eunsun Park, Ph.D.
Frank Boutsen, Ph.D.
Justin Dvorak, Ph.D.

Hypokinetic dysarthria and cognitive impairment have been well documented in elderly patients with longstanding PD. Few studies have addressed early onset impairments in PD. One such deficit is reading impairment, which in PD could stem from disorders of eye movement, cognition, or prosody. This study investigated eye movements and prosody during silent and oral reading in individuals with mild to moderate young-onset PD, as compared to age-matched healthy individuals.

Thirteen participants with mild-moderate PD without dementia and 17 control participants read sentences including target words with one or two stressed syllables silently or aloud.

Results showed that participants with PD had significantly longer first fixation during silent and oral reading. During oral reading, the PD group had slower articulation rate and a higher raw pairwise variability index (rPVI) on vowels for duration. Word frequency influenced eye fixation duration; longer first fixation durations were present on low frequency words in both groups. However, the number of stressed syllables or dysarthria severity (none to mild) did not influence eye movement or speech prosody.

Results failed to corroborate the notion that prosody is reflected in fixation and or gaze duration during reading. That said, they show evidence of increased durational variability and slower articulation rate in speech as well as a mild reading deficit in participants with young-onset PD who were diagnosed with no or mild hypokinetic dysarthria and normal reading skills.