

## **Effects of levodopa on voice quality in Parkinson's disease**

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The effect of levodopa on perceptual and acoustic measures of voice quality was examined in fifty-one individuals with Parkinson's disease (IWPD). IWPDs produced prolonged vowels while on and off levodopa. Acoustic measures included jitter, shimmer, harmonic-to-noise ratio, cepstral peak prominence and the Acoustic Voice Quality Index. A perceptual measure of overall voice quality was obtained from 3 listeners. When the IWPDs were examined as a group, no significant difference was found between on and off levodopa conditions. In contrast, when IWPDs were split into two groups based on voice quality severity, a significant group-by-medication state interaction emerged. In addition, there was a significant correlation ( $r = .55$ ) between the magnitude of levodopa-related improvement in perceived voice quality and voice quality severity. In contrast, levodopa-related improvement in voice quality was not correlated with duration of disease or levodopa use. Results do not support the hypothesis of reduced levodopa-responsiveness to voice symptoms as disease duration increases. Instead, the results suggest that the magnitude of the levodopa response may increase with increasing severity of the voice quality symptoms. These results suggest that the severity of speech and voice symptoms needs to be given greater consideration in future studies of levodopa effectiveness in IWPDs.