

Critical factors for speech naturalness in Swedish-speaking people with Parkinson's disease. A correlational study between listener judgement and acoustic analysis.

Abstract

Speech and voice changes are common in Parkinson's disease. These changes can affect the speaker's intelligibility but can also have a negative impact on the perceived naturalness of speech. The research available regarding the different factors that affect speech naturalness is scarce, especially in Swedish, which was the motivation behind this study.

The aim of the present study was to investigate whether the level of perceived speech naturalness could derive from any specific aspects of speech. This was accomplished by recording speech samples from eight people with Parkinson's disease using a test battery with various speech tasks. These samples were presented to a group of 27 naïve listeners whose task was to judge the level of intelligibility as well as the level of speech naturalness. Correlations were then made between their assessments and various acoustic measurements.

The main finding of the present study was that speech and articulation rate seemed to have the greatest impact on the perceived level of naturalness, where the people who had the slowest rate were judged to be the least natural sounding. Furthermore there were strong indications that the level of intelligibility correlated with the level of speech naturalness. In this study there were no other acoustic correlates found with statistical significance.