

**Effects of Nonlinear Frequency Compression on Speech Recognition and Sound Quality in Mild to Moderate Hearing Loss**

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Nonlinear frequency compression (NFC) has been utilized in the treatment of more severe and steeply sloping hearing losses for some time (Glista, 2009; Simpson et al., 2006; Sakamoto et al., 2000). However, NFC is also increasingly advocated as a means of improving speech recognition for the mild-to-moderately hearing impaired. Specifically, important high-frequency phonemes, such as /s/, are reported as being more accessible when presented at a lowered frequency than with conventional amplification alone. Given the lack of consistent, demonstrated speech recognition effects in adults with mild-to-moderate hearing impairment, it was felt that a more thorough investigation was in order. Using an objective NFC fitting procedure and an extended acclimatization period, this study assessed speech recognition abilities in quiet and in noise, as well as sound quality judgments, for a group of adult listeners with mild-to-moderate hearing loss across four hearing aid conditions, varying as a function of high-frequency and extended high-frequency bandwidth. Both broadband and lowpass filtered stimuli were utilized to identify the source of any NFC effects, if observed. This study's results point to no significant effect of NFC on logatome, CVCVC nonsense word, or sentence recognition, when audibility is maintained through traditional hearing aid bandwidths. Additionally, no significant effect on sound quality was observed through a paired-comparison task for both speech and music signals. Therefore, these data do not support NFC as a means to improve speech recognition for mild-to-moderately hearing impaired adults.

