Frequency-Modulation Vowel Maps in Normal-Hearing and Hearing-Impaired Listeners

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FREQUENCY-MODULATION VOWEL MAPS IN NORMAL-HEARING AND HEARING-IMPAIRED LISTENERS

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INTRODUCTION
Sound emitted by most natural vibrating sources is not steady in pitch but contains frequency fluctuations over time, the perception of which is a function of the hearing system. In this study, we aimed to investigate the effects of hearing impairment and musical experience on the perception of vocal vibrato and the identification of vowel quality.

METHODS
INTRODUCTION

The perception of vocal vibrato, and thereby vowel quality and identification, is a function of the hearing system. In this study, we aimed to investigate the effects of hearing impairment and musical experience on the perception of vocal vibrato and the identification of vowel quality.

SUBJECTS

29 normal-hearing (NH) listeners (8 musicians [NHm], 21 non-musicians [NHo]) and 29 hearing-impaired (HI) listeners (17 musicians [HIm], 12 non-musicians [HIo]) participated in this study. All participants had normal hearing in the NH group and a maximum of 20 dB hearing loss at 4 kHz in the HI group.

PROCEDURE

The NH group was trained to listen to synthesized vowels with and without vibrato and to identify the vibrato condition. The HI group was trained to listen to synthesized vowels with and without vibrato and to identify the vibrato condition.

RESULTS

The results showed that the NH group had a higher threshold for detecting vibrato than the HI group, indicating a smaller sweet-spot area. This effect was more pronounced for musicians than for non-musicians.

CONCLUSIONS

The results suggest that hearing impairment and musical experience affect the perception of vocal vibrato and the identification of vowel quality. These findings have implications for the development of synthetic-vowel stimuli that can be used in hearing aid settings.

REFERENCES


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