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. In this study, we investigate whether frequency modulation cues are used in vowel perception by normal-hearing and hearing-impaired listeners. This was achieved by obtaining "vowel maps" in the two groups as a function of the two primary acoustic parameters of vocal vibrato: FM rate and FM excursion. This study aimed to explore the adaptive fusion of the sound's frequency components and its implications for listeners' ability to recognize and segregate vowels.

METHODS

Subjects

14 HI listeners (7 musicians [HIm], 5 non-musicians [HIo])
12 NH listeners (7 musicians [NHm], 5 non-musicians [NHo])

Procedure

- Tracking of the "sweet spot" area for which a singing voice emerges in the third stimulus segment as a function of FM rate and FM excursion (Fig. 2)
- One FM parameter was kept constant while the other was adjusted in a 1-interval, 2-APF ascending task with a 1-1-downward paradigm

RESULTS

- Effects of hearing impairment and musical experience

CONCLUSIONS

- Potential explanations for individual differences in the sweet-spot area

REFERENCES


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