

Auditory feedback guides online corrections to vowel acoustics  
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Do speakers use auditory feedback to shape their natural utterances? When feedback is altered experimentally, speakers make vocal adjustments that serve to partially compensate for the alteration. However, it is unclear how much the sound of one's own voice is used to guide speech movements in more natural contexts. In this study, we compared the formant trajectories of monosyllabic words spoken by healthy speakers in different levels of masking noise. By eliciting many repetitions of the same words, we were able to measure how the trajectories varied across the formant distribution. We found that spoken vowels exhibited a "centering" effect in which formants tended to move toward the center (median) of the distribution over the course of a single syllable. This centering served to decrease the acoustic variance from the beginning to the middle of the syllable, "correcting" the more wayward trajectories and bringing them in line with more prototypical utterances. The effect occurred across all speakers and all noise conditions, although it was greatest in quiet and smallest in masking noise, when auditory feedback was not available. This finding suggests that auditory feedback substantially contributes to an ongoing corrective process that guides vowel acoustics.