

Speech sound training in seniors: The effect of training on speech perception

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We present results from the first series of studies which examine the claim that the ability for the reorganization of phonetic systems remains intact over the entire lifespan (Best & Tyler 2017, Flege & Bohn 2021). The first part of this presentation is an overview of findings which support this claim, and which present clear evidence against a critical period for speech learning. However, this evidence is limited to relatively young learners up to the age of ca. 30 years. The second part of the talk presents our studies which examine the claim of lifelong speech learning abilities by comparing the efficacy of perceptual training for two groups of native Danish participants, a young group (age range 18 – 30 years, “juniors”) and a relatively old group (age range 60 - 75 years, “seniors”). One of these studies examined identification accuracy for the English /s/-/z/ contrast before and after perceptual training (Danish has no voiced fricatives). After an initial familiarization at our lab, members of the experimental group completed nine training sessions over three weeks at home by accessing the webtool *Percy* (Draxler 2014). Identification accuracy for the two age groups, and two age-matched control groups which were not trained, was equivalent before training (mean: 71.9 % correct). Identification accuracy increased significantly from pre-training (mean: 74.0 %) to post-training (mean: 89.7%) for both experimental age groups but not for the untrained control groups. The training trajectory (changes in identification accuracy over the training sessions) did not differ between the two age groups. Delayed post-tests two months after the last training session revealed slight and nonsignificant decreases in accuracy for the two trained age groups.

We are currently analyzing the results from a second perceptual training study in which juniors and seniors are trained on the four Mandarin tones in a high variability training paradigm, and which relate the results from tone training to participants’ general pitch discrimination sensitivity. Preliminary results indicate an increase in perceptual accuracy for both age groups, with younger trainees benefiting more from training than the seniors. Delayed post-tests suggest that this tone training study, like the first fricative voicing study, results in robust perceptual changes.

The results of our studies allow us to conclude that an advanced chronological age does not compromise phonetic learning in a perceptual training paradigm. These results thus support the claim that the ability for reorganization of phonetic systems remains intact over the entire life span.

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