

AGE-RELATED DECLINE IN FACE IDENTIFICATION CAN BE TRAINED
AWAY, AND IS EXPLAINED BY HORIZONTAL BIAS

BY

ALEXANDER W. ELLIOTT

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AUTHOR: Alexander W. Elliott

SUPERVISOR: Dr. Allison B. Sekuler

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ABSTRACT

Horizontal structure conveys diagnostic information for face identity. Younger adults preferentially rely on this structure for identification, and the extent of this horizontal bias correlates with identification accuracy in younger adults. Older adults identify faces less accurately and exhibit less horizontal bias compared to younger adults, particularly when the diagnostic facial information is not explicitly defined. Here, we examine whether training improves face identification in older adults, and whether enhanced face identification correlates with increased horizontal bias for diagnostic facial structure. Twelve older adults (67-77 years old) trained in a 1-of-10 face identification task for 1200 trials spread across 3 days. Before and after training, we assessed horizontal bias with orientation-filtered stimuli that preserved target-diagnostic information in 9 orientation bands. Training improved accuracy in older adults by an average of 24%. Horizontal bias in older adults increased significantly after training: training improved identification accuracy significantly more for stimuli containing horizontal diagnostic structure than vertical diagnostic structure. Also, the change in horizontal bias from pre- to post-training was correlated with response accuracy during training. Thus, age-related deficits in face identification can be trained away, and is explained by an increase in sensitivity to the horizontal structure of a face, compared to the vertical structure.