The Development of Attentional Control of Auditory Perception from Middle to Late Childhood and Comparisons to Healthy Aging

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Abstract

Conversational situations confront listeners with a wealth of competing auditory inputs; the listeners thus need to selectively focus on relevant information, particularly when the perceptual saliency of the competing irrelevant auditory inputs is high. We used an intensity-attention-modulated dichotic listening paradigm to study age-related differences in such selective attention mechanisms between 24 younger (7 to 8 years) and 24 older children (11 to 12 years). The children were instructed to either attend to the right- or left-ear ear stimulus and perceptual saliency was manipulated by stepwisely decreasing the loudness of either the left- or right-ear stimulus. Attentional control demands were higher in conditions when attentional focus and perceptual saliency favored opposing ears than in conditions without such conflict. The results showed that older children were able to focus on auditory inputs from either ear, overcoming the effects of perceptual saliency, while younger children showed deficits in the high demand situation. Direct comparisons with data from a recently published study of 24 younger (23-35 years) and 25 older (65-76 years) adults (Passow et al., in press; Psychology and Aging) suggest that although younger children and older adults show similar levels of performance, different factors were involved. The younger children's performance was characterized by selective difficulties in attentional control, whereas older adults' performance deficits additionally reflect an exaggerated reliance on perceptual saliency. We conclude that auditory attentional control improves considerably from middle to late childhood, and that auditory attention deficits in healthy aging cannot be reduced to a simple reversal of childhood improvements.

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