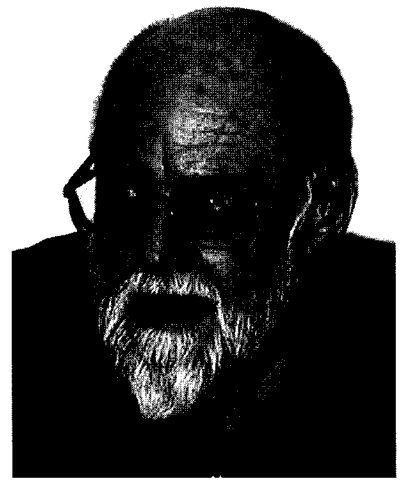
Editorial

Attention versus Competition



We are all familiar with the persistent complaint of elderly hearing aid users, difficulty hearing in background noise. There are at least two different mechanisms that might account for such a problem. One is loss in the ability to attend selectively to one source while successfully ignoring other sources. Such a deficit in selective attention might underlie poor performance in background noise. Another possibility, however, is an age-related loss in the ability to suppress concurrent distracting sounds. Such a competition effect might also explain poor performance in a noisy background.

In this issue of *JAAA,* authors Albert De Chiccis, Michael Carpenter, Jerry Cranford, and Murvin Hymel, of the University of Georgia and East Carolina University, report a study in which they evaluated both effects in the same experiment. Results are reported in their article, "Electrophysiologic Correlates of Attention versus Distraction in Young and Elderly Listeners." Event-related potentials (ERPs) were recorded from scalp electrodes as listeners responded to pure-tone stimuli in an oddball paradigm. In a monaural condition, the rare tone was presented to either the right or the left ear, whereas in a binaural condition, the participant was instructed to attend to a particular ear and to ignore stimuli in the opposite ear. Attention effects were quantified by comparing the response to the frequent tone at the ear the participant had been instructed to ignore with the response at the ear to be attended. Competition effects were quantified by comparing responses to attended frequent tones in the binaural condition with responses to the same frequent tones in the monaural condition. This approach was used to compare two groups, 20 young adults and 20 elderly persons.

Results showed that the two groups were relatively similar on the bulk of the selective attention measures. On the competition measures, however, there were a number of significant group differences. The authors conclude that "...the ability to attend selectively to sounds may be more resistant to normal aging than are effects related to stimulus competition."

These results are encouraging from the standpoint of hearing aid use in elderly persons. Genuine loss in the cognitive dimension of selective attention is less likely to benefit from innovative intervention strategies than problems in dealing with competition. The distracting effects of background competition may, for example, be attenuated by digital signal processing strategies that enhance localization, directionality, and foreground/background ratio.

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