Covert crossmodal attention increases auditory contrast sensitivity

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BACKGROUND

Auditory contrast sensitivity has been found to increase perceived contrast and has been shown to alter the visual contrast response function via a mechanism of crossmodal contrast gain, a finding for auditory visual attention (Bonnel, A-M, Hafter, ER (1998) Divided attention between simultaneous auditory and visual signals. Perception and Psychophysics, 17-190. Overath & Stromeyer, 1979). However, it is unknown whether or not attention can alter the sensitivity to auditory contrast via attentional mechanisms found to be important for visual processing.

METHODS

To determine if varying attentional load can influence the detectability of an auditory stimulus, we used a two-interval forced-choice paradigm (2IFC) to obtain auditory contrast detection thresholds under two different attention conditions. We varied attentional load across blocks of trials by varying the difficulty of a competing visual task (attentional load) after auditory performance. Subjects completed 10 blocks (1125 trials) of each of two attention conditions over several days, with a 1 week interval. Each session lasted between 1-2 hours.

Analysis

The mean auditory threshold ratio (hard/easy) is greater than 1, suggesting that auditory sensitivity is higher for the less demanding visual condition compared to the more demanding visual condition.

REFERENCES