

The Role of Visual and Auditory Stimuli in Continuous Performance Tests: Differential Effects on Children With ADHD

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Abstract

Objective:

Continuous performance tests (CPTs) usually utilize visual stimuli. A previous investigation showed that inattention is partially independent of modality, but response inhibition is modality-specific. Here we aimed to compare performance on visual and auditory CPTs in ADHD and in healthy controls.

Method:

The sample consisted of 160 elementary and high school students (43 ADHD, 117 controls). For each sensory modality, five variables were extracted: commission errors (CEs) and omission errors (OEs), reaction time (RT), variability of reaction time (VRT), and coefficient of variability ($CofV = VRT / RT$).

Results:

The ADHD group exhibited higher rates for all test variables. The discriminant analysis indicated that auditory OE was the most reliable variable for discriminating between groups, followed by visual CE, auditory CE, and auditory CofV. Discriminant equation classified ADHD with 76.3% accuracy.

Conclusion:

Auditory parameters in the inattention domain (OE and VRT) can discriminate ADHD from controls. For the hyperactive/impulsive domain (CE), the two modalities are equally important.