Attention-Deficit/Hyperactivity Disorder-Related Deficits and Psychostimulant Medication Effects on Comprehension of Audiovisually Presented Educational Material in Children

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Abstract

OBJECTIVE:
We aimed to (1) examine differences in observed visual attention and motor activity, as well as comprehension of a science video between children with and without attention-deficit/hyperactivity disorder (ADHD) and (2) explore if psychostimulant medication improves ADHD behaviors and comprehension of a science video in children with ADHD.

METHOD:
Children aged 7-11 with (n = 91) and without (n = 45) ADHD watched a science video and then completed a comprehension test. Then, children with ADHD began a 4-week within-subject, randomized, double-blind crossover trial of methylphenidate (MPH). At post-testing, children were randomized to receive placebo or their optimal dosage, watched another science film, and completed a comprehension test.

RESULTS:
Children with ADHD exhibited higher rates of motor activity during, and worse comprehension of material discussed within, the science video. Mediation models revealed that increased motor activity suppressed between-group differences in comprehension. MPH improved comprehension and visual attention, but not motor activity during the science video.

CONCLUSION:
Children with ADHD may benefit from MPH to improve comprehension of and sustained attention during audiovisually presented learning material.