Attention-memory training yields behavioral and academic improvements in children diagnosed with attention-deficit hyperactivity disorder comorbid with a learning disorder.


Abstract

BACKGROUND:
Recent studies have suggested that children with attention-deficit hyperactivity disorder (ADHD) may benefit from computerized cognitive training. Therapy implementation is especially complicated when ADHD is associated with learning disorders (LDs). This study tested the efficacy of a computer-based cognitive training program, namely, computerized cognitive training (CCT), in children with ADHD comorbid with an LD (ADHD-LD), with or without psychostimulant medication.

MATERIALS AND METHODS:
After diagnostic evaluations, 27 children with ADHD-LD (8 unmedicated and 19 medicated) participated in CCT, which is intended to improve attention, memory, reasoning, visual processing, and executive functioning. The participants completed 24 1-hour sessions over 3 months. Neuropsychometric and standardized academic test results before and after training were compared to assess treatment efficacy. Shapiro-Wilk normality tests were applied, and subsequent Wilcoxon tests were used to identify significant differences in pre-versus post-training performance.

RESULTS:
After CAT, children diagnosed with ADHD-LD showed 1) improvements in trained skills, measured directly within the software and indirectly by external psychometric tests; 2) improvements in attention, memory, and some executive functioning; 3) improvements in academic performance, particularly in mathematics; and 4) reductions in maladaptive behavioral features.

CONCLUSION:
The present findings suggest that cognitive training programs should be explored further as potential adjunctive therapies to improve outcomes in children with ADHD-LD.