Working Memory Training in the Form of Structured Games in Children with Attention Deficit Hyperactivity Disorder

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ABSTRACT

Objective:
In this study, a new training method of working memory (WM) was used in the form of structured games, and the effect of training was evaluated with a controlled design. The training method of WM in the form of structured games includes 20 sets of structured games that can improve WM and performance of executive functions.

Method:
Sixty children with attention deficit hyperactivity disorder (ADHD) aged 8.5 to 11.2 years (35 boys), using no stimulant medication were selected. We randomly assigned 30 participants to the experimental group and provided them with WM training. The training was in the form of structured games and was offered to the participants in two 60-minute sessions weekly for 12 weeks. Other participants were assigned to the control group, receiving no treatment. All the participants were also evaluated at follow-up 6 months later. The main measures were the Child Behavior Checklist (CBCL), the Digit Span and Symbol Search B subscale of the Wechsler Intelligence Scale for Children (WISC-IV); and scores of dictation and mathematics were used in terms of pre and post-test.

Results:
The results of the t-test revealed a significant improvement in the post-test measures as well as a significant reduction of parents’ reports of inattentiveness, and improvement in academic performance in the experimental group. However, no significant changes were found in the control group.

Conclusion:
The academic and working memory improvements were primarily due to the training method of WM. Our findings suggest that the training method of WM in the form of structured games may be a practical method for treating children with ADHD, but it needs to be further investigated.