

The Effect of Neurocognitive Exercise Program on ADHD Symptoms, Attention, and Dynamic Balance in Medication Naive Children with ADHD: A Pilot Study

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Abstract : Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders with heterogeneous clinical features such as inattention, hyperactivity, and impulsivity. Many different types of exercise interventions were employed for children with ADHD. However, previous studies have usually examined the effects of non-specific exercise programs or short-term effects of exercise. The aim of this study is to investigate the effect of the Neurocognitive Exercise Program (NEP), which is a structured exercise program derived from Life Kinetik, and a relatively new for children with ADHD, on symptoms, attention, and dynamic balance in medication-naïve children with ADHD. Fourteen medication-naïve children (7-12 years) with ADHD were included in the intervention group. NEP was performed once a week for ten weeks. The intervention group also performed a structured home exercise program for another six days, for ten weeks. The children in the intervention group were assessed at baseline, in the third month, in the sixth month, and in the twelfth month regarding ADHD-related symptoms, attention, and dynamic balance. Fifteen age-matched typically developing children were assessed once for establishing normative values. Hyperactivity-Impulsivity score and dynamic balance were found to improve after NEP in the ADHD group in the 3rd month ($p < 0.05$). In addition, these results were similar for both groups after NEP and at the end of the 12th month ($p > 0.05$). The NEP may provide beneficial effects on hyperactivity-impulsivity, oppositional defiant, and dynamic balance in children with ADHD, and the improvements may be maintained in the long term.

Keywords : ADHD, attention problems, dynamic balance, neurocognitive exercise

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