Exercise Effect in Children with Attention-Deficit Hyperactivity Disorder: Meta-Analysis of Domestic Study

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Abstract

The aim of this meta-analysis study was to examine the effectiveness of exercise interventions on attention-deficit hyperactivity disorder (ADHD) pertaining to cognitive function such as attention and impulsivity in children. A comprehensive literature search was conducted using databases including Korean Information Service System, DBpia, Research Information Sharing Service, and National Assembly Library from 1995 to 2014. Search terms included 'ADHD', 'children', 'exercise', 'physical activity', and 'sports'. Standardized mean difference and 95% confidence intervals were calculated, and the heterogeneity of the studies was estimated using Q statistic. That is, these results revealed that effectiveness of exercise groups was higher by approximately 32% compared with control groups.

Eight studies (n=150) satisfied the inclusion criteria. The meta-analysis suggested that exercise has a moderate to large effect on core symptoms involved in attention [effect size (ES)=0.93] and impulsivity (ES=0.92) in children with ADHD. The main findings indicate that exercise, based on several types of exercise intervention, appears to be effective for mitigating symptoms such as attention, impulsivity in children with ADHD. From this perspective, exercise might be an effective adjunctive therapy for enhancing the effects of medication in children with ADHD. Future study related to exercise effect on ADHD symptoms is required in order to understand the specific evidence of relationship between exercise and core symptoms.