

The effects of physical exercise in children with attention deficit hyperactivity disorder: A systematic review and meta-analysis of randomized control trials

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Objective: The aim of this systematic review and meta-analysis was to examine the evidence for the effectiveness of exercise interventions on attention deficit hyperactivity disorder (ADHD)-related symptoms such as inattention, hyperactivity/impulsivity, anxiety and cognitive functions in children and adolescents. **Method:** Five databases covering the period up to November 2014 (PubMed, Scopus, EMBASE, EBSCO [E-journal, CINAHL, SportDiscus] and The Cochrane Library) were searched. Methodological quality was assessed using the Cochrane tool of bias. Standardized mean differences (SMD) and 95% confidence intervals were calculated, and the heterogeneity of the studies was estimated using Cochran's Q-statistic. **Results:** Eight randomized controlled trials (n=249) satisfied the inclusion criteria. The studies were grouped according to the intervention programme: aerobic and yoga exercise. The meta-analysis suggests that aerobic exercise had a moderate to large effect on core symptoms such as attention (SMD=0.84), hyperactivity (SMD=0.56) and impulsivity (SMD=0.56) and related symptoms such as anxiety (SMD=0.66), executive function (SMD=0.58) and social disorders (SMD=0.59) in children with ADHD. Yoga exercise suggests an improvement in the core symptoms of ADHD. **Conclusions:** The main cumulative evidence indicates that short-term aerobic exercise, based on several aerobic intervention formats, seems to be effective for mitigating symptoms such as attention, hyperactivity, impulsivity, anxiety, executive function and social disorders in children with ADHD. © 2015 John Wiley & Sons Ltd.

Attention deficit hyperactivity disorder

Children

Cognitive function

Exercise

Meta-analysis

Attention Deficit Disorder with Hyperactivity

child

exercise

human

kinesiotherapy

meta analysis

patient compliance

procedures

publishing

randomized controlled trial (topic)

sensitivity and specificity

yoga

Attention Deficit Disorder with Hyperactivity

Child

Exercise

Exercise Therapy

Humans

Patient Compliance

Publication Bias

Randomized Controlled Trials as Topic

Sensitivity and Specificity

Yoga