Managing childhood and adolescent attention-deficit/hyperactivity disorder (ADHD) with exercise: A systematic review

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Abstract

Background
Attention deficit hyperactivity disorder (ADHD) is one of the most common neuropsychiatric disorders affecting some 8–10% of children worldwide. Increasing research has shed light on the life course of the disorder, suggesting that majority of children with ADHD will continue to have persistent symptoms into adulthood. The mainstay of ADHD management has been pharmacologic and behavioral/psychological interventions, with little attention paid to exercise as a potential management strategy. A systematic review, examining both the short-term and long-term effects of exercise on children with ADHD, is timely and necessary to guide further research in this area.

Methods
Using the keywords [exercise OR physical OR activity OR sport] AND [attention deficit hyperactivity disorder OR ADHD OR ADDH], a preliminary search on the PubMed and Ovid database yielded 613 papers published in English between 1-Jan-1980 and 1-July-2016. Full articles were also reviewed for references of interest.

Results
A total of 30 studies were included in this systematic review. Both short-term and long-term studies support the clinical benefits of physical activity for individuals with ADHD. Cognitive, behavioral and physical symptoms of ADHD were alleviated in most instances, and the largest intervention effects were reported for mixed exercise programs. No adverse effects arising from physical exercise were reported in any of the studies, suggesting that exercise is a well-tolerated intervention.

Conclusion
Physical activity, in particular moderate-to-intense aerobic exercise, is a beneficial and well-tolerated intervention for children and adolescents with ADHD. Future research should include more adequately-powered trials and investigate the ideal exercise prescription.