

Effect of physical exercises on attention, motor skill and physical fitness in children with attention deficit hyperactivity disorder: a systematic review

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Abstract

Children with attention deficit hyperactivity disorder (ADHD) are educated in classrooms along with typically developing children. Those with ADHD, however, find it difficult to participate in routine educational and recreational activities as they encounter problems associated with behaviour, attention, motor skills and physical endurance. Traditionally, the management of children with ADHD has focussed primarily on problems with cognition and has been heavily dependent on pharmaceutical interventions and, to a lesser extent, on non-pharmaceutical measures. More recently, experts have increasingly advocated the use of exercises in alleviating symptoms associated with ADHD. The primary objective of this review was to summarize research that examined the role of exercises on deficits related to attention, motor skills and fitness in children with ADHD. A search of the available literature was conducted using a combination of relevant key words in the following databases: PubMed, MEDLINE, Google Scholar, Embase and Cochrane review. The search filtered 3016 studies of potential relevance, of which 2087 were excluded after screening titles and abstracts as per the inclusion criteria. Thirty-four (34) studies were analysed in greater depth, and 16 were excluded after detailed consideration as they did not match the inclusion (PEDro score > 4) and exclusion criteria. Three (3) additional studies were excluded as they lacked exercise prescription details such as intensity, duration and frequency of exercise. Finally, 15 studies were analysed with a focus on the effects of physical exercises on attention, hyperactive behaviour, motor skills and physical fitness in ADHD children. Overall, the studies reviewed were of moderate-to-high quality and reported benefits of a variety of exercise programmes in improving motor skills, physical fitness, attention and social behaviour in children with ADHD. However, there was limited information regarding school-based programmes, the effects of structured exercise programmes independently or in combination with cognitive-based therapies, and the long-term benefits of exercises in alleviating behavioural problems in these children.