

Effects of Physical Activity on Cardiovascular Health and Insulin Resistance in Overweight and Obese Children and Adolescents: Evidence from Recent Randomized Controlled Trials

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Abstract

Cardiovascular disease and insulin resistance is significantly linked to childhood overweight and obesity. Physical activity (PA) is recognized as a fundamental component of non-pharmacological therapies. Main objective of this paper was to review consolidates findings from randomized controlled trials (RCTs) undertaken in the last decade that investigated the impact of organized physical activity treatments on cardiometabolic outcomes and insulin resistance in overweight and obese children and adolescents. 6 studies were selected to be part of this review. Interventions included aerobic and resistance exercise as well as school-based high-intensity interval training (HIIT). Throughout the studies, physical activity treatments significantly improved insulin sensitivity indicators, cardiorespiratory fitness, and cardiovascular health markers. The findings endorse physical activity as an efficacious and scalable approach for enhancing cardiometabolic health in adolescents; however, variability in intervention design and duration constrains generalizability.

Keywords: Physical Activity, Obesity, Overweight, Children, Adolescents, Insulin Resistance, Cardiovascular Health,