

# Endocrinology and adolescence: Aerobic exercise reduces insulin resistance markers in obese youth: A meta-analysis of randomized controlled trials

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**Objective:** The purpose of this meta-analysis was to examine the evidence for the effectiveness of aerobic exercise interventions on reducing insulin resistance markers in obese children and/or adolescents. A secondary outcome was change in percentage of body fat.**Methods:** A computerized search was made from seven databases: CINAHL, Cochrane Central Register of Controlled Trials, EMBASE, ERIC, MEDLINE, PsycINFO, and Science Citation Index. The analysis was restricted to randomized controlled trials that examined the effect of aerobic exercise on insulin resistance markers in obese youth. Two independent reviewers screened studies and extracted data. Effect sizes (ES) and 95% confidence interval (CI) were calculated, and the heterogeneity of the studies was estimated using Cochran's Q-statistic.**Results:** Nine studies were selected for meta-analysis as they fulfilled the inclusion criteria (n=367). Aerobic exercise interventions resulted in decreases in fasting glucose (ES=0.39; low heterogeneity) and insulin (ES=0.40; low heterogeneity) and in percentage of body fat (ES=0.35; low heterogeneity). These improvements were specifically accentuated in adolescents (only in fasting insulin), or through programs lasting more than 12 weeks, three sessions per week, and over 60 min of aerobic exercise per session.**Conclusions:** This meta-analysis provides insights into the effectiveness of aerobic exercise interventions on insulin resistance markers in the obese youth population. © 2014 European Society of Endocrinology.