

Assessment of an after-school physical activity program to prevent obesity among 9- to 10-year-old children: a cluster randomized trial.

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OBJECTIVE: To assess the impact of a physical activity program on obesity in primary school children. **DESIGN:** Cluster-randomized controlled trial with 10 intervention and 10 control schools. **PARTICIPANTS:** A total of 1044 children, mean age 9.4 years (s.d.=0.7) at baseline, of the Province of Cuenca, Spain. **INTERVENTION:** Recreational, non-competitive physical activity program conducted after school hours on school premises. The program consisted of three 90-min sessions per week, for 24 weeks. **MAIN OUTCOME MEASURES:** Body mass index (BMI), triceps skin-fold thickness (TST) and percentage body fat. Secondary measures were blood lipids and blood pressure. Measurements were made at the beginning (September 2004) and at the end of the program (June 2005). Since schools rather than children were randomized, mixed regression models were used to adjust for individual-level covariates under cluster randomization. **RESULTS:** There were no differences in BMI between the intervention and control groups. Compared with controls, intervention children showed a decrease in TST in both boys (-1.14 mm; 95% confidence interval (CI) -1.71 to -0.57; $P<0.001$) and girls (-1.55 mm; 95% CI -2.38 to -0.73; $P<0.001$), as well as a reduction in the percentage of body fat in girls (-0.58%; 95% CI -1.04 to -0.11; $P=0.02$). Furthermore, the intervention boys exhibited a decrease in apolipoprotein (apo) B levels (-4.59; 95% CI -8.81 to -0.37; $P=0.03$) and an increase in apo A-I levels (13.57; 95% CI 7.95-19.20; $P<0.001$). Blood lipid results in girls were very similar. No changes in total cholesterol, triglycerides or blood pressure were associated with the intervention in either sex, except for an increase in diastolic blood pressure (1.55 mm Hg; 95% CI 0.19-2.91; $P=0.03$) in the intervention versus control boys. **CONCLUSION:** An after-school program of recreational physical activity reduced adiposity, increased apo A-I and decreased apo B in primary school children.

PMID: 17895883 [PubMed - in process]