

# A school-based physical activity program increases fitness and decreases adiposity and cardiovascular risk factors in primary school children (KISS): a cluster-randomized trial [ISRCTN15360785]

by

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**Introduction:** Childhood obesity and physical inactivity are increasing dramatically world-wide with detrimental effects on physical and psychological health. Schools provide an ideal setting for preventive interventions. We therefore conducted a randomised controlled trial to determine whether a school-based physical activity (PA) program during a full school-year improves physical fitness and cardiovascular risk factors in young schoolchildren.

**Methods:** Twenty-eight classes were randomly allocated in a single blinded manner to the intervention (16 classes, n=297) and control (12 classes, n=205) groups. The intervention consisted of a multi-component PA intervention program including daily physical education. Primary outcomes included body fat (skinfold thickness), aerobic fitness (shuttle run test), PA (accelerometry), and quality of life (questionnaires). Secondary outcomes included a cardiovascular risk factor score including all components of the metabolic syndrome.

**Results:** Compared with controls, children in the intervention group showed statistically significant decreases in body mass index z-scores (adjusted difference -0.09; 95%-percent confidence interval [CI], -0.18 to -0.003), sum of four skinfolds (adjusted difference -2.10mm; 95%-CI -3.48 to -0.90), and significant improvements in aerobic fitness z-score (adjusted difference 0.22; 95%-CI, 0.01 to 0.42) and moderate-vigorous PA at school (adjusted difference 14; 95%-CI, 5 to 23). There was also a significant improvement of the cardiovascular risk score (adjusted difference -0.18; 95%-CI, -0.30 to -0.05, intervention: n=227 and control: n=103). Quality of life did not change.

**Conclusion:** Our findings show that a stringent school-based PA intervention is effective in improving physical fitness and in reducing cardiovascular risk factors in children.

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