Abstract
Objectives: Observational studies have reported an association among physical activity, fitness and lipid profile in youth. The purpose of this study was to analyse the effect of a school-based intervention focused on increasing the number and intensity of Physical Education (PE) sessions a week, on adolescents' lipid profile. Methods: A 4-month group-randomized controlled trial was conducted in 67 adolescents (12-14 years-old) from South-East Spain, 2007. Three school classes were randomly allocated into control group (CG), experimental group-1 (EG1) and experimental group-2 (EG2). The CG received the usual PE in Spain (2 sessions/week), the EG1 received 4 PE sessions/week, and the EG2 received 4 PE sessions/week of high intensity. The main study outcomes were fasting levels of total cholesterol, high-density lipoprotein cholesterol (HDLc), low-density lipoprotein cholesterol (LDLc) and triglycerides. All the analyses were adjusted for sex, sexual maturation, attendance and baseline value of the outcome studied. Results: The intervention did not positively affect cardio-metabolic parameters except for LDLc, that was marginally yet significantly reduced in EG2 (-10.4 mg/dl), compared with the CG (+4.1 mg/dl) (p = 0.04); no differences were observed however for the LDLc/HDLc ratio. No significant effects were observed in EG1. Discussion: Overall, a 4-month school-based physical activity intervention did not substantially influence lipid profile in adolescents. However, the results suggest that increasing both frequency and intensity of PE sessions had a modest effect on LDLc in youth. Future studies involving larger sample sizes and longer interventions should focus on the separate effects of volume and intensity of PE.

Keywords