

Can a Physical Activity and Nutrition Intervention be effective in Children with Cardiovascular Risk Factors?

Rui Batalau ^{1,2}, Joana Cruz ², João Leal ², Magda Santos ², Ricardo Gonçalves ², Joana Cabrita ², João Carmo ², & António Palmeira ¹

¹ Universidade Lusófona de Humanidades e Tecnologias (ULHT)

² Centro de Investigação em Desporto e Educação Física (CIDEF) do Instituto Superior Manuel Teixeira Gomes (ISMAT)

Background: Physical activity (PA) and nutrition represent modifiable behavioral risk factors, influencing physical fitness (PF), body weight and adiposity, largely related to metabolic risk factors potentially leading to cardiovascular diseases and diabetes. Several studies have noted the importance of PA and its association with several variables related to children's health. Scientific evidence shows the relationship between the nutrition and some of major cardiovascular risk factors (CRF) manifested from childhood. Under these assumptions, we designed a randomized controlled trial with the main purpose to determine whether a school intervention program, during 6 months, based on increased energy deficits related behavior is associated with improvements in fitness, body composition (BC) and other CRF, like blood variables and blood pressure.

Methods: Participants will be 100 children (7-10 years) previously classified (through a cross-sectional study) as being outside the desirable values on fitness, BC and CRF (blood pressure and blood variables) and will be randomly selected to one of two groups. Intervention group (IG), will have PA intervention with trained experts (more exercise in the classroom, a goal in the number of steps/day, to accomplish in school context with pedometers (Omron Walking Style Pro), based on the age recommendations, and sessions about healthy lifestyles and daily PA possibilities in and out of school context). At the same time, IG will have a nutrition intervention by a nutrition expert, for children and parents, to assess and develop an individualized monthly eating plan, using validated methods (Child Eating Behaviour Questionnaire, Semi-Quantitative Food Frequency Questionnaire, 24-hours recall, and nutritional quantification with food processor). Control Group, will not have any intervention.

Results: With this unusual multidisciplinary intervention, but increasingly necessary and suggested in childhood, combining PA and nutrition trained experts and involving a parental/family component, it is expected to contribute in a statistically and clinically way for the control of several CRF.

Discussion: These expected results can alert researchers for the need to idealize integrated interventions considering all the variables that influence the CRF. Also, we intend to determine the types and amounts of PA that are needed to reduce excessive adiposity and to maintain cardiovascular and metabolic health during childhood.

This work is being supported by the Portuguese Science Foundation (Fundação para a Ciência e a Tecnologia) through individual research grant (SFRH/BD/85518/2012) co-financed by the European Social Fund and Portuguese National Funds from MCTES. Research project approval was granted by the Portuguese Data Protection Committee (case n.º 10221/2012, authorization n.º 9130/2012) and the Ministry of Education (survey n.º 0339300001).