Active Video Games in Schools to Enhance Children's Physical Activity – A Randomized Controlled Trial Protocol

João do Carmo[1,2], José Guilherme[1], Ricardo Gonçalves[1,2], Rui Batalau[1,2], António L. Palmeira [2,3]
1- Centro de Investigação em Desporto e Ed. Física - Instituto Superior Manuel Teixeira Gomes Portimão; 2 - Universidade Lusófona de Humanidades e Tecnologias – Faculdade de Educação Física e Desporto; 3 - Centro Interdisciplinar de Estudo da Performance Humana – Faculdade de Motricidade Humana, Universidade Técnica de Lisboa

INTRODUCTION

Despite all the efforts to promote PA, its declines is evident between childhood and adolescence (Troiano et al., 2008). Physical inactivity is, therefore, one of the factors for the obesity epidemic, and it is necessary to change patterns of inactivity in youth (Lobstein et al, 2004), because it seems that childhood sedentary lifestyles often become a lifelong habit (Lambourne & Donnelly, 2011).

To create attractive physical activity programs it is important to consider a new generation of video games: the active video games. The aim study protocol is to describe an experimental design trial protocol to verify if the use of active video games can increase physical activity among 10-12 year old children.

DESIGN AND METHODS

This is a study protocol of a two-arm randomized controlled trial, with a 4-week duration and 4-week follow-up. This experimental trial will be developed in Algarve Region, Portugal.

This study follows two phases. The first, a pilot randomized controlled trial to determine the feasibility of the study, with a sample of 8 participants. The second will be a randomized controlled trial to determine the effect of active video game play on physical activity levels.

To the intervention group will be given the opportunity for 4-week active video game use. The video game console used will be XBOX (Microsoft, USA) with KINETIC option. KINETIC option is a motion sensing input device that enables users to interact with the game without a game controller, through natural user interface using gestures. It will be chosen XBOX + KINETIC because it does not permit inactive game play (i.e wrist movements).

A 4-week intervention was chosen because it seems sufficient to observe physical activity changes.

Participants

Children aged 10-12 years (in the moment of selection) living in Algarve Region, Portugal, who are overweight (according to the Cole international cut-offs for child obesity), and have no contraindications to perform physical activity or taking medication that influences the study results are eligible.

Sample Size

A sample size of 60 participants in this study is estimated to supply at least 80% power at 5% level of significance (two-sided).

Procedure

The only method of recruitment will be via school. Contact was made with school principal in the first instance. As the principal agreed to be involved, approvals of Portuguese Data Protection Committee, Education Ministry and Algarve Regional School and Education Administration were obtained.

Measures

		Experimental				Control	
		Baseline	1st Week	4th Week	8th Week	1st Week	4th Week
Measures							
Sociodemographic	Questionnaire	X				X	
Anthropometric measures	Waist circumference, Height, Weight	X		X	X	X	X
Body composition	Body Mass Index	X		X	X	X	X
Physical activity	Accelorometry	X	X	X	X	X	X
Sedentary Behaviour	ASAQ Questionnaire	X		X	X	X	X
Eating behavior	CEBQ questionnaire	X		X	X	X	X
Life quality	Two questionnaires IPQV PEDscl	X		X	X	X	X
Motivation to PA	PNSE Questionnaire	X		X	X	X	X
Physical Fitness	Shuttle Test	X		X	X	X	X

Table 1 – Study measures

CONCLUSIONS

With this study we expect to verify a physical activity increase in sedentary children exposed to AVG use. We also intend to observe a decrease in BMI and waist circumference through AVG. This study aims to raise PA levels in 10-12 years children, adding more strategies to the fight against obesity and physical inactivity. The design of this intervention and its theoretical basis may have important implications for advancing the field of physical activity through active video games use.

References

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joaolfcarmo@gmail.com
antonio.palmeira@ulusofona.pt