

## **Oral Presentation**

Sub-theme : Technologies in support of Physical Education, Sport and Physical Activity.

### **Using Exergames to Promote Physical Activity**

#### Abstract

Traditionnaly, playing electronic video games has been associated with various risks for mental and physical health. A new type of video games call active video games or exergames have recently emerged. Exergames involve physical activity (PA) as a mean of interacting with the game. There is little evidence about the benefits of these exergames to promote PA. The goal of this study is to present an overview of the recently published literature on this area.

A systematic review of the literature was conducted in september 2010 on international online bibliographic databases using the following key-words (« Active Video Gam\* » or « Exergam\* » or « Dance Dance Revolution » ou « EyeToy » or « Wii ») and (« Physical Activity »). Articles selected was limited to English-language communication in peer-reviewed journals, involved youth 21 years and younger and, reported on energy expenditure or energy cost, promotion of PA and enjoyment or motivation to play. Twenty-three articles were included in the review. Benefits expected of exergaming was used as a categorization scheme to classify articles in two categories : energy expenditure (17) and PA promotion (9).

Significant changes in physiological outcomes were not observed in this review. Exergaming increase energy expenditure from sedentary activities to moderate PA but should not be regarded as a replacement for vigourous activity. The energy used when exergaming is not high enough intensity to contribute towards the recommended daily amount of exercise in children. The potential of exergames play to decrease childhood time spent in sedentary activity at home is not demonstrate. If participants report enjoyment as the exergaming intervention start, the dropout rate after few weeks is significant.

We suggest to shift in physical education and PA from a design of exergames for fun to a design of virtual reality environments for learning.

*Keywords:* exergame, physical activity, benefits.

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