Research Review: Fun or Fitness?

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**Research Review**

**FUN OR FITNESS?**

**Title:** METs in Adults While Playing Active Video Games: A Metabolic Chamber Study.  
**Author:** Dr Motohiko Miyachi et al (National Institute of Health and Nutrition, Tokyo, Japan).  
**Source:** Medicine & Science in Sports & Exercise, 42 (6), 1149-1153, 2010

**Introduction:** It's Sunday night and I am 'having to attend' a belated surprise 50th birthday and I have to get up early in the morning to go to work. Not a happy camper, to say the least, and this comes on top of a tough week at the clinic seeing far too many newly diagnosed diabetics who are all 'too busy' to fit in exercise.

Once at the restaurant we are seated and, as I've driven, I turn out to be the only non-alcohol consumer at the table. Seated next to me is a friend's eight-year-old son. Hmm... what are we going to talk about? Very politely, he informs me that he plays rugby (not happy with his current playing position as he wants to run more with the ball), soccer, surfs and is quite good at chess and academically. Anything else? He says he gets tired playing his Nintendo. Now he has captured my attention – how can he play soccer and rugby but get tied playing his video game? It turns out he is referring to the Nintendo Wii Sports and he is tired when he plays it 'after' his sport. Interesting. How physically demanding can this game be – and more importantly, is this a secret weapon to use on my new patients with their busy lifestyles and no time to exercise?

This is exactly what Dr Miyachi and his colleagues investigated in their article. By way of introduction, they report that over 50 per cent of American adults play video games and one in five adults play every day or almost every day. Here in Australia, the Australian Bureau of Statistics (2008) reported that 35 per cent of gamers are parents and eight per cent are 'seniors'.

**Methodologies:** Twelve men and women (with an average age of 34 years and fat percentage of 22.3) who had not participated in regular physical activity for the past year volunteered to participate in this unique study. Each subject completed different protocols in a randomised order in a metabolic chamber. The different physical activity/exercise protocols consisted of the following:

- Wii Fit Plus balance and resistance exercises (15 resistance exercises).
- Balance.
- Wii Fit Plus yoga (18 modes) and aerobic exercises.
- Wii Sports (5 activities; golf, bowling, tennis, baseball, boxing).

The subjects completed each of the Wii exercises at the beginner level for a total of eight minutes on different days.

**Results:** The authors chose to report all of their findings in terms of 'METS' (metabolic equivalents), with 1 MET equating to a VO₂ of 3.5ml/kg/min.

![Average MET values for the different activities (men and women combined)](chart)

The authors reported that the MET values for yoga and balance exercises were significantly lower than those for resistance training and aerobic exercise. Overall, 46 (67 per cent) of the activities were classified as 'light intensity' (i.e., <3 METS) and 22 (33 per cent of the activities were classified as 'moderate intensity' (i.e., 3.0 to 6.0 METS).

The MET values for playing the Wii Sports versions was found to be lower than actually playing the different sports; however, the MET values for the Wii Fit Plus versions of yoga and resistance training were found to be similar to completing actual yoga and resistance exercises.

Specifically, the Resistance Exercise 'single-arm stand' was found to have the highest MET value (5.6) followed by the Aerobic Exercise 'basic run' (5.1). The third highest MET values were associated with the Aerobic Exercise 'hula-hoop' and Wii Sports 'boxing' which were both 4.2 METS. Conversely, the lowest MET values were associated with
the Yoga 'deep breathing' and the Balance Exercise 'lotus focus' which were 1.3 METS.

The authors conclude that completing one third (22) of the activities in Wii Sports and Wii Fit Plus had a moderate MET level, and therefore contribute to the daily exercise guidelines established by the American College of Sports Medicine.

Pros: This study has implications for improved energy expenditure in both adults and children. Aside from the enjoyment of participation, the Nintendo Wii affords individuals the opportunity to complete daily physical activity in the convenience of their own home - which means no excuses for avoiding physical activity. Obviously, this should not be considered a substitute for traditional exercise, but it allows busy individuals to meet the physical activity frequency guideline of 'most days of the week'.

Cons: Would have been interesting if the authors had also assessed heart rates for all of the activities and if they had the subjects complete the activities at the different (higher) skill levels.

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