



ENERGY EXPENDED PLAYING NINTENDO WII

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INTRODUCTION:

The Wii is a video game console on which activity video games can be played. These games require players to be physically active. Despite their popularity and widespread use, it is not known if players reach the intensity of exercise advised for cardiovascular benefits when playing these games.

The American College of Sports Medicine recommends that adults participate in at least 30 minutes of moderate activity on five or more days of the week.

Moderate intensity exercise is that which results in an energy expenditure of between 3 and 6 metabolic equivalents (METs), or above 55% of maximal heart rate.

AIM:

To measure the energy required and heart rate resulting from playing Nintendo Wii games.

METHODS:

Twenty nine healthy young adults (19 male, mean age 22 years) participated in this study. Participants were divided into two groups. Those in the Wii Sports group played Wii Sports boxing, baseball and tennis. Those in the Wii Fit group played Wii Sports boxing and self paced Wii Fit free jogging.

Energy expended, in metabolic equivalents (METs), and percentage heart rate reserve (%HRR), were measured during 15 minutes of rest and 15 minutes of playing each game. Energy expenditure was measured using an indirect calorimeter (Oxycon Mobile) and heart rate was measured using a Polar heart rate monitor.

RESULTS:

Table 1: Heart rate and energy expenditure required during rest and each game.

Condition	HR, bpm	HRR, %	VO ₂ mL·min ⁻¹ ·kg ⁻¹	METS	kCal·min ⁻¹
Rest	59±11	n/a	4.30±0.92	1.23±0.26	1.60±0.35
Baseball	80±11	17.74±7.5	8.60±3.02	2.46±0.86	3.10±1.21
Tennis	77±12	17.72±7.33	8.19±2.17	2.34±0.62	2.95±0.88
Boxing	109±26	36.50±16.88	13.44±4.06	3.84±1.16	4.89±1.55
Free Jogging	139±25	59.05±13.57	26.00±5.45	7.43±1.56	9.22±2.46

CONCLUSIONS:

Neither the energy expenditure or HR associated with playing Wii Baseball and Tennis reached the criteria for moderate exercise.

Nintendo Wii Free Run and Boxing resulted in over 3 METs. These games can therefore be considered moderate intensity activities and can be recommended as part of a prescribed exercise program.

Figure 1: Playing Wii Fit Free Run while wearing the Oxycon Mobile.



Figure 2: METs reached during each condition with exercise guidelines shown.

