

IMPACT

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Extension

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Exergames Increases Physical Activity

The Situation

The 2005 *Dietary Guidelines for Americans* and *MyPyramid*, recommends that children get 60 minutes of moderate level exercise each day. It also states that eating an 1800 calorie diet, that includes foods from all the food groups, is essential to a healthy child.

Unfortunately, most children do not meet these recommendations. Obesity has become a serious health concern for children and adolescents. The prevalence for obesity has increased from 6.5% to 17.0% for 6-11 year olds and has increased from 5.0% to 17.6% for 12-19 year olds (NHANES surveys 1976-1980 and 2003-2006). Childhood obesity can lead to obesity in adulthood. Children who suffer from being overweight have increased risks of heart disease, type 2 diabetes, asthma, sleep apnea, and social discrimination. The State of Idaho currently has an obesity rate of 10.1% for children ages 10-17.

Our Response

The Nintendo *Wii* was introduced to an after school program in southern Idaho. Participants of the after school program were asked to participate in a study that would look at exertion levels and interest of both Nintendo *Wii* exergames, and traditional activities, to determine if participating in exergames was an effective way to be physically active for youth ages 9-12 years of age/4th-6th graders.

Youths participated in two out of three different *Wii* activities (Tennis, Boxing and Dance Dance Revolution, also known as DDR). Each participant played each activity for 20 minutes. Heart rate was

taken before and after each activity. Pedometers were also used to determine how many steps the participants were taking.

The youth then participated in two different traditional activities: capture the flag, and kick ball. These activities were played for 20 minutes, and heart rate was taken before and after each activity. Pedometers were also worn by participants to record steps taken during the traditional activities.

Participants were asked at the end of each activity: how hard they felt they played on a scale of 1 to 10, and how well they liked the activity on a scale of 1 to 4. Youth were also asked a series of questions regarding their preferences for activities, and whether or not they prefer to play on the *Wii*, or to play traditional activities.

Program Outcomes

Demographics: Of the 25 participants who provided demographic information, 9 were female, and 16 were male; 18 were White, one was American Asian, and 6 were Hispanic. The age range for these individuals was 9-12 years old.

Exertion Levels: Using the perceived exertion scale (*“Perceived Exertion for Practitioners: Rating Effort with the OMNI Picture System by R.J. Robertson”*) youth were asked to determine their exertion levels based on the scale presented. Table 1 indicates the percentage of participants who had a perceived exertion level of 5 and above, or 8 and above.

Table 1: Perceived Exertion Levels

	DDR	Tennis/ Boxing	Capture the Flag	Kick Ball
5 or above	80%	84%	68%	63%
8 or above	36%	60%	64%	32%

Activity Enjoyment: Using the scale below youth were asked to indicate their preference of each activity. Table 2 shows the percentage of participants who rated the activities as a 4.

1	Dislike the activity—Would not play again
2	Activity was alright—Not favorite
3	Activity was good—Would play again
4	Activity was fun—Would definitely play again

Table 2. Activity Enjoyment

DDR	72%
Tennis/Boxing	76%
Capture the Flag	79%
Kick Ball	26%

Heart Rate: Each participant had their heart rate taken before and after each activity. Results indicated that 52% of participants playing DDR showed at least an eleven point increase in heart rate. Results also indicated that 44% of participants playing tennis/boxing saw an increase of eleven points or higher.

Results from traditional activities indicated that 59% of youth had a 20 point increase or higher in heart rate while playing capture the flag, and 37% of participants had a 10 point or higher increase in heart rate while playing kickball.

Steps Taken: Youth wore pedometers on their waist bands during each of the activities. Steps were recorded and averaged. The average amount of steps taken playing the Nintendo *Wii* DDR was 802. The average amount of steps taken on the Nintendo *Wii* Tennis/Boxing was 746. Youth took an average of 1,171 playing capture the flag and 789 steps playing kick ball.

For More Information

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