

Playing active video games can equal moderate intensity exercise

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Active Wii sports video games and some Wii fit activities may increase adults' energy expenditure as much as moderately intense exercise, according to research presented at the American Heart Association's Scientific Sessions 2009.

The study, funded by Nintendo, demonstrated that about one-third of the virtual physical activities require an [energy expenditure](#) of 3.0 METs or above, considered moderate-intensity [exercise](#). METs are metabolic equivalent values, a standard method of estimating energy expenditure.

The average intensities were distributed over a wide range from lotus focus, 1.3 METs, to single-arm stand, 5.6 METs.

Researchers used a metabolic chamber to measure the energy expenditure of 12 men and women, 25 to 44 years old, as they pantomimed basic moves and motions of these sports and physical activities with motion-sensing controls. The open-circuit indirect metabolic chamber consisted of an airtight room (20,000 liters or 15,000 liters). The metabolic chamber method could replicate the conditions under which the participants enjoy the games in their home, because they were free from apparatus used to measure energy expenditure (EE) when playing the game.

"Energy expenditure is the most important information to measure the effect of video games," said Motohiko Miyachi, Ph.D., lead author of the study and Project Leader of Project for [Physical Activity](#) in the

Health Promotion and Exercise Program at the National Institute of Health and Nutrition in Tokyo, Japan.

Researchers found:

- Nine activities had less than 2 METs.
- Twenty-three activities had 2-3 METs.
- Nine activities had 3-4 METs.
- Five activities had more than 4 METs.

"The range of energy expenditure in these active games is sufficient to prevent or to improve obesity and lifestyle-related disease, from heart disease and diabetes to metabolic diseases," Miyachi said.

According to the American Heart Association's exercise guidelines, light intensity exercise is less than 3.0 METs; moderate intensity is 3.0 to 6.0 METs; and vigorous activity is more than 6 METs. An adult walking at three miles per hour on a flat surface is expending about 3.3 METs. Adults gain the most health benefits when they do the equivalent of at least 150 minutes (2 ½ hours) of moderate intensity aerobic physical activity each week. Regular physical activity reduces the risk of many adverse health outcomes. Some physical activity is better than none.

Wii sports are a collection of five simplified games based on boxing, golf, tennis, bowling and baseball. Boxing is the most effective activity to increase energy expenditure, about 4.5 METs, according to the study findings. Golf, bowling, tennis and baseball are 2.0, 2.6, 3.0, and 3.0 METs, respectively.

[Wii fit](#) includes yoga, resistance and strength training, balance and aerobic exercises with more than 40 different activities, from push-ups to torso twists to single leg extensions.

The most effective exercise is the single-arm stand, 5.6 METs, regarded as a difficult resistance exercise that involves standing up and lying down.

The intensities of yoga and balance exercise were significantly lower than those of resistance and aerobic exercise, but these exercises are effective in improving flexibility and in fall prevention, researchers said.

Americans and Japanese are increasingly overweight. About one-third of adults in the United States are overweight and almost one-third are obese, according to the U.S. National Institutes of Health.

"Obesity and overweight is increasing in Japanese men," Miyachi said. "Twenty years ago, only 20 percent Japanese middle-aged men were obese and overweight, now it is more than 30 percent."

Miyachi, who also plays active video games, recommends these active games rather than sedentary video games. The study's findings about energy expenditure apply to Americans as well as Japanese and to younger and older people. An estimated 63 million sets of Wii sports™ and [Wii fit](#)™ were sold worldwide, Miyachi said.

Source: American Heart Association ([news](#) : [web](#))

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