

E-games boost physical activity in children; might be a weapon in the battle against obesity

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Video games have been blamed for contributing to the epidemic of childhood obesity in the United States. But a new study by researchers at the George Washington University School of Public Health and Health Services (SPHHS) suggests that certain blood-pumping video games can actually boost energy expenditures among inner city children, a group that is at high risk for unhealthy weight gain.

The study, "Can E-gaming be Useful for Achieving Recommended Levels of Moderate to Vigorous-Intensity Physical Activity in Inner-City Children," will appear January 9 in the online edition of the scientific journal *Games for Health*.

"A lot of people say [screen time](#) is a big factor in the [rising tide](#) of childhood obesity," says lead author Todd Miller, PhD, an associate professor in the Department of Exercise Science at SPHHS. "But if a kid hates playing dodge ball but loves Dance Dance Revolution why not let him work up a sweat playing E-games?"

Studies on this topic in the past had suggested that video games that get users to dance or play a [virtual game](#) of soccer could increase energy expenditures and might help combat the growing health problem of childhood obesity, which now affects an estimated 17 percent of all U.S. children and teenagers. Several hundred schools in at least ten states, including West Virginia, have started turning to active video games in physical education (P.E.) classes. The hope is that such games can motivate inactive [kids](#), especially those who don't like [gym class](#), to get moving again.

But would e-games help kids attending urban public schools—places with lots of [minority students](#) at [high risk](#) for obesity? To find out, Miller and his colleagues recruited 104 kids in grades 3

through 8 from a public school in the District of Columbia. The researchers wanted to see how traditional P.E. activities would stack up against Dance Dance Revolution (DDR) and another active [video game](#) called Winds of Orbis: An Active Adventure (Orbis).

The kids in the study reported to their regularly scheduled physical education classes but then were randomly assigned to three 20 minute sessions of DDR, Orbis or the usual gym class. Kids playing DDR dance along to electronic music in ever-increasing and complicated patterns. Those using Orbis play the role of a virtual superhero that climbs, jumps, slides and has other sorts of active adventures. The testing was supervised by a researcher who measured each child's energy expenditures during the study sessions.

The researchers discovered that on average kids expended more energy when they participated in the P.E. activities. But the team also found that for children in grades 3 through 5 the active video games also spurred them to move enough to meet the recommended intensity criteria for vigorous activity. That finding suggests that E-gaming might be a useful alternative to traditional physical education—at least for younger school children, Miller said.

The study of active gaming is the first to focus on African Americans and other minority children, who are at high risk of obesity, he said.

Many of these children live in neighborhoods without safe places to play or ride a bike after school," Miller said. "If E-games can get them to move in school then maybe they'll play at home too and that change could boost their physical activity to a healthier level."

The story gets more complicated for older kids and teens: This study found that active video games weren't enough to entice middle school kids to move vigorously enough to meet guidelines. Only the teenage boys played hard enough to meet the intensity requirements for fitness and only then in physical education class, Miller said. This study, just like other research, shows teenage girls are barely moving—whether they are in a physical education class or playing an active E game, he added.

That finding fits with other research showing an age-related decline in physical activity, he says. It is alarming because if kids, and especially girls, stop playing team sports or moving much during the teenage years they can put on extra weight—fast. Such weight gain predisposes kids to become obese adults and can put them at risk for a host of health conditions such as Type 2 diabetes, Miller said.

Miller's team also found that overall kids in the study, and especially girls, exerted significantly greater energy expenditure while playing Orbis compared to DDR. Orbis allows users to set the pace and thus might be easier for out-of-shape children than the fast and pre-set pace of DDR.

Additional studies must be done to determine if kids will play longer with games like Orbis and thus potentially gain more fitness benefits, says Miller, who is also a member of the Board of Directors of the National Strength and Conditioning Association (NSCA) and a regular contributor to, and editorial board member, of the NSCA's journal.

Provided by George Washington University

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