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— PHOTO COURTESY OF DAVID MOLL

A third-grade student performs the Warrior yoga pose using Wii Fit.

TECHNOLOGY'S GOT GAME

Exergaming Shows Potential for Encouraging Healthful Behaviors

By David Yeager

For people who grew up hearing that excessive video game play would assuredly turn them into drooling couch potatoes, exergaming seems too good to be true. But the growing trend toward electronic games that promote physical activity may provide a measure of redemption for the plugged-in masses and win some converts in the process. In arcades, homes, and gyms across the country, video games are getting people up and moving.

Some exergames have been around for several years. The popular Dance Dance Revolution began its cyber life as an arcade game in 1998 before adaptation for home use. But the advent of the Nintendo Wii Fit a couple of years ago changed the gaming landscape and brought a wide variety of exergames into people's living rooms. Not wanting to be left behind, Sony recently released the PlayStation Move, and Microsoft will soon release its Kinect for the Xbox 360.

Now some gyms are installing exergame equipment, and their patrons love it. American Dietetic Association spokesperson James D. White, RD, ACSM-HFS, owner and president of Jim White Fitness & Nutrition Studios in Virginia Beach, Va., and *HR Fitness* magazine, thinks he knows why: "They're getting exercise, they're moving around, they don't even realize that [it's exercise]. It's a game, it's fun, it's competitive."

Although research about this phenomenon is still in its infancy, studies suggest that video games can play a role in developing healthful habits. Dwayne Sheehan, PhD, an assistant professor and coordinator for the department of physical education and recreational studies at Mount Royal University in Canada, studies exergaming at the Canadian Exergaming Research Centre, a joint venture between Mount Royal

University and the University of Calgary. His studies focus on whether exergaming has educational value for developing fundamental movement skills. In his most recent study, Sheehan and colleagues studied the effect of exergaming on the postural stability of 176 third and fourth graders over a two-year period using a variety of exergames vs. a control group that took standard physical education classes. The results were released at the Physical and Health Education Canada National Conference held in Toronto last month.

"The early indication is that the results are very promising and that we were able to establish a significant change in the students by using exergaming equipment compared to the control group," says Sheehan.

Move Over, Sonny

In its July issue, *Today's Dietitian* looked at how technology can be used to encourage kids to make healthful choices. Exergaming, the "Good Reception" feature noted, can aid stress management, weight management, fitness, and health. But while most studies have focused on school-age populations, exergaming's potential benefits are not limited to the digitally native generation. Small-scale studies have found benefits for people aged 50 and older as well. Earlier this year, a study in the *Journal of Student Physical Therapy Research* found that the Wii Fit was useful for helping improve the balance of an 87-year-old patient with a history of falls.

In March, a study in *The American Journal of Geriatric Psychiatry* found that exergaming helped relieve symptoms in older adults with subsyndromal depression. While physical activity has been shown to relieve symptoms of depression, fewer than 5% of older adults meet physical activity requirements. The games helped improve quality of life related to mood and mental health in the majority of the 19 study participants. While more research is needed, these results appear promising. And, aside from available research, anecdotal evidence suggests that older adults enjoy playing the games.

"I see it all the time," says White. "I've seen the baby boomers doing it left and right. I have a husband and wife [as clients], and one of the big things they do on Friday nights is play Wii."

Stephen Yang, an assistant professor in the physical education department at the State University of New York at Cortland, studies the effects of exergaming on school-age populations, but he says more researchers are looking at exergaming and older adults. He believes getting baby boomers and older adults to try exergaming will open a lot of possibilities for healthful interventions. "Obviously, the boomers and the seniors are a huge population base to work with and, because they have such a big say in who buys what, it's a natural place to target things that are more healthy because they're more worried about health," Yang says.

Other researchers are studying the use of exergaming to combat various medical conditions, including diabetes, stroke, Parkinson's disease, Huntington's disease, and post-

traumatic stress disorder. Adding multiple sensors to exergames may eventually allow them to become part of a treatment regimen. Although the technology isn't quite there yet, Yang says it's possible.

"If the sensors get better and we have other sensors that determine not only how hard our heart is working but where our body is moving in a three-dimensional space and it's tracking all this information, maybe [it could be] sent to your healthcare provider, maybe [you'll be] reimbursed by your HMO, and maybe your doctor [will] prescribe doing 20 minutes a week on this type of game but at a certain intensity. So a synthesis of these technologies together could provide information not to the user but to the healthcare professionals or even to educators."

Whatever the clinical applications may eventually be, exergaming's ultimate effectiveness will be determined by how it affects other behaviors. Will building skill and fitness levels in a fun and interactive setting encourage people to extend their exergaming experience to other aspects of their lives? Yang says an important research question is whether there is a gateway effect between exergaming and pursuing additional healthful activities.

"If they play this game and they're supported in a socially positive environment, are they more likely or will they transfer that motivation and enjoyment and sociability into a real-world activity such as going for a walk or going for a bike ride or doing something with the people that they've con-

nected with?" he asks.

White envisions exergaming as part of an overall fitness strategy. Based on what he's seen at the YMCA he partners with, he plans to bring exergaming equipment into his studios at the beginning of 2011. He says the games' versatility fits in well with his cross-training regimens.

"We have a 24-hour gym system here, so people can use it on their own," says White. "We also have one-hour training sessions where our clients might box for 15 minutes with the Wii, if they're really exhausted, or they can use it to either warm up or cool down because the workouts here are much more intense than they are on the Wii. It would be a great starting ground just to get the heart rate up or as a break from really intense exercise."

Perhaps the best reason to play exergames, though, is because they're fun. Not that other video games aren't, but exergames stimulate more than just the imagination. And Yang believes the games build competence, autonomy, and relationships.

"The more often we play games that support those three areas, the more likely we'll keep up with it or, at least, have some impact on our lives in other areas," says Yang. "Games do have benefits, and it's in our nature to love play."

— David Yeager is a freelance writer and editor based in Royersford, Pa.

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