

Can watching an avatar translate to real-life weight loss?

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An avatar demonstrates walking at a moderate pace on a treadmill, a skill that can help with weight control. Credit: Temple University Sbarro Institute for Cancer Research and Molecular Medicine.

An estimated two-thirds of all Americans are overweight or obese and many find it difficult to lose weight and keep it off. They've tried fad diets, exercise programs, diet pills and other methods but the battle continues. Now, a new study suggests that watching an avatar model weight-loss behavior in a virtual community might help some women shed pounds in the real world.

"This [pilot study](#) showed that you don't have to be a gamer to use [virtual reality](#) to learn some important skills for weight loss," said Melissa Napolitano, PhD, an associate professor of prevention and [community health](#) at the George Washington University School of Public Health and Health Services (SPHHS). "This small study suggests that virtual reality could be a promising new tool for building healthier habits."

If proven effective, such a program might offer an inexpensive way to help millions of Americans—including overweight men—learn the skills and behavior they need to lose weight over the long run.

Previous research had suggested that using virtual reality to model skills or provide reinforcement was effective. For example, people who watched an avatar that resembled them run on a treadmill were more likely to exercise the next day than if they watched an unfamiliar avatar, according to a Stanford University study.

Napolitano, who did the study while at Temple University's Center for Obesity Research and Education, in collaboration with Temple's Sbarro Institute for Cancer Research and Molecular Medicine, and her colleagues, wondered if avatars could be used as a tool to model weight loss behavior for [overweight women](#).

To find out, the team first conducted a survey among 128 overweight [women](#). Most of them had tried to lose weight during the last year and the majority had never used a [virtual reality game](#). Despite the fact that most of these women had no experience using virtual reality or even playing online games, the researchers found that 88 percent said they would be willing to use a program with an avatar modeling habits that might give them an edge in the battle to lose weight.

Many of the study participants thought that watching an avatar could help them visualize and then put in place healthy behavior, such as

taking a walk every day or picking healthy options when food shopping. And in fact, theory and research tells us that modeling or seeing the steps one needs to take in order to achieve a desired goal makes behavioral change easier to accomplish, Napolitano said.

But to test the concept, the team first had to create videos that showed an avatar in a variety of different situations such as walking on a treadmill or navigating a cart through the aisles of a grocery store. The end result was a partnership from the treatment side drawing on Napolitano's expertise as well as the experts on the technical programming front to show the avatars in action. Using their extensive expertise in virtual reality, Director Antonio Giordano, MD, PhD, and Giuseppe Russo, PhD, of Temple's Sbarro Institute for Cancer Research and Molecular Medicine, developed a virtual reality simulation featuring such an avatar.

"With our vast experience in creating custom virtual reality environments for eHealth, we were able to assist Dr. Napolitano in this pilot study from the technical point of view," said Russo. "This study is a perfect example of how virtual reality can be used in promoting human health."

Given that not all the woman who participated were avid tech users, the team created a DVD that showed the avatar in four real-world environments. The women did not have to manipulate the avatar, they just watched the video; however they did pick out the skin color and shape of the avatar to more closely resemble their own appearance—a feature that might help the study participants visualize and learn a new behavior, Napolitano said.

In the next part of the trial, the team enrolled eight overweight women in a four-week pilot test to see if watching the videos could help these women learn new skills that could lead to weight loss. The women came to the clinic once a week and watched a 15-minute DVD featuring an

avatar demonstrating healthy weight loss behaviors.

For example, in one lesson the women watched the avatar sitting down for dinner and learned about portion sizes. Participants watched as the avatar viewed a plate with a serving size that was too large and one that was just right. In another lesson, they watched an avatar walk with moderate intensity on a treadmill and learned the walking pace needed to help with weight loss goals, Napolitano said. The women in this pilot study also set weight-loss and exercise goals and kept a food and exercise log.

Based on theory and previous research, the team thought that watching the avatar in the virtual world might make it more likely women would practice those skills in real life. The virtual "model" was the key to helping participants break healthy behaviors into manageable steps, Napolitano noted.

And after four weeks of treatment, the women in this pilot study had lost an average of 3.5 pounds, a fairly typical amount for traditional diet plans, Napolitano said. However, the researchers hope that by watching the avatar the women using this program will be much more likely to put healthy habits in place over the long run—keep the weight off for good.

Additional studies must be conducted in order to solidify these early findings and show that men and women who use the tool really do [lose weight](#) and maintain that loss. "This is just the first step to show that women, even those who are not gamers, are interested in an [avatar](#)-based technology to help them with a weight-loss plan," said Napolitano. "We are excited by the potential of this technology as a scalable tool to help people learn the skills to be successful at [weight loss](#) over the long run."

More information: The study, "Using Avatars to Model Weight Loss Behaviors: Participant attitudes and technology development," appears in

the July 1 Journal of *Diabetes Science and Technology*.

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