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Some video games used as physical therapy, phobia treatment

BY TAMARA CHUANG
The Orange County Register

SANTA ANA, Calif. - (KRT) - Doctors hobnobbing with gamers may seem bizarre, but there's a trend afoot these days as the medical industry discovers the power and pull of video games.

"Being a clinician has become like flipping burgers. There's only so much you can do in the 50 minutes you have with your patient," said Walter Greenleaf, a research scientist at Stanford University. "A lot of doctors are bored and really looking for ways to jazz things up."

Boredom, better technology and decent prices are why games are moving into the medical world, sometimes in unusual ways.

Greenleaf worried about patients who lost interest in physical-therapy exercises that are needed after a stroke or nervous-system injury. So he wired a glove and turned it into the controller to play Asteroids, the early '80s Atari space game where the player moves left or right to shoot asteroids.

Rotate your hand left or right to move the spaceship and clench your fist to shoot. The game is still a prototype.

"One of the problems in medicine right now is patients don't know what to do when they leave the clinic. They get home and they forget, or get distracted. They only see the clinician every other month so they might not be making any progress, and the clinician doesn't know for two months," Greenleaf said. "For ours, the user downloads or e-mails (the clinician) what he's done in the last 24 hours."

In one study with 20 patients, Greenleaf sent half home with the game and told the other half to do the normal exercises.

At the end of two weeks, the groups were supposed to switch but, said Greenleaf, "Those who had (the game) at the beginning of therapy didn't want to give it up. ... We had good results not just with the (physical) results, but the enthusiasm."

For years, Jay Fitter, a licensed marriage and family therapist, talked patients through fears and phobias by having them imagine being in a fearful situation.

Then he discovered how virtual reality could help cure patients faster than talk therapy. Fitter, who runs Virtual Therapy on Chapman Avenue in Orange, Calif., talks to patients with flying phobias as they sit on a plane and the flight attendant tells them to fasten their seat belts. Well, not really.

In Fitter's small office, patients put on space-age goggles and sit on platform that vibrates depending on the scenario. The goggles let the patient see a computer screen, animated with video-game style graphics.

The patient can turn his head to look out the window, or turn to the other side to see rows of empty seats (research showed that adding animated passengers took away from the experience). The flying scenario takes the patient from the moment the plane door shuts to take-off and landing. A few features include flying in a storm or in turbulence.

"Gradually, after six to eight sessions, people are cured," he said. "Before, it would take 12 to 15 sessions and there would be varied success rates."

Fitter also offers virtual-reality treatment for phobias, such as fear of heights, storms and public speaking. The technology, from Virtually Better in Georgia, is based on a 3D game system used in games like 3D Hunting. New environments in the works, such as a virtual bar and crack house, will use software from 3D GameStudio in Germany.

- At the Virtual Reality Medical Center in San Diego, Calif., doctors use the racing game Midtown Madness to treat patients who have a fear of driving. They use the Sony Eye Toy and its dance and exercise games to help children who are obese or have eating disorders.

"We wanted to get advanced technology to the hands of the clinicians for \$300 or less," said Mark Wiederhold, who runs the center with his wife, Brenda. "As computers continued to get faster and graphic cards continued to get better, the quality of games has become incredible. The quality of the simulations really allow us to do what you couldn't before."

Midtown Madness is used to treat people who have been in car accidents and are traumatized about driving again. But it is not just a patient in front of a TV and game console. Patients sit in an actual car seat, fasten the seat belt and maneuver the steering wheel. A large video screen puts the patient in the middle of the game.

"In general, the overall success rate is 92 percent," Wiederhold said, defining success as a fear-of-flying patient who gets on a plane without needing drugs or alcohol.

The Journey to the Wild Divine is a computer game from Colorado-based Wild Divine Project in which gamers must control their breathing. It's used to help people relax, but some medical researchers are looking at how the game could be used to treat migraine headaches, autism and obesity. Almost two dozen research organizations have proposals to use Wild Divine in clinical studies, such as one from the PeachHealth Regional Medical Center in Oregon to treat post-traumatic stress in pregnant women.

The game, out since 2003, includes biometric sensors that clip to fingers to measure pulse and body temperature. To move forward or move objects, sometimes you must take long, deep breaths. Other times, like one scene where you must keep three balls floating in the air, you need to laugh and shout to exude energy.

By using the Wild Divine breathing exercises, your body learns how to get back to that calming place when you're stressed, said Corwin Bell, executive director of concept development.

"Kids don't even know how to get to that place to be calm and centered. This guides them to those states and their body will remember," he said.

After someone called him the Nintendo surgeon for performing surgery through a half-inch slit in the patient's abdomen, surgeon James Rosser got an idea.

"I started thinking, 'did (video games) help me do this better?' " wondered Rosser, chief of minimally invasive surgery at Beth Israel Medical Center in New York.

He began his own research by talking to students. He found many who played video games and studied surgery results after they played Super Monkey Ball. Of the 33 people in the study, people who played video games for three hours or more in the past had 37 percent fewer errors and were 27 percent faster.

"Most of the video-game research shows that (games) are bad. My father still thinks it is bad. But put into the proper curriculum, video games could serve as a recruitment tool to get others interested in medicine," said Rosser, 50, who was hooked on gaming since Pong in the 1970s.

Beth Israel began offering a video-game course last year through its Advanced Medical Technology Institute, which is headed by Rosser. The course: The Top Gun Laparoscopic Suturing Program.

"If we can use the video-game industry to improve ourselves before we deal with a patient, that's the optimal thing," Rosser said. "Hey, you've got to keep your mind open for any medical improvement. If I have to use a video game, a rabbit's foot or a muskrat's tail, I will."

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