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Virtual reality helps stroke patients get back in the game

EDISON — A new technology may have older individuals loving video games even more than the younger generation.

Local researchers are drawing on these games to study and advance a type of virtual rehabilitation therapy to improve the lives of individuals with post-cerebral vascular disease, a condition often associated with strokes, according to county officials.

Exploring the full effects of his treatment, Grigore Burdea, a veteran professor at **Rutgers University** and a maverick in the field of virtual reality, has teamed up with two long-term care facilities in Central Jersey — Roosevelt Care Center at Edison and JFK Hartwyck Edison Estates, officials said.

“Conventional medicine provides rehabilitation six to nine months after a stroke,” Burdea said. “The justification for this continues to be that it’s basically reached a plateau. But [patients] can, in fact, improve further.”

Under the umbrella of his Highland Park-based company, Bright Cloud International, Burdea is currently targeting nursing homes’ stroke survivors with this therapy.

“It’s intensive, repetitive training with a purpose,” he said. “It’s also responsible for improving focus, memories, decision-making and reducing depression.”

In initial trials, Burdea reports seeing marked gains among elderly patients with dementia.

“Our games, unlike off-the-shelf games, adapt to patients,” Burdea said. “In the past, they have used video games for stroke rehabilitation, but we’re doing it using both hands. There are a whole slew of advantages. When you train the good and the paralyzed arm, it helps build connections between the two lobes [of the brain].”

During a recent afternoon session at Roosevelt Care Center, Burdea and his colleague, Gregory House, embarked on their first-ever tournament, remotely pairing Roosevelt residents with those at Hartwyck.

Operating at varying capacities, one player supports the other, he said.

Tucked away in an unassuming room at Roosevelt are a large-scale television monitor, various components of a custom gaming system, a BCI BrightArm Duo adjustable, tilted table and an elderly patient.

Researchers watched closely as the data streamed in. With some ease, the patient clutched and intermittently squeezed a small rubber ball attached to a controller that moves in a range of directions along the near frictionless table, tilted up at 20 degrees. The subject was fixed to the screen, navigating a hang glider through ring after ring. Meanwhile, overhead cameras adapted the game to the patient's every move, officials recounted.

A modern take on Atari's Breakout preceded the game and a version of the memory game followed, all custom designed by Bright Cloud International.

On screen, a phantom Hartwyck partner located 6 miles away assisted the Roosevelt patient through each maneuver.

Unbeknownst to either player, they are moving their arms 400 to 600 times during an hour-long session, working 10 times harder than they would be in a traditional rehabilitation setting.

"Games become winnable by even those, who are low-functioning," Burdea said. "They feel in control and happier seeing rewards through applause and fireworks. We're constantly reinforcing, and there's no surprise, the residents like to do it."

Prior to the tournament, all residents were assessed by an unaffiliated, third-party clinician using standardized measurements. This practice will be applied at the close of the tournament to document progress.

"The measurements are universally accepted, so we're comparing apples to apples," Burdea said. "Results show we are able to improve arm function and the brain many years after their stroke."

For more information on Roosevelt Care Center at Edison, an operation overseen by the Middlesex County Improvement Authority, visit www.rooseveltcarecenter.com or call 732-321-6800.

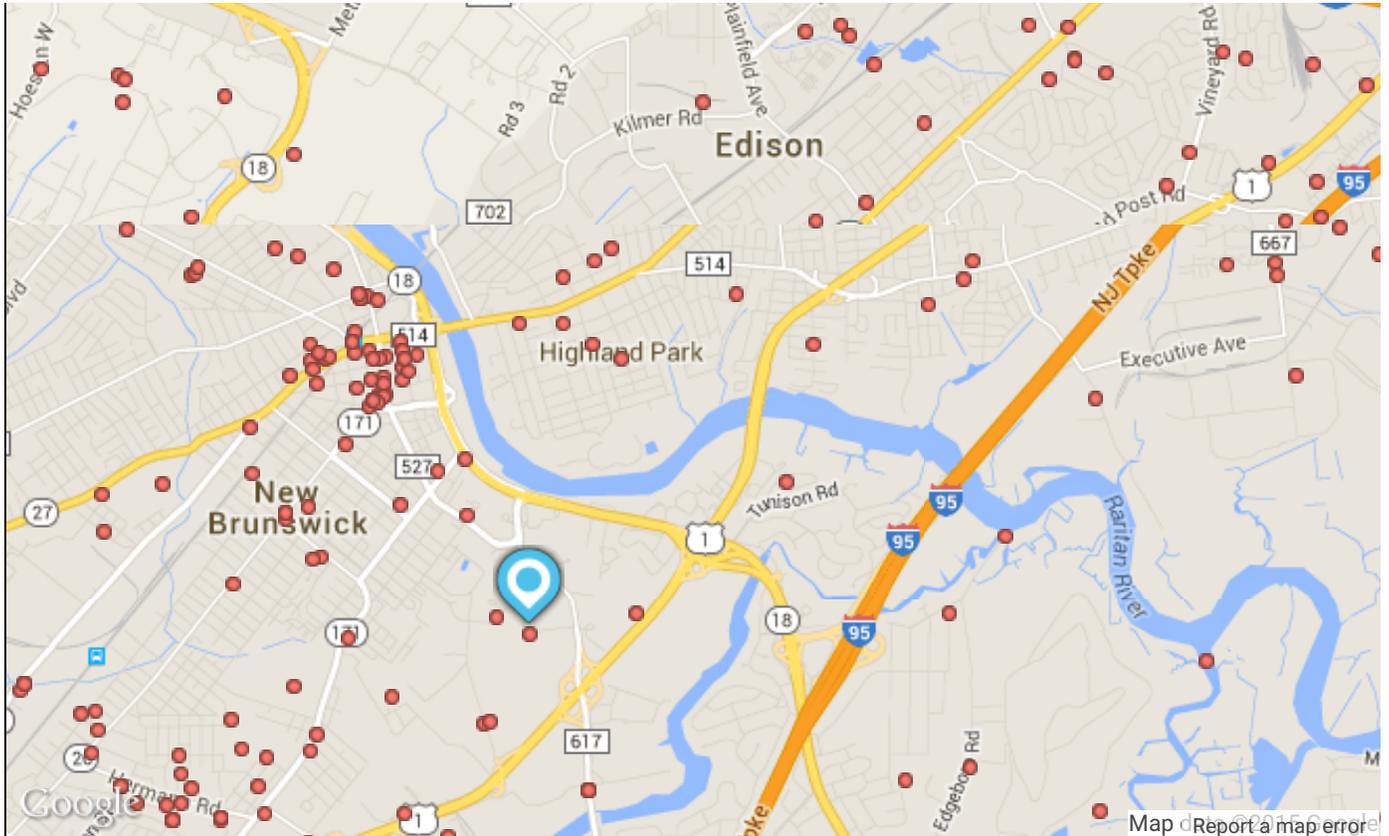
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