

Healing power of video games

Prof prescribes Wii to help rehabilitate brain-injury patients

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EDMONTON - Punches in the boxing ring likely contributed to the spontaneous stroke and brain injury that left Albert Liaw in a wheelchair with little movement in his left arm and slowed speech.

Now, virtual boxing with Nintendo's popular Wii video game is helping him regain his left hook, right jab and nimble feet.

The Glenrose Rehabilitation Hospital is the first in North America to use the Wii technology to treat patients with movement and balance issues.

Patients like Liaw, 34, play games in front of a TV screen, swinging a virtual golf stick, scoring a virtual bowling strike or knocking out an opponent in a boxing match without suffering a single bruise.

Dr. Grigore Burdea, a world leader in computer-based virtual reality techniques in rehabilitation therapies, believes that in five years every hospital and rehab clinic will have embraced the gaming technology for their patients.

"It's very ingenious," said Burdea, a professor visiting Edmonton from Rutgers University in New Jersey.

"This is pioneering work. ... Bill Gates (of Microsoft) would be wise to sponsor this kind of research."

Burdea said some hospitals have used the Wii gaming system to help boost and entertain patients during their hospital stay. He said the Glenrose is the first hospital where occupational therapists are guiding patients through golf swings, tennis serves and baseball strikes not only to help them gain lost movement, but also to train their brains to respond quickly to fly balls or swinging fists.

He said virtual gaming is incredibly motivational for patients who may be depressed after seeing their lives drastically changed from debilitating strokes, car crashes or falls.

Instead of resisting tedious traditional therapies to restore lost movement, such as throwing a ball across a room for one hour or stretching stiff putty with their hands, patients are eager to play games on the Wii system. They forget about their pain and the hard work for their muscles and brains, and simply enjoy workouts that sometimes last several hours.

"The problem here isn't the patient not wanting to do it," Burdea said. "The patient



CREDIT: Ed Kaiser, The Journal

Albert Liaw uses the Wii boxing game for treatment after suffering a stroke due to a blow to the head during a real boxing match.

wants to do it too much ... People are addicted to games, but in this case, the addiction is towards a good cause."

Don Simoneau, an occupational therapist at the Glenrose, has only used the technology on five patients in the past two and a half months, but already the hospital's 200 therapists are clamouring to be involved with the Wii equipment.

"I think it's going to be huge," Simoneau said. But he explained that simply playing tennis or golf on the Wii isn't therapeutic in itself. Occupational therapists like him and Jonathan Halton, who brought the idea to the Glenrose, need to guide the patients to train the muscles in fluid, dynamic techniques rather than stilted or rigid movements.

The technology has potential for even broader use if additional software is created. For instance, patients living in northern Alberta where few occupational therapists work could plug in their Wii machines and practise their exercises while therapists monitor their progress remotely.

Liaw still yearns to be a boxer again, but he knows if he enters the ring after therapy, the risk of injury is huge.

Liaw hopes practising with the Nintendo games will at least allow him to be a boxing trainer again.

"I think I should recover a full 100 per cent," he said.

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