

Can video games zap childhood — and adult — obesity?

*Studies suggest that games can help shed pounds,
improve motor skills*

BY OWEN DYER

It is surely the first commercial product in history to make a selling point out of its ability to injure the unwary customer. Nintendo's Wii game console had only been on the market a few days when reports began flooding in of cut fingers, bruised faces and sprained ankles.

The manufacturer initially downplayed the incidents, but quickly remembered that any publicity is good publicity. Soon, the Wii (pronounced 'we') was being touted by reviewers as a game console so exciting that users can't help braining each other with the controls.

The Wii is a radical departure from all other video game consoles on the market, in that it relies on motion capture technology. Rather than pressing buttons and levers on a controller, the user waves the controller around to mimic the movements of a golf club, tennis racquet or other virtual instrument. An infra-red detector tracks the movements and replicates them on the screen.

The basic package comes with five games: tennis, golf, baseball, bowling and boxing. In theory, the user should play the game as if it were the real thing. It's easy to see how this can lead to injuries in enclosed spaces.

There are now entire websites devoted to documenting Wii injuries, some of which can be quite nasty. A common theme is the overhead tennis serve, performed under an unnoticed light fixture. Another is the flying controller to the bystander's head, generally blamed on a failure to wear the included safety wrist strap. More upsetting to most users is the flying controller through the TV screen. There are also a surprising number of lower leg and foot injuries.

LOSING IT

It didn't take long for the thought to occur that all of this wild flailing about might have its upside. Computer games are frequently blamed as a cause of our couch-potato lifestyles. But here is a computer game that, in theory at least, demands the player get off the couch. A Mayo Clinic study published in January's issue of the journal *Pediatrics* suggested that active video games like the Wii could help in the fight against child obesity.

The console has already been enlisted in the war against adult obesity. Mickey DeLorenzo, a computer programmer in Philadelphia, is on his way to becoming "the new Jared of Subway fame," according to *Time Magazine*. He has a book deal to write *The Wii Workout*, a guide to losing weight with 30 minutes' play a day. His story is featured on the fitness website Traineo.com.

MY EMPIRICAL JOURNEY

Is it too good to be true? In the spirit of scientific inquiry, your correspondent rented a Wii and put it to the test with a couple of friends.

Sadly, we have no injuries to report. One of us did lightly whack the dog on the head as he passed by at an inopportune moment. Another tripped backwards over a piece of furniture, but his fall was interrupted by a wall. We did have a few near misses, though, and all in all the device showed a solid potential for causing mishap and mayhem in confined spaces.

In my experience, Wii's reputation for simulating vigorous sporting activity has been a little overblown. I began the evening swinging my bat or club from the shoulder, but soon found I scored higher with a gentler swing from the elbow. By the night's end, when my friends had departed, I was playing prone on the sofa, moving the controller with a gentle flick of the wrist - and scoring much higher.

Overall, I probably burned more calories walking to the video store to rent the thing.

A PIONEER'S TAKE

That's my opinion, but I've been overruled by an expert. William Li, an engineering student at the University of Toronto, has been working with the staff and patients of Bloorview Kids Rehab — Canada's largest children's rehabilitation hospital — to develop an active video game console which trains hemiplegic children suffering from cerebral palsy to use their weak arms.

His console, which predates the Wii's release, is built around the older Sony EyeTool motion capture technology, the same device used by the Mayo Clinic researchers. It can only be played when the user holds down a button under their chair using their strong arm. The movement of the other arm is then captured on screen, and the user performs a range of tasks such as picking fruit and throwing it into a bowl.

Working with kids mostly aged five to nine, Mr Li's machine has been shown to replicate exactly the kinds of movements that are used in physical therapy to improve strength and fine motor control. It will be presented at the Canadian Medical and Biological Engineering Conference in Toronto this June.

"We're also planning to test it using some validated clinical measures of motor control to really quantify any improvements in performance," he says. Its great strength, he says, is that "the kids don't see it as work or therapy, but as just another game. They seem to genuinely enjoy playing it."

FUTURE FLEX

So, what does he think of the claim that the Wii might help healthy people lose weight? "Actually, I think it has considerable potential in that field. All of these active games involve far more movement than traditional video games, which can only help," he says. "Of course, the Wii is surely just the first of many active games to come along. They're likely to get more engrossing, and future models may well demand more activity."

Perhaps I'm simply a lazy player. It's notable that many people who use the Wii are newcomers to computer games. First exposure to computer games can be very exciting, which might go some way to explaining all the injuries. A lot of the injury cases involve unlikely players, often people who grew up before computer games were even invented.

Those who have wasted significant chunks of their lives playing computer games, like myself, are far more likely to highlight the Wii's defects, in particular its rather primitive graphics, than to sing its praises.

Quite a lot of adults never grew out of playing video games, it seems. In fact the average age of the American video gamer today is 29 years old, according to the Entertainment Software Association.

FOR DOCS TOO?

Video simulation has become an essential training tool, especially for pilots. And latterly, video simulation has moved into the field of surgery. February's issue of the journal *Archives of Surgery* carries research from the "Top Gun Laparoscopic Skills and Suturing Program" at Beth Israel Medical Center in New York, which suggests that surgeons who play video games are simply better at their job than those who don't.

Thirty-three surgeons from Beth Israel participated in this study. Perhaps the most astonishing finding was how many of them played video games already. Fifty-eight percent reported playing at some point, while 30% said their peak use had involved playing almost every day. The typical participant had eight years of video gaming experience, with men more likely to report extensive gaming than women.

The surgeons played three games - Super Monkey Ball 2 for Nintendo Gamecube, Star Wars Racer Revenge for Sony PlayStation 2, and Silent Scope for Microsoft Xbox, then went on to drill and suture porcine bowels and perform a range of other tasks with laparoscopic tools.

Surgeons who never played video games took significantly longer to perform the laparoscopic tests and made significantly more errors than those who played frequently. Skill in each of the video games "was highly correlated with laparoscopic skill and suturing ability," the researchers found. Wasted hours? Perhaps not.

Get out those joysticks

Want to know how your surgical skills would measure up in the virtual world? Check out Trauma Center: Second Opinion, just released for Nintendo Wii.

The premise: It's 2018. Researchers have found a cure for cancer and AIDS but mankind is now facing the threat of a terrorist-designed virus called GUILT (Gangliated UtrophinImmuno Latency Toxin).

The hero: You are Dr Derek Stiles, a gifted surgeon who's just completed his resi-dency. Only you, and your joystick, can save the world from the threat of medical terrorism.

Your arsenal: You have everything you need to perform a successful procedure, including scalpel, forceps, sutures, drain, surgical laser, ultrasound and antibiotic gel. You even have a defibrillator to shock uncooperative patients back to life. Don't forget to watch those vitals.

