

# Turning Rehab into Wii-hab

Sometimes, something can be both good for you and fun.

Dr. Kirk Brumels '88 of the Hope athletic training staff had an intuitive sense and a fair bit of anecdotal evidence that popular activity-based video games like *Dance Dance Revolution* and the *Wii Fit* Balance Board programs could play a positive role in helping athletes with balance rehabilitation, but he hadn't located any hard data to support the notion.

So, this past fall he and a team of student researchers tackled the topic themselves. They conducted a study, published in the winter 2008 edition of *Clinical Kinesiology*, that found that such games offered the best of both worlds: they were more effective than traditional rehabilitation tools and the athletes enjoyed them more.

Ironically—or, rather, perhaps *because* the athletes were enjoying using the activities—participants in the study also believed that the games were less difficult than the traditional tools even as they were more effective.

"They perceived it as easier, yet the data suggested that it was as effective as, if not more effective than, the other exercises," said Dr. Brumels, who is an associate professor of kinesiology, program director of the athletic training education program and an assistant athletic trainer.

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— junior Sophie Hartman

Dr. Brumels was inspired to start using the games a few years ago, when his daughter showed him her new *Dance Dance Revolution* game. "I thought, 'Oh, my, this has a ton of applications in the athletic training world and rehabilitation,'" he said. The college's athletic training program began using the newly designed Wii system more recently.



Football player David DeBoer '10 of Grosse Pointe, Mich., demonstrates the way that Wii games and *Dance Dance Revolution* can be used in helping athletes as they rehabilitate injuries.

He recognizes that the video game balance programs—such as *Ski Slalom*, *Table Tilt* and *Balance Bubble*—are much more interesting than the traditional balance exercise programs, which involve standing on a variety of stable and unstable surfaces, maybe interacting with a ball or other object, in the training room.

Junior Sophie Hartman of Plainwell, Mich., has appreciated the system as she has been rehabilitating her ankle following an injury sustained during this past soccer season.

"Working with other athletes that are rehabilitating as well, it provides a fun competition," said Hartman, who is herself an athletic training major.

"I think it provides an energy to rehab," she said. "It makes it easier to go to—not necessarily that the task is easier, but it makes it easier to go to rehab."

"We've had incredible compliance with the athletes on it," Dr. Brumels said. "As long as it's fun, and they're doing it and it's beneficial to them, that's what we want."

The four-week Hope study involved 25 athletes who were asked to rate their experience with the three systems between one and five according to difficulty, engagement and enjoyability. While the traditional

methods earned a relatively low 2.17 for enjoyability and a 3.33 for engagement, *Dance Dance Revolution* earned 4.14 in both categories and *Wii Fit* earned 4.40 in each. The traditional methods rated 3.17 out of five for difficulty, while *Dance Dance Revolution* and *Wii Fit* weighed in as easier at 2.71 and 1.60.

Especially significant to Dr. Brumels was the finding that the athletes who had used *Dance Dance Revolution* and *Wii Fit* showed greater improvement in balance as measured by force plate testing following their month-long rehabilitation experience. It was an added bonus that the exercises were perceived as easier and more enjoyable by the participants.

Even as the participants in the study worked on their balance through the various rehabilitation methods, other students learned through the research process itself. Dr. Brumels conducted the study and co-authored the paper during the recent fall semester with four Hope senior athletic training or exercise science majors: Troy Blasius, Tyler Cortright, Daniel Oumedian and Brent Solberg. "They were intimately involved in the literature review, the study design, the implementation of it, and the data collection and analysis," he said. 🎮