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# Practical Play: Interactive Video Games Appear Valuable for ICU Patients

Interactive video games, already known to improve motor function in recovering stroke patients, appear to safely enhance physical therapy for patients in intensive care units (ICU), new research from Johns Hopkins suggests.

In a report published online in the Journal of Critical Care, researchers studied the safety and feasibility of using video games to complement regular physical therapy in the ICU.
"Patients admitted to our medical intensive care unit are very sick and, despite early physical therapy, still experience problems with muscle weakness, balance and coordination as they recover," says study leader Michelle E. Kho, P.T., Ph.D, assistant professor of Physical Medicine and Rehabilitation at Johns Hopkins. "We are always looking for creative ways to improve rehabilitation care for critically ill patients, and our study suggests that interactive video games may be a helpful addition."

For the study, the Johns Hopkins researchers identified a select group of 22 critically ill adult patients over a one-year period who received video games as part of routine physical therapy. These patients were part of a group of 410 patients who received standard early physical therapy in the medical ICU during the same time frame from Hopkins' physical therapists. The patients in the study, mostly males ranging from 32 to 64 years of age, were admitted to the medical ICU as a result of health problems, such as respiratory failure, sepsis, and cardiovascular issues.

These 22 patients participated in 42 physical therapy sessions that included use of Nintendo Wii and Wii Fit video game consoles. Almost half of the 20-minute sessions, all provided under the direct supervision of a physical therapist, included patients who were mechanically ventilated. The most common video game activities included boxing, bowling and use of the balance board. The physical therapists chose these activities primarily to improve patients' stamina and balance.
"As always, patient safety was a top priority, given that healthy people playing video games may be injured during routine gaming, but when properly selected and supervised by experienced ICU physical therapists, patients enjoyed the challenge of the video games and welcomed the change from their physical therapy routines," says senior author, Dale M. Needham, M.D. ,Ph.D., associate professor and medical director of the Critical Care Physical Medicine & Rehabilitation Program at Johns Hopkins.

Needham added that video game therapy activities are short in duration, which is ideal for severely deconditioned patients, and very low-cost compared to most ICU medical equipment. Added to regular physical therapy, the video games can boost patients' interest in therapy and motivation to do more therapy. The researchers caution that more research is needed to determine whether the video games improve patients' abilities to do the tasks that are the most important to them.
"Our study had limitations because the patients were not randomly selected, the video game sessions were infrequent and the number of patients was small," Kho noted. "Our next step is to study what physical therapy goals best benefit from video games."

Other Hopkins researchers in the study included Jennifer M. Zanni, P.T., Sc.D. and Abdulla Damluji, MBChB, MPH.

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