Web-based home rehabilitation gaming system for balance training

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ABSTRACT

Currently, most systems for virtual rehabilitation and motor training require quite complex and expensive hardware and can be used only in clinical settings. Now, a low-cost rehabilitation game training system has been developed for patients with movement disorders; it is suitable for home use under the distant supervision of a therapist. It consists of a patient-side application installed on a home computer and the virtual rehabilitation Game Server in the Internet. System can work with different input gaming devices connected through USB or Bluetooth, such as a Nintendo Wii balance board, a Nintendo Wii remote, a MS Kinect sensor, and custom-made rehabilitation gaming devices based on a joystick. The same games can be used with all training devices. Assessment of the Home Rehabilitation Gaming System for balance training was performed on six patients with Cerebral Palsy, who went through daily training sessions for two weeks. Preliminary results showed balance improvement in patients with Cerebral Palsy after they had completed home training courses. Further studies are needed to establish medical requirements and evidence.

Full papers will be published in the Conference Proceeding s and will be available to delegates at the conference on Sept. 10.

Full papers will be released on-line in the ICDVRAT archive on March 15.