

Next generation gamers: Computer games aid recovery from stroke

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Computer games are not just for kids. New research published in *Journal of NeuroEngineering and Rehabilitation*, a BioMed Central open access journal, shows that computer games can speed up and improve a patient's recovery from paralysis after a stroke.

It is often difficult for [stroke victims](#) to recover hand and arm movement, and 80-90% of sufferers still have problems six months later. Scientists in America looked at a group of people who had impaired use of one arm after a stroke and found that [computer simulations](#) and cutting edge techniques, used by the film industry to produce computer generated action, could restore lost function.

While many current training regimes concentrate on regaining hand and arm movement separately, the computer games and robotic training aids used in this trial attempted to simultaneously improve function of both together. The games Plasma Pong and Hammer Task were used to improve hand/arm coordination, accuracy and speed, while the Virtual Piano and Hummingbird Hunt simulations helped to restore precision of grip and individual finger motion.

After training for two-three hours a day for eight days, all of the patients showed increased control of hand and arm during reaching. They all had better stability of the damaged limb, and greater smoothness and efficiency of movement. Kinematic analysis showed that they also had improved control over their fingers and were quicker at all test tasks. In contrast their uninjured arm and the arms of control [game players](#), who

had normal hand/[arm function](#), showed no significant improvement at all.

Dr Alma Merians said, "Patients who played these games showed an average improvement in their standard clinical scores of 20-22% over the eight days. These results show that computer games could be an important tool in the recovery of paralysed limbs after stroke."

More information: Robotically Facilitated Virtual Rehabilitation of Arm Transport Integrated With Finger Movement in Persons with Hemiparesis

Alma S Merians, Gerard G Fluet, Qinyin Qiu, Soha Saleh, Ian Lafond, Amy Davidow and Sergei V Adamovich, *Journal of NeuroEngineering and Rehabilitation* (in Press)

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