# Can Virtual Reality Help My Stroke Recovery?

By Julia Schwarz

Virtual reality is a popular new technology that allows users to play games, enjoy unique experiences, and watch videos. But there is a whole lot of new evidence emerging to suggest that it might be a great tool to help you recover from stroke as well. Is this true? Can the same technology that lets you experience what it's like to be a NASCAR driver also help you regain skills you lost from a stroke? Here is what you need to know:

**What is virtual reality?**

Strictly speaking, virtual reality can be any technology that allows you to look into an entirely digital world.  Some virtual reality machines simply have you see the simulated world through a headset or screen. Others go far beyond and allow viewers to hear, touch and even smell the created environment. Phones, TVs, and computer screens are all examples of basic virtual realities, but recently, new technology called a virtual reality 'headset' has become available to the public. This new technology allows you to experience virtual environments as though you're actually inside of them. The more advanced models even use sensor technology to track your body movements and move through the world as if you were really in it.

**What is the difference between virtual reality and augmented reality?**

Virtual reality technology puts users in an environment completely generated by a computer. By contrast, augmented reality overlays digital content onto the real world. Pokémon GO is an example of an augmented reality game that took the world by storm, while high quality virtual reality is rapidly becoming a staple experience for gamers and conference-goers all over the world with systems like the HTC Vive and the Oculus Rift becoming affordable and widely used. While there are some researchers and companies looking to use augmented reality in post stroke rehabilitation, the majority of the current systems use virtual reality.

**How can it help stroke recovery?**

Virtual reality technology has been adapted to help with stroke rehabilitation. The same technology that allows some people to feel like they're surfing from their living rooms and others train to be quarterbacks has been changed to guide those recovering from stroke through activities to improve their condition. Special sensors have been adapted to record the movements that people recovering from stroke need to work on. For example, one virtual reality technology requires the user to wear a motion tracker on his or her finger tips, so that stroke survivors can work on grasping things.

**How is it targeted to me?**

Virtual reality rehabilitation technology allows for constant repetition, which is important when relearning important skills. The level of difficulty of any given activity can be changed to match the level you are currently at, and increased to ensure you are constantly challenged. You are given feedback in real time about whether or not you are performing tasks in the virtual reality environment correctly, which is very important for learning and relearning new skills and movements. Finally, the activities can be made more game-like by incorporating points or new levels or environments to make training fun.

**Has virtual reality rehabilitation proven to be better than traditional therapy?**

When virtual reality rehabilitation and traditional therapy by an occupational or physical therapist are done in the same amounts, studies have shown that the results are the same (1). However, when virtual reality rehabilitation is used as an addition to traditional therapy studies have shown participants recovered better than those who only did traditional therapy (2). In other words, the more training, the better and if virtual reality can make it easier or cheaper for people to receive more hours of training, it may help them better recover from stroke. It also can be considered as an option if a person is unable to see a physical or occupational therapist on a regular basis because of where they live, financial issues or other barriers.

**How can I get involved?**

As mentioned above, virtual reality training leads to the best results if used in combination with traditional therapy. The best person to ask about virtual reality training is your therapist or

doctor. Working with your therapist and the virtual reality system, you can develop a training program aimed at your specific abilities and goals.

**Purchasing a Virtual Reality Rehabilitation System:**

MindMaze, YouRehab and Saebo are three companies that have been very involved with virtual reality rehabilitation research. They have recently brought different products to the market all of which have received FDA approval.

**Find out about more about their products here:**

www.mindmotionweb.com

http://yourehab.com/our-products/yougrabber/

https://www.saebo.com/benefits-virtual-reality-stroke-rehabilitation/

**Enroll in Clinical Trials:**

If you are interested in joining a clinical trial that is studying virtual reality rehabilitation below are links to studies that are currently recruiting in the USA and Canada:

Chicago, IL. https://clinicaltrials.gov/ct2/show/NCT03062345

Ottawa, ON https://clinicaltrials.gov/show/NCT03261713

Alabama, Ohio, Oregon https://clinicaltrials.gov/show/NCT02631850

Montreal, QC https://clinicaltrials.gov/show/NCT02725853

**Sources**

1. I. Brunner et al., Virtual Reality Training for Upper Extremity in Subacute Stroke (VIRTUES): A multicenter RCT. Neurology 89, 2413-2421 (2017).

2. K. E. Laver et al., Virtual reality for stroke rehabilitation. Cochrane Database Syst Rev 11, CD008349 (2017).