



Virtual Reality technology in Rehabilitation

Smart and compact - virtual reality therapy systems consist of a combination of hardware and software. The hardware components are special VR goggles, a controller for performing the exercises and a control tablet that the therapist can use to regulate the intensity and duration and to track the situation.

Virtual reality expands the real life world with a virtual environment and content with the help of VR glasses. The technology enables therapy to be carried out without the need for a contract. The user is shown computer-generated images on a display in front of the eyes via the head-mounted display. Through the complex interaction of visual, tactile and acoustic cues, the user receives multi-sensory feedback. This is done by guiding patients to perform immersive tasks in the virtual world via acoustic cues from the therapist, while simultaneously receiving tactile responses via the controller.

The technology also takes advantage of the concept of neuroplasticity, which can reactivate impaired cognitive and motor functions.

By integrating smart cognitive techniques during the performance of immersive tasks, where the patient is exposed to extraordinarily low time delays and thus does not experience discomfort or motionsickness, the patient's nervous system is stimulated and neural pattern formation is activated.

Through individual, fine-grained adjustment, impaired areas can be successively addressed and trained. Via a biomechanical avatar, patients can perceive their own body through multi-sensory stimuli in the virtual world. In parallel, the motor movement tracking, which serves the sensorimotor feedback, supports movement rehabilitation and neuroregulation. The image and the movement sequences of the avatar help the patient's motor system to prepare and carry out optimal reactions based on the mirror therapy approach.

INNOVATIVE TECHNOLOGICAL APPROACH

- ◇ **Company:**
CUREosity GmbH
- ◇ **Product:**
CUREO
- ◇ **Technical basis :**
VR goggles, controller
& control tablet
- ◇ **Indications:**
Strokes & Traumatic
brain injury

Spinal cord injuries

Musculoskeletal
diseases

Neurodegenerative
diseases

Ataxia of the upper
limbs and trunk
- ◇ **Website:**
<https://www.cureosity.de/>

What are the advantages of rehabilitation therapy with virtual reality applications?

- Relief for medical staff thanks to patients who can be treated in parallel
- Broad spectrum of applications as well as location and time-independent use
- Increased motivation and performance of patients

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