

25. THE ROLE OF VIRTUAL AND AUGMENTED REALITY IN NEUROSCIENCE



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Introduction. Virtual (VR) and augmented reality (AR) are new tools that are already being successfully used in neurorehabilitation and therapy. But these technologies are still perceived by some experts with skepticism.

Aim of study. Description of VR and AR technologies and introduction to the possibility of their use in neurology and neurosurgery.

Methods and materials. For this review, publications were selected from various resources, such as PubMed, Neurology.org, Google Scholar. The searches were based on keywords: “neurorehabilitation”, “virtual reality”, “post-stroke”, “virtual environments”.

Results. Research from several sources has shown that virtual and augmented reality are successfully used in many areas of medicine, particularly in neuroscience. Virtual and augmented reality have contributed to neurorehabilitation, especially in post-stroke patients. VR affects the psychological state of patients, increasing motivation and task specificity. An example is Gait-triggered mixed reality, which aims to rehabilitate the lower extremities. Another example is the Rehabilitation Gaming System for aphasia, which focuses on training for lexical disorders. VR and AR have also contributed to the treatment of acute pain by distracting the patient's attention. Thus, a combination of psychological and pharmacological methods of pain relief improves the comfort and well-being of patients. Virtual reality facilitates medical procedures for patients with various injuries, especially in pediatrics, and reduces pain during physical therapy. Moreover, unlike painkillers, VR has no side effects, risks of overdose, or addiction.

Conclusion. Virtual and augmented reality open up new opportunities for neurology and neurosurgery and can be successfully used in the training and practice of doctors, neurorehabilitation, pain management, and the improvement of psychological comfort for patients