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**TOPIC: VR in HEALTHCARE**

## What is Virtual Reality?

Virtual reality is an environment created by a computer that shows the viewer a three-dimensional image on the screen. Users can now engage with a virtual world thanks to this.

By using electrical devices to visualize the 3D screen, such as a helmet attached with a screen, 3D goggles, or gloves with sensors, virtual reality makes the environment feel physical or real. The primary benefit of VR is the cost savings. Virtual reality is exemplified through online racing video games. Players can virtually experience sensations of speed, sound, and driving.

## What is Virtual Reality in Healthcare?

Virtual Reality is the technology which enables a user to simulate a scenario or expertise using a VR headset within a machine-generated atmosphere. The entire enhanced experience is highly immersive and requires particular 3D goggles using a screen or gloves to help the user to learn from experience within this digital world.

Nowadays, Virtual Reality is used in many locations, but here we're likely to examine Virtual Reality in healthcare. In healthcare, virtual reality may be used in medical practice, for doctors in training and students, patient treatment, educating people about complex medical conditions, and much more.

**Some examples of VR in healthcare,** Virtual reality works for healthcare in various ways. For example, it provides medical training by showing scenarios and common situations that can arise in physical setups. Most of the Top Hospitals and Medical universities across the World implemented VR applications to train professionals, perform surgery, or provide medical education remotely.

It involves problem-oriented learning, internal body organ explanation by virtual visualisation, and teaches the necessary communication skills to students.
By distracting patients' attention away, virtual reality is known to relieve chronic pain in people who are recovering from any disease or when the use of pain medicine or anaesthesia is contraindicated.

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## Benefits of VR in Healthcare Industry

- **Safe Environment**: By creating a safe environment and removing any health hazards, it enables doctors and students realistic medical instruction.
- **Faster Healing**: For patients who are admitted to hospitals for an extended period of time, wearing VR goggles allows them to explore a virtual world while lying in their hospital beds, which reduces their tension and boredom. This encourages quick healing.
- **Beats Phobias**: VR creates a realistic-feeling environment that helps patients and medical professionals overcome their fears and phobias.
- **Distracts Attention**: VR efficiently diverts patients' attention away from things they have to deal with on a regular basis, such as chronic pain, which makes it easier for them to tolerate their illness. Furthermore, it can help kids avoid any discomfort they could feel during blood testing, injections, and other medical procedures.
- **Cost-Effective and Time-Saving**: VR is both more time- and cost-efficient than visiting traditional physical installations.

## Application of VR in Healthcare:

- **Surgery:** Through the use of haptic controllers, VR enables users to practice various surgical procedures in a virtual environment. The required steps are provided by the VR software to the surgeons. Patients can also be given a virtual reality surgery explanation.
- **Pain Management**: As was said above, VR controls the intensity of chronic pain by deflecting the patient's attention. The cost of healthcare is successfully decreased, and the need for painkillers is decreased.
- **Physical Exercise:** Virtual reality (VR) helps with physical therapy by providing a variety of exercises that are supervised by an AI virtual instructor who keeps track of the patient's condition and makes sure the exercises are done correctly.
- **Medical training and Education:** For medical students, virtual learning sessions are set up with the assistance of tutors and training scenarios.

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- **Rehabilitation:** Through the use of built-in VR software or virtual therapists, rehabilitation VR also offers patients rehabilitation.

## Challenges of VR in Healthcare:

- **Cost:** The cost of VR technology and software can be prohibitive for healthcare organizations, particularly those with limited funding or tiny clinics.
- **Technical Restrictions:** Despite developments, VR technology still has some technical restrictions, such as low screen resolution, motion sickness, and latency problems, which can affect how users interact with the system as a whole.
- **Content Development:** It might take a lot of time and money to produce high-quality medical VR material, such as precise anatomical models or lifelike surgical simulations.
- **User Training:** Patient and healthcare professional training is required for effective usage of VR technology. It can be difficult logistically to guarantee that users are confident and competent in VR.

## Conclusion:

Virtual reality has advanced significantly from its gaming roots and is ready to transform the healthcare industry. Its current uses in therapy, pain management, and medical education are already improving patient care. We should anticipate much more VR integration into healthcare as costs come down and technology advances, providing more creative solutions and better patient results. The possibilities are endless as medicine moves more and more toward a virtual future.

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