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## **COMPARATIVE STUDY BETWEEN THE EFFECTIVENESS OF MENTAL IMAGERY TECHNIQUE AND VIRTUAL REALITY ON MOTOR RECOVERY OF UPPER EXTREMITY FUNCTIONS AMONG STROKE PATIENTS.**

Sruthy Suresh Kumar<sup>1</sup>, Dr. Sugasri Sureshkumar<sup>2</sup>.

<sup>1</sup>PG Student, Meenakshi College of Physiotherapy, Meenakshi Academy of Higher Education and Research, Chennai, India.

<sup>2</sup>HOD of PT in Neuroscience, Meenakshi College of Physiotherapy, Meenakshi Academy of Higher Education and Research, Chennai, India.

**Background:** Stroke is a leading cause of long-term disability worldwide, often resulting in significant impairment of upper extremity function. These impairments affect motor control, coordination, and the ability to perform activities of daily living, thereby reducing independence and quality of life, making effective rehabilitation essential. These interventions are based on principles of neuroplasticity and motor relearning to enhance functional recovery. The study aimed to identify which intervention better improves motor performance and functional use of the affected upper limb.

**Purpose:** The purpose of this study was to compare the effectiveness of mental imagery technique and virtual reality training in improving upper extremity motor recovery in stroke patients.

**Methods and Materials:** This comparative pre-test and post-test study included 40 stroke patients aged 45–70 years who were randomly divided into two groups. Group A received mental imagery training and Group B received virtual reality training for 40–45 minutes, 5 days per week for 12 weeks under supervised rehabilitation settings. Upper extremity function was assessed using the Fugel-Meyer Assessment (FMA-UE) and the Chedoke Arm and Hand Activity Inventory (CAHAI-13) at baseline and after intervention.

**Results:** Fugel-Meyer Assessment and CAHAI-13 scores showed significant improvement in both groups ( $P \leq 0.05$ ). However, the Virtual Reality group demonstrated greater improvement than the Mental Imagery group. Pre-test and post-test comparisons within both groups were also significant, leading to rejection of the null hypothesis and confirming effectiveness of both interventions.

**Conclusion:** Both interventions were effective in improving upper extremity motor recovery after stroke, but virtual reality showed better outcomes. This suggests that incorporating technology-based rehabilitation may enhance patient engagement, promote better motor relearning, and improve functional independence in stroke rehabilitation.

**Keywords:** Stroke, Upper Extremity, Mental Imagery Technique, Virtual Reality, Motor Recovery, Fugel-Meyer Assessment.