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EFFECTIVENESS OF VIRTUAL REALITY IN COMBINATION WITH TASK ORIENTED CIRCUIT TRAINING FOR LOWER LIMB FUNCTION AND QUALITY OF LIFE IN CHRONIC STROKE PATIENTS.

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Background: Task-oriented circuit training (TOCT) and virtual reality (VR) are innovative rehabilitation approaches based on principles of motor relearning and neuroplasticity. These interventions promote repetitive, goal-directed activities and provide enriched sensory feedback, which are essential for recovery in chronic stroke patients. Combining these approaches may further enhance motor recovery and functional outcomes.

Purpose: To analyze the effectiveness of virtual reality combined with task-oriented circuit training in improving lower limb function and quality of life among chronic stroke patients.

Methods and Materials: Fifty chronic stroke patients were recruited and randomly allocated to a control group and an experimental group. The control group received 40 minutes of VR training, while the experimental group performed 20 minutes of VR and 20 minutes of TOCT. In addition, all participants received 40 minutes of conventional physiotherapy five times per week for four weeks under supervised conditions. Outcome measures included the Fugl-Meyer Lower Extremity Scale (FMA-LE), Modified Barthel Index (MBI), and Stroke Impact Scale (SIS), assessed before and after intervention.

Results: Both groups showed significant improvements in lower limb motor function, activities of daily living, and quality of life ($p<0.001$). However, the experimental group demonstrated greater improvements in the FMA-LE (30 ± 10 to 49 ± 16, $p<0.001$), MBI (47 ± 14 to 71 ± 16, $p<0.001$), and strength domain of SIS (31.3 ± 12.5 to 43.8 ± 18.8, $p<0.001$).

Conclusion: The combination of virtual reality and task-oriented circuit training significantly enhances lower limb function and quality of life in chronic stroke patients compared with VR training alone, supporting its integration into comprehensive stroke rehabilitation programs for improved clinical outcomes.

Keywords: Chronic Stroke, Virtual Reality, Task Oriented Circuit Training, Lower Limb Function