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Exploring the Impact of Virtual Reality on Muscle Strength and Functional Independence in Spinal Cord Injury: A Review

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Abstract

Introduction: Virtual reality (VR) has captured the attention of researchers in the field of neurorehabilitation, focusing on recovering mobility, strength, balance and motor function in individuals with spinal cord injury. Spinal cord injury (SCI) is usually characterized with motor impairments, including deterioration of upper and lower limb sensory motor function that limit performance in activities of daily living and hence, reducing quality of life leading to functional dependency. VR increases motivation, engagement and allows a wide range of activities to be included in rehabilitation program. VR training leads to beneficial functional training effects in individuals with spinal cord injury. The present review aims to investigate the role of VR in regaining motor strength in patients with SCI.

Methodology: To construct a review on this topic, an extensive search on various databases was carried out including Ovid, Google Scholar, Medline, PubMed, Researchgate and available textbooks. Studies done in last 15 years were included in the review.

Result & Conclusion: The results indicate that VR-based therapy in SCI participants may have beneficial impacts on motor function recovery in addition to enhancing psychosocial and motivational components, despite the paucity of available data. To establish a clinical practice recommendation and to make strong judgments about the potential benefits of VR therapy for individuals with spinal cord injuries, more researches are required.

Keywords: *Virtual reality, spinal cord injury, neurorehabilitation, motor function, functional independence.*