

META ANALYSIS: VIRTUAL REALITY AS RANGE OF MOTION RESTORATION THERAPY IN STROKE PATIENTS

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ABSTRACT

Background: Nowadays, exercise is considered an important method for the treatment of many medical disorders and chronic diseases. Virtual reality (VR) is a novel technology defined as “the use of interactive simulations created with computer hardware and software to present users with opportunities to engage in environments that appear to be and feel similar to real-world objects and events”. VR can provide a rehabilitation environment, allowing users to repeat the same exercises, while they also have assessments and enough motivation to perform a large number of exercises. This study aimed to assess the effect of virtual reality as range of motion restoration therapy in stroke patients.

Subjects and Method: This systematic review and meta-analysis were conducted based on PRISMA statements’ flow diagram and checklist. The article search was conducted based on the eligibility criteria using the PICO model, i.e Population: stroke patients, Intervention: virtual reality, Comparison: non virtual reality, and Outcome: range of motion. Three electronic databases (Google Scholar, Pubmed, and Science Direct) were explored. The search strategy was structured using the following concept of keywords, ["virtual reality" AND ("range of motion" OR "range motion") AND (stroke OR CVD) AND ("randomized controlled trial" OR RCT)]. Only published studies with full text availability were searched. The inclusion criteria were randomized control trial (RCT) published from 2012 to 2022 and reported Mean dan Standard Difference. Quantitative synthesis was conducted using Review Manager 5.3.

Results: 10 studies from Asia, Europa, and America involved for meta-analysis. This study showed that virtual reality therapy improved range of motion in stroke patients 0.96 units (SMD= 0.96; 95% CI= 0.25 to 1.68; p= 0.008).

Conclusion: Virtual reality therapy helps to improve range of motion in stroke patients.

Keywords: virtual reality therapy, range of motion, stroke

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