ABSTRACT

Background:

Hand dysfunction resulting from neurological and musculoskeletal conditions severely impacts quality of life. Virtual Reality (VR) gaming has emerged as a promising rehabilitation modality. This literature review systematically evaluates the evidence on VR gaming interventions for improving hand function across various clinical populations.

Methodology:

A systematic literature search was conducted across PubMed/MEDLINE, Cochrane Library, PEDro, CINAHL, and Google Scholar databases. Studies published between 2015 and 2025 involving VR gaming interventions for hand rehabilitation were included. PRISMA guidelines were followed for article selection and data extraction.

Results:

Ten studies meeting inclusion criteria were reviewed. Evidence from RCTs, systematic reviews, and pilot studies consistently demonstrated statistically significant improvements in grip strength, fine motor dexterity (Box and Block Test, Nine-Hole Peg Test), and Fugl-Meyer Upper Extremity scores with VR gaming interventions compared to conventional therapy. Stroke patients constituted the largest studied population.

Conclusion:

VR gaming is an effective and patient-acceptable modality for improving hand function in neurological rehabilitation. Standardization of protocols, dosage, and outcome measures is required. Future high-quality RCTs with diverse populations are needed.

Keywords: *Virtual Reality, hand function, upper limb rehabilitation, VR gaming, stroke, physiotherapy, motor recovery*

TABLE OF CONTENTS

SL NO.	TOPIC	PAGE NO.
1.	Introduction	1-3
2.	Review of Literature	4-7
3.	Aims and Objectives	8-9
4.	Materials and Methods	10-12
5.	Statistical Analysis	13-14
6.	Results	15-17
7.	Discussion	18-20
8.	Conclusion	21-22
9.	Limitations and Recommendations	23-24
10.	References	25
11.	Annexures	26-27