

POSTER PRESENTATION PP12

Upper-Limb Robotic Rehabilitation in Subacute Stroke Survivors: A Scoping Review of Intervention Protocols

Khaleed Nazri¹, Haidzir Manaf¹, Ahmad Zamir Che Daud¹, Natiara Mohamad Hashim²

¹ Centre for Physiotherapy Studies, Faculty of Health Sciences, Universiti Teknologi MARA, Puncak Alam Campus, 42300, Selangor, Malaysia

² Department of Rehabilitation Medicine, Faculty of Medicine, Universiti Teknologi MARA, Sungai Buloh Campus, Selangor Branch, 47000 Jalan Hospital, Sungai Buloh, Selangor, Malaysia

ABSTRACT

Background and Objectives: Stroke survivors in the subacute stage have high chances of neuroplasticity during the recovery process. Due to that, multiple techniques and interventions are introduced to maximise the recovery outcomes. Upper limb robotics is one of the rehabilitation tools that have been implemented in rehabilitation plans. However, due to rapid development in the area, a comprehensive mapping of their intervention parameters and demographics of the subject selected in subacute stroke is lacking. **Methods:** A scoping review was conducted using the reporting guideline by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR). A study by Westphaln et al., (2021) was used as the methodological framework. A total of four (4) databases, PubMed, Cochrane, Scopus, and Web of Science, were searched between January 1, 2021, and December 31, 2025. A single researcher was involved in screening and data extraction. Second reviewer also screened a random 20% sample of the text articles and calculated the inter-rater reliability using Cohen's Kappa. Consensus or a third reviewer resolved any discrepancies. **Results:** 40 studies were included in accordance with the inclusion criteria. We identified that the participants predominantly middle aged to older adults (M=60). The intervention parameter findings suggested 45 minutes per session, for 18 sessions, 5 times per week and completed in 8 weeks. Other findings show that Fugl-Meyer Assessment for the Upper Extremity (FMA-UE) is the most popular primary outcome measure used. However, specific progression criteria are often not stated in the trial's methodology. **Conclusion:** This review shows that the intervention protocol parameters are still lacking in certain aspects, especially the progression criteria. Other intervention parameters need to be refined to be clear and goal-oriented. Future work should prioritise high-quality trials to establish more optimal implementation strategies, particularly for home-based application scenarios.

Keywords: Stroke; upper limb; robotic; rehabilitation

Corresponding Author:

Khaleed Saifullah Nazri

Email: 2024620246@student.uitm.edu.my