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Quantifying and Assessing Post-Stroke Patients' Functional Capability Level for Independent Daily Activities: A Review

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Abstract

Every year, over 13.7 million stroke episodes occur worldwide, addressing the pressing need for efficient rehabilitation treatments to restore motor function in stroke patients is paramount. The escalating number of stroke cases emphasises the urgency of developing robust rehabilitation methodologies. Currently, therapists rely on subjective and manual assessments to determine subsequent patient interventions, a method fraught with challenges, including subjectivity and dependence on the therapist's experience. This paper critically reviews the quantification and assessment of post-stroke patients' functional capability for independent daily activities. It delves into the existing standards of clinical assessment, explores the integration of sensors in limb rehabilitation prototypes, and observes the mathematical methods and algorithms employed by previous researchers to assess and quantify stroke patients' functional capability automatically. The

discussion covers the advantages and disadvantages encountered in developing these prototypes and evaluating their suitability in addressing the complexities of stroke rehabilitation. In conclusion, this paper provides a perception of existing research and identifies crucial gaps. Based on the current research landscape, it presents proposals for prototype development, paving the way for future advancements in stroke rehabilitation methodologies. © 2025, Semarak Ilmu Publishing. All rights reserved.

Author keywords

Functional capability index; Post-stroke rehabilitation; Standard clinical assessment; Transitive and tool mediated task

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