restitution of motor function depends on spontaneous biological mechanisms. Further improvements in activities of daily living are achieved by compensations. Motor rehabilitation is guided by regular assessment of motor function and activity using consensus-based measures, including patient-reported outcomes. Results are discussed with the patient and their carers to set personal goals. During motor rehabilitation patients learn to optimize and adapt their motor, sensory and cognitive functioning through appropriately dosed repetitive, goal-oriented, progressive, task- and context-specific training. Motor rehabilitation supports people with stroke to maximize health, well-being and quality of life. The framework describes the International Classification of Functioning, Disability and Health in the context of stroke, describes neurobiological mechanisms of behavioral restitution and compensation, and summarizes recommendations for clinical assessment, prediction tools, and motor interventions with strong recommendations from clinical practice guidelines (2016–2022).

Conclusions: This definition and framework may guide clinical educators, inform clinicians on current recommendations and guidelines, and identify gaps in the evidence base.

Keywords

Review, motor rehabilitation, motor recovery, assessment, prediction, intervention

Introduction

Stroke is the third leading cause of death and disability worldwide[1] and a leading cause of adult disability in Europe.[2] Forecasts for Europe from 2017 to 2047 predict a 17% decrease in stroke mortality, but a 27% increase in stroke prevalence.[2] These trends are expected to increase demand for stroke rehabilitation services.

The European Stroke Organisation (ESO) has released a European Stroke Action Plan (ESAP)[3] and defined 30 targets and 72 research priorities within seven domains to improve stroke services. One of these domains is stroke rehabilitation for improving management, outcome and quality of life after stroke in 2030.[3] Rehabilitation was defined following the WHO as "a set of measures that assist individuals, who experience or are likely to experience disability, to achieve and maintain optimal functioning in interaction with their environments."[4] This general definition encompasses several neurological domains such as motor function, cognition and communication, but specific principles of motor rehabilitation were not addressed.

This article presents a definition of "motor rehabilitation" developed by expert consensus. The agreed definition is supported by a framework that synthesizes key literature to provide a state-of-the-art overview of the stroke motor rehabilitation domain. This framework is intended to guide educators who train stroke rehabilitation clinicians, to update clinicians about current recommendations and guidelines, and to enable researchers to identify gaps in the evidence base.

Development of a consensus-based definition of motor rehabilitation after stroke

The ESO Guideline Board invited a panel of 16 experts to collaborate on a definition of post-stroke motor rehabilitation, using standard ESO operating procedures.[5] The panel engaged in a three-round process. The first round consisted of online meetings in April and May 2022 where the panel agreed to structure the definition as a paragraph. A first draft of the definition paragraph was presented to panelists through an online survey, and panelists had the options to agree, suggest changes, request additional elements, or disagree with the paragraph. Results were collated (available from GV) and presented to the expert panel for discussion and revision at the end of June 2022. A second-round survey was held in July–August 2022, and panelists could agree or disagree with each part of the definition. A 75% agreement threshold was defined a priori for acceptance of each part of the definition, similar to formal Delphi processes.[6,7] Results were collated (also available from GV) and presented in September to the expert panel, with further discussion and fine-tuning. The topic sentence at the beginning of the definition paragraph reached 91.7% agreement. The next three supporting sentences provide further explanation of the concept and reached 75%, 91.7%, and 81.8% agreement, respectively. The final concluding sentence reached 91.7% agreement. Along with the definition, a separate glossary related to motor rehabilitation was compiled (Box 1).

Expert panel members presented the agreed definition to a convenience sample of clinicians working in stroke rehabilitation through in-person and online consultation. Feedback was collated (available from GV) and discussed by the expert group in December 2022 with fine-tuning of the definition. The final agreed definition on motor rehabilitation after stroke is presented in Box 2. The definition was also discussed with two persons with lived experience of stroke, who confirmed that all elements of the definition were highly relevant and important for motor rehabilitation. They emphasized including maximizing health, well-being and quality of life, and the need to communicate that patients can improve, even long-term after stroke.

The definition paragraph describes key concepts. Further details are needed when using the definition in education,