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Best practices of emerging interventions used to improve walking ability in adult acute/subacute stroke: A systematic review

Abstract

Physical therapy is commonly practiced in the rehabilitation of individuals with stroke. A clinical practice guideline has been established for those with chronic stroke; however, there is not one available for acute stroke of less than six months onset. The purpose of this systematic literature review is two-fold: first to evaluate the strength and quality of the current research evidence for the use of physical therapy interventions for acute stroke with a comparison of conventional and emerging interventions for stroke as best practices, and to identify weaknesses in the current evidence and area for continued research needs. A systematic review of the literature was performed in ESBCSO and Pubmed data bases.

Included in the review are bodyweight support (BWSTT), functional electrical stimulation (FES), robotics, and virtual reality assisted (VR). 34 articles met the inclusion criteria and were included. FES training combined with conventional physical therapy (CPT) provides significant improvements in walking ability compared to CPT alone. BWSTT is an ineffective intervention for improving locomotor function, but it may be used for cardiorespiratory benefits in the subacute phase post-stroke. Robotics is an effective intervention for improving locomotor function in individuals in the subacute phase post-stroke who are unable to ambulate independently. VR, when coupled with CPT, has a significant improvement on locomotor function in individuals in the subacute phase post stroke. These interventions have more heavily been studied for individuals 6 or more months post stroke. More research is needed for interventions with individuals with acute and subacute stroke. Implications. These 4 interventions showed variable merit adjunctively to CPT in the treatment of acute and subacute stroke. The functional status of the individual, combined with the acuity of the stroke need to be taken into consideration when applying these interventions.

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