Overground physical therapy gait training for chronic stroke patients with mobility deficits

Rebecca A States¹, Evangelos Pappas¹, Yasser Salem¹

¹Division of Physical Therapy, Long Island University, Brooklyn, NY, USA

Contact address: Rebecca A States, Division of Physical Therapy, Long Island University, 1 University Plaza, HS 213, Brooklyn, NY, 11201, USA. Rebecca.States@liu.edu.

Editorial group: Cochrane Stroke Group.
Review content assessed as up-to-date: 27 January 2009.

Citation: States RA, Pappas E, Salem Y. Overground physical therapy gait training for chronic stroke patients with mobility deficits. Cochrane Database of Systematic Reviews 2009, Issue 3. Art. No.: CD006075. DOI: 10.1002/14651858.CD006075.pub2.

Copyright © 2009 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

ABSTRACT

Background

Overground gait training forms a major part of physical therapy services for chronic stroke patients in almost every setting. Overground gait training refers to physical therapists’ observation and cueing of the patient’s walking pattern along with related exercises, but does not include high-technology aids such as functional electrical stimulation or body weight support.

Objectives

To assess the effects of overground physical therapy gait training on walking ability for chronic stroke patients with mobility deficits.

Search methods


Selection criteria

Randomised controlled trials comparing overground physical therapy gait training with a placebo intervention or no treatment for chronic stroke patients with mobility deficits.

Data collection and analysis

Pairs of authors independently selected trials. Three authors independently extracted data and assessed quality. We contacted study authors for additional information.
Main results

We included nine studies involving 499 participants. We found no evidence for a benefit on the primary variable, post-test gait function, based on three studies with 269 participants. Uni-dimensional performance variables did show significant effects post-test. Gait speed increased by 0.07 metres per second (95% confidence interval (CI) 0.05 to 0.10) based on seven studies with 396 participants, timed up-and-go (TUG) test improved by 1.81 seconds (95% CI -2.29 to -1.33), and six-minute-walk test (6MWT) increased by 26.06 metres (95% CI 7.14 to 44.97) based on four studies with 181 participants. We found no significant differences in deaths/disabilities or in adverse effects, based on published reports or personal communication from all of the included studies.

Authors’ conclusions

We found insufficient evidence to determine if overground physical therapy gait training benefits gait function in patients with chronic stroke, though limited evidence suggests small benefits for uni-dimensional variables such as gait speed or 6MWT. These findings must be replicated by large, high quality studies using varied outcome measures.

Plain Language Summary

Overground physical therapy gait training for chronic stroke patients with mobility deficits

Stroke is a leading cause of serious, long-term disability in the United States, with 700,000 new or recurrent attacks each year. Two-thirds of survivors have difficulty walking immediately after suffering a stroke, and six months later over 30% still cannot walk without assistance. Overground gait training forms a major part of physical therapy services for chronic stroke patients and is aimed at improving gait function. Overground gait training involves the physical therapist observing and cueing the patient's walking pattern, along with related exercises (it does not include use of high-technology aids). We reviewed nine studies, with 499 participants, that investigated the effectiveness of overground gait training for improving overall measures of gait function. No evidence was found for a benefit on gait function at the end of the trial, based on the three available studies (269 participants). Other single measures of performance did show significant effects post-test. Gait speed increased by 0.07 metres per second, based on seven studies with 396 participants. The timed ‘up-and-go’ test improved by 1.81 seconds, and the six-minute-walk test increased by 26.06 metres, based on four studies with 181 participants. Even fewer data were available at three-month follow up. No significant differences in deaths/disabilities or in adverse effects were found between groups. Therefore, we found insufficient evidence to determine if overground physical therapy gait training improves gait function in patients with chronic stroke. The more targeted interventions for overground gait training used in recent studies suggest small and short-term benefits for performance measures like gait speed, the timed up-and-go test, and distance walked in six minutes. Along with the small number of large, high quality, randomised controlled trials, limitations of this review include the wide range of disabilities in the stroke patients involved, the slow rate of recovery for chronic stroke patients, incomplete descriptions of the experimental interventions in studies of community physical therapy that included overground gait training, the blunt nature of the primary variable - gait function, the limited duration of follow up (generally less than four months), and the diverse outcomes measured in the trials. Additional well-designed randomised controlled trials of sufficient size and quality are needed to clarify the effects of overground physical therapy gait training.