Treadmill Training and Body Weight Support for Walking After Stroke

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Background
Treadmill training, with body weight partially supported using a harness, is a method of treating walking after stroke. Systematic review is required to assess the effectiveness of this treatment.

Objective
To assess the effectiveness of treadmill training and/or body weight support in the treatment of walking after stroke. The primary outcomes investigated were walking speed and walking dependency.

Search Strategy
We searched the Cochrane Stroke Group Trials Register, the Cochrane Central Register of Controlled Trials, and PEDro to March 21, 2003, as well as MEDLINE (1966 to March 2003), EMBASE (1980 to March 2003), and CINAHL (1982 to February 2003). In addition, we hand-searched relevant conference proceedings, screened reference lists, and contacted trialists to identify further published and unpublished trials.

Selection Criteria
Randomized (or quasi-randomized) controlled trials and randomized (or quasi-randomized) crossover trials that used treadmill training and/or body weight support for the treatment of walking after stroke were eligible.

Data Collection and Analysis
Using an a priori protocol, 2 reviewers independently selected trials and extracted data. Trialists were contacted for additional information. A fixed effects model was used for analysis, but if heterogeneity existed a random effects model was used.

Main Results
The searches retrieved about 1400 references, of which 11 trials (458 participants) were included in the analysis. There were no statistically significant differences between treadmill training with body weight support and other interventions for walking dependence for participants who were dependent walkers at the start of treatment (relative risk [RR] 1.05, 95% CI 0.84 to 1.31; fixed effects). There was a slight trend toward effectiveness of treadmill training with body weight support for participants who could walk independently at the start of treatment (weighted mean difference 0.24 m/sec, 95% CI 0.19 to 0.66; random effects). The one trial that compared treadmill training with and without body weight support showed benefit at the end of follow-up (mean difference 0.22 m/sec, 95% CI 0.05 to 0.39). Adverse events occurred more frequently in participants receiving treadmill training, although statistically there was no difference (RR 3.9, 95% CI 0.91 to 16.7; fixed effects).

Reviewers’ Conclusions
The results of this review are not conclusive. Among people with stroke who could walk independently at the start of treatment, treadmill training with body weight support may improve walking speed. This effect was not seen for dependent walkers or for other outcomes. There was no definite evidence of harm associated with treadmill training with or without body weight support. There is an urgent need for well-designed large-scale studies to evaluate the effects of treadmill training and body weight support on walking after stroke.

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