Treadmill Training and Body Weight Support for Walking After Stroke

Anne M. Moseley, PT, PhD; Angela Stark, PT, MAppSc(Physio); Ian D. Cameron, MD, PhD; Alex Pollock, PT, PhD

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relevant conference proceedings, screened reference lists, and contacted trialists to identify further published and unpublished trials.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.

Received: July 29, 2003; accepted August 7, 2003; Correspondence: Dr Anne M. Moseley, Rehabilitation Studies Unit, Faculty of Medicine, University of Sydney, PO Box 6, Ryde NSW 1680, Australia. E-Mail amoseley@mail.usyd.edu.au (Stroke. 2003;34:3006.) © 2003 American Heart Association, Inc. Stroke is available at http://www.strokeaha.org DOI: 10.1161/01.STR.0000102415.43108.66
Treadmill Training and Body Weight Support for Walking After Stroke
Anne M. Moseley, Angela Stark, Ian D. Cameron and Alex Pollock

Stroke. 2003;34:3006; originally published online November 13, 2003;
doi: 10.1161/01.STR.0000102415.43108.66
Stroke is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2003 American Heart Association, Inc. All rights reserved.
Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the
World Wide Web at:
http://stroke.ahajournals.org/content/34/12/3006

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published
in Stroke can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office.
Once the online version of the published article for which permission is being requested is located, click
Request Permissions in the middle column of the Web page under Services. Further information about this
process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Stroke is online at:
http://stroke.ahajournals.org/subscriptions/