



Brazilian Journal of Physical Therapy

<https://www.journals.elsevier.com/brazilian-journal-of-physical-therapy>



ORIGINAL RESEARCH

Effect of the provision of a cane on walking and social participation in individuals with stroke: protocol for a randomized trial[☆]

Q2 Patrick Roberto Avelino^{a,*}, Lucas R. Nascimento^{a,b}, Kênia K.P. Menezes^a,
Aline A. Scianni^a, Louise Ada^c, Luci F. Teixeira-Salmela^a

^a Universidade Federal de Minas Gerais (UFMG), Departamento de Fisioterapia, NeuroGroup, Belo Horizonte, MG, Brazil

^b Universidade Federal do Espírito Santo (UFES), Centro de Ciências da Saúde, Vitória, ES, Brazil

Q3 ^c Discipline of Physiotherapy, The University of Sydney, Australia

Received 24 October 2017; received in revised form 20 November 2017; accepted 21 November 2017

KEYWORDS

Clinical trial;
Stroke;
Gait;
Cane;
Rehabilitation

Abstract

Background: Canes are usually prescribed for individuals with stroke with the purpose of improving walking and increasing safety. However, there is no consensus regarding the clinical effects of these aids on walking and participation.

Objective: This study will examine the efficacy of the provision of a cane to improve walking and increase participation after stroke.

Methods: This is a two-arm, prospectively registered, randomized trial with concealed allocation, blinded measurers, and intention-to-treat analysis. Fifty individuals with chronic stroke, categorized as slow or intermediate walkers (walking speeds ≤ 0.8 m/s), will participate. The experimental group will receive a single-point cane and instructions to use the cane anytime they need to walk. The control group will receive a placebo intervention, consisting of self-stretching exercises of the lower limb muscles and instructions to not use assistive devices. The primary outcome will be comfortable walking speed. Secondary outcomes will include walking step length, walking cadence, walking capacity, walking confidence, and participation. Outcomes will be collected by a researcher blinded to group allocation at baseline (Week 0), after intervention (Week 4), and one month beyond intervention (Week 8).

Q1 [☆] **Trial registration:** Clinical Trials, NCT03150979. Registered on May 11th, 2017 (<https://clinicaltrials.gov/ct2/show/NCT03150979>).

* Corresponding author at: Departamento de Fisioterapia, Universidade Federal de Minas Gerais, Avenida Antônio Carlos, 6627, Campus Pampulha, CEP: 31270-910 Belo Horizonte, Minas Gerais, Brazil.

E-mail: patrickpk4@yahoo.com.br (P.R. Avelino).

<https://doi.org/10.1016/j.bjpt.2017.11.002>

1413-3555/© 2017 Associação Brasileira de Pesquisa e Pós-Graduação em Fisioterapia. Published by Elsevier Editora Ltda. All rights reserved.

Please cite this article in press as: Avelino PR, et al. Effect of the provision of a cane on walking and social participation in individuals with stroke: protocol for a randomized trial. *Braz J Phys Ther.* 2017, <https://doi.org/10.1016/j.bjpt.2017.11.002>

Conclusion: The provision of a single-point cane may help improving walking of slow and intermediate walkers after stroke. If walking is enhanced, the benefits may be carried over to participation, and individuals may experience greater free-living physical activity at home and in the community.

© 2017 Associação Brasileira de Pesquisa e Pós-Graduação em Fisioterapia. Published by Elsevier Editora Ltda. All rights reserved.

Introduction and rationale

Stroke is the leading cause of adult disability worldwide.¹ Amongst the limitations in daily living activities, the ability to walk is reported by patients as the most important activity to recover after a stroke.^{2,3} In addition, higher walking ability is related to greater independence and social participation; both performance and capacity of walking have been shown to predict participation.⁴ Thus, recovery of walking after stroke is one of the most important goals in neurological rehabilitation.⁵

Assistive devices, such as canes and crutches, are usually prescribed for individuals after stroke with the purpose of improving walking and increasing safety.⁶ Previous studies have examined the effects of assistive devices on walking parameters in individuals with stroke.⁷⁻¹¹ The results suggested that assistive devices increase step length⁸ and comfortable and maximum walking speeds,^{7,11} decrease cadence,⁷ and improve walking symmetry.⁹ No significant changes in maximum joint angles⁷ or trunk movements¹⁰ have been found. A narrative review¹² summarized the effects of using a cane on walking in people with stroke. Although 19 experimental studies were included, methodological shortcomings, such as the absence of randomized trials and the predominance of cross-sectional studies with small samples ($n < 20$ participants), prevent the drawing of convincing conclusions regarding the effects of using a cane on walking. In addition, many of these studies included participants, who had been habitually using a cane, so that the magnitude of the benefits may have been overestimated.

More recently, Nascimento et al.¹³ conducted an experimental study to investigate the effects of the provision of a single-point cane in a heterogeneous group of community-dwelling people with stroke, who were naïve to the use of assistive devices for walking. Overall, the provision of a cane did not improve walking speed or cadence, and produced a small benefit in step length. However, sub-group analyses demonstrated clinically meaningful increases in walking speed, step length, and cadence for individuals classified as slow and intermediate walkers, i.e., walking speeds ≤ 0.8 m/s. These results reinforce the need to target interventions to those who will most benefit and avoid the risk of not implementing worthwhile interventions.^{13,14}

It has also been suggested that the provision of a cane can improve walking confidence.¹⁵ Even though walking ability is an important predictor of participation in people with stroke,⁴ there were not found any studies on the benefits of using a cane on community participation. The most

logical time to prescribe walking aids to people with stroke is after their independent walking has stabilized, since, at this stage, there would be no likelihood of interfering with the development of independent walking. A randomized trial to investigate the effects of the provision of a cane to ambulatory individuals with chronic stroke, naïve to the use of assistive devices, on walking and participation after stroke is, therefore, warranted. The specific research questions are:

1. Does the provision of a cane improve walking (speed, step length, cadence, capacity, confidence) in ambulatory individuals with chronic stroke?
2. Are the benefits carried over to participation?

Methods

Design

A prospective, randomized controlled trial with concealed allocation, blinded measurers, and intention-to-treat analysis will be carried-out (Fig. 1). Community-dwelling people with chronic stroke will be recruited from the general community, by means of advertisements and by screening public rehabilitation services and lists of previous research projects. Participants will be randomly allocated into either experimental group (i.e., provision of a cane) or control group (i.e., placebo intervention). Outcome measures will be collected by trained researchers at baseline (Week 0), at the end of the intervention (Week 4), and one month beyond the intervention (Week 8). Analyses of inclusion criteria, getting the informed consent, data collection, and statistical analyses will be carried-out by researchers, who will be blinded to group allocation. All the participants will be evaluated and receive all the information regarding the interventions in a research laboratory. The study obtained ethical approval from the Research Ethical Committee (CAAE: 65765817.3.0000.5149) of the *Universidade Federal de Minas Gerais*, Belo Horizonte, Minas Gerais, Brazil. The trial was prospectively registered at the www.ClinicalTrials.gov (NCT03150979).

Participants and therapists – inclusion and exclusion criteria

Participants will be individuals with stroke, who will be eligible, if they:

Download English Version:

<https://daneshyari.com/en/article/8928941>

Download Persian Version:

<https://daneshyari.com/article/8928941>

[Daneshyari.com](https://daneshyari.com)