



# Brazilian Journal of Physical Therapy

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



## SYSTEMATIC REVIEW

# Does home-based pulmonary rehabilitation improve functional capacity, peripheral muscle strength and quality of life in patients with bronchiectasis compared to standard care?

Q1 Anderson José<sup>a,\*</sup>, Anne E. Holland<sup>b</sup>, Cristiane S. de Oliveira<sup>a</sup>, Jessyca P.R. Selman<sup>a</sup>,  
Rejane A.S. de Castro<sup>a</sup>, Rodrigo A. Athanazio<sup>c</sup>, Samia Z. Rached<sup>c</sup>, Alberto Cukier<sup>c</sup>,  
Rafael Stelmach<sup>c</sup>, Simone Dal Corso<sup>a</sup>

Q2 <sup>a</sup> Postgraduate Program in Rehabilitation Sciences, Universidade Nove de Julho (UNINOVE), São Paulo, SP, Brazil

Q2 <sup>b</sup> Alfred Health, La Trobe University, and Institute for Breathing and Sleep, Melbourne, Australia

Q3 <sup>c</sup> Pulmonary Division, Heart Institute, Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (USP), SP, Brazil

Received 15 March 2017; received in revised form 26 April 2017; accepted 22 June 2017

### KEYWORDS

Q4 Rehabilitation;  
Bronchiectasis;  
Exercise test;  
Exercise tolerance;  
Quality of life

### Abstract

**Background:** Home-based pulmonary rehabilitation (HBPR) is a promising intervention that may help patients to overcome the barriers to undergoing pulmonary rehabilitation. However, HBPR has not yet been investigated in patients with bronchiectasis.

**Objectives:** To investigate the effects of HBPR in patients with bronchiectasis.

**Methods:** An open-label, randomized controlled trial with 48 adult patients with bronchiectasis will be conducted. Interventions: HBPR: The program will consist of three sessions weekly over a period of 8 weeks. Aerobic exercise will consist of stepping on a platform for 20 min (intensity: 60–80% of the maximum stepping rate in incremental step test). Resistance training will be carried out using an elastic band for the following muscles: quadriceps, hamstrings, deltoids, and biceps brachii (load: 70% of maximum voluntary isometric contraction). Control: The patients will receive an educational manual and a recommendation to walk three times a week for 30 min. All patients will receive a weekly phone call to answer questions and to guide the practice of physical activity. The HBPR group also will receive a home visit every 15 days. Main outcome measures: incremental shuttle walk test, quality of life, peripheral muscle strength, endurance shuttle walk test, incremental step test, dyspnea, and physical activity in daily life. The assessments will be undertaken at baseline, after the intervention, and 8 months after randomization.

\* Corresponding author at: Postgraduate Program in Rehabilitation Sciences, Nove de Julho University, Rua Vergueiro, 235/249, Liberdade, CEP: 01504-001 São Paulo, SP, Brazil.

E-mail: [dr.andersonjose@gmail.com](mailto:dr.andersonjose@gmail.com) (A. José).

<http://dx.doi.org/10.1016/j.bjpt.2017.06.021>

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: José A, et al. Does home-based pulmonary rehabilitation improve functional capacity, peripheral muscle strength and quality of life in patients with bronchiectasis compared to standard care? *Braz J Phys Ther.* 2017, <http://dx.doi.org/10.1016/j.bjpt.2017.06.021>

*Discussion:* The findings of this study will determine the clinical benefits of HBPR and will contribute to future guidelines on HBPR for patients with bronchiectasis.

**Trial registration:** [www.ClinicalTrials.gov](http://www.ClinicalTrials.gov) (NCT02731482). <https://register.clinicaltrials.gov/prs/app/action/SelectProtocol?sid=S00060X6&selectaction=Edit&uid=U00028HR&ts=2&cx=1jbszg>

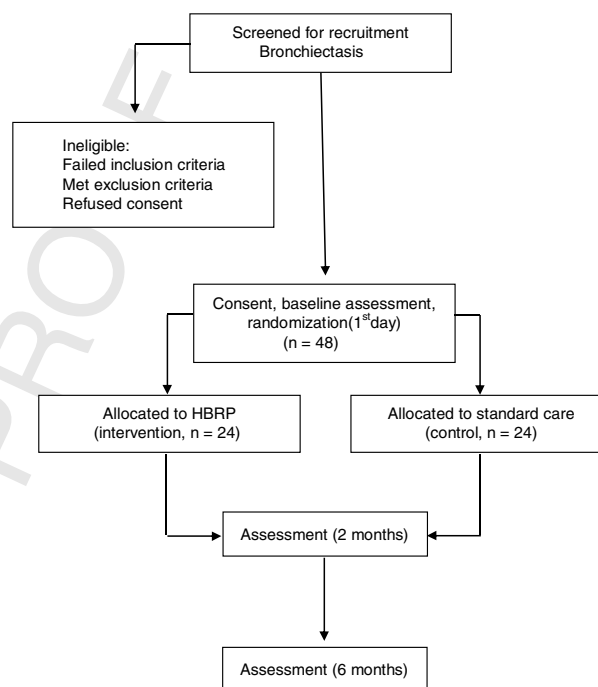
© 2017 Associação Brasileira de Pesquisa e Pós-Graduação em Fisioterapia. Published by Elsevier Editora Ltda. All rights reserved.

## Introduction

Pulmonary rehabilitation (PR) is the most effective non-pharmacological therapy to reduce dyspnea, improve exercise tolerance, and enhance quality of life in patients with chronic pulmonary diseases.<sup>1</sup> Despite strong evidence, over 95% of patients with chronic obstructive pulmonary disease (COPD) who could benefit from PR are not referred to this therapy.<sup>2,3</sup> Of those who are referred to PR, 8% to 50% do not take up the referral and, among those who start the program, approximately 20% do not complete it.<sup>4,5</sup> The causes for this low uptake and adherence are multifactorial and include the lack of specialized programs, particularly outside urban centers, the insufficient number of qualified professionals, difficulties with transportation and its costs, and the difficulty of reconciling work activities with rehabilitation.<sup>6-8</sup> In this context, home-based PR (HBPR) may be an alternative option to overcome the barriers to attendance at center-based programs.

COPD is the most investigated lung disease both in terms of outpatient PR and HBPR. In patients with COPD, HBPR was first described in the mid-90s<sup>9</sup> and since then, numerous studies have shown that, similar to outpatient rehabilitation, home-based programs improve quality of life, increase exercise tolerance, and improve dyspnea without serious side effects.<sup>10-22</sup> Since 2010, the effects of HBPR have been extended to other chronic lung diseases, such as idiopathic pulmonary fibrosis,<sup>23,24</sup> asthma,<sup>7,25</sup> and tuberculosis,<sup>26</sup> with similar results to those described in patients with COPD. However, the effects of HBPR have not yet been investigated in patients with bronchiectasis. Bronchiectasis is a severe, progressive disease with high socioeconomic impact,<sup>27-29</sup> which includes extrapulmonary manifestations such as reduced functional capacity and peripheral muscle endurance.<sup>30-32</sup>

Patients with bronchiectasis usually receive PR in an outpatient context,<sup>33-39</sup> and as noted in other chronic lung diseases, it improves the patient's physical capacity and reduces dyspnea, fatigue, and the number of exacerbations.<sup>1</sup> Therefore, HBPR could also be beneficial for patients with bronchiectasis who cannot access an outpatient rehabilitation program. This study will contribute to future guidelines regarding HBPR for patients with bronchiectasis. The aim of this clinical trial is to investigate the short- and long-term effects of HBPR on functional capacity, quality of life, and peripheral muscle strength in patients with bronchiectasis.



**Figure 1** Flowchart of participants selection and procedures.

## Methods

### Design

This is a prospectively registered, two-arm, open-label, randomized controlled trial.

### Recruitment and random selection of patients

Participants will be recruited personally by the researchers from the Obstructive Disease Outpatient Clinic (Hospital das Clínicas of Universidade de São Paulo) and will be referred to the University Center for tertiary cardiopulmonary rehabilitation (Universidade Nove de Julho). The flow of participants through the study will follow the recommendations of the *Consolidated Standards of Reporting Trials Statement* and is outlined in Fig. 1. After written and verbal explanation regarding the objectives and procedures of the study, all participants will sign a consent form before starting the assessments. This study received approval from the Human Research Ethics Committee of Universidade Nove de Julho, São Paulo/SP, Brazil (no. 1249073), and the

Download English Version:

<https://daneshyari.com/en/article/8928966>

Download Persian Version:

<https://daneshyari.com/article/8928966>

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