

Outcomes of pulmonary rehabilitation in patients with COPD: a systematic review

Sara Souto-Miranda^{1,2,3}, Guilherme Rodrigues¹, Martijn A. Spruit^{3,4}, Alda Marques^{1,2}

¹Lab3R - Respiratory Research and Rehabilitation Laboratory, School of Health Sciences (ESSUA), University of Aveiro, Portugal

²iBiMED: Institute of Biomedicine, Department of Medical Sciences, University of Aveiro, Portugal

³Department of Respiratory Medicine, Maastricht University Medical Centre, NUTRIM School of Nutrition and Translational Research in Metabolism, Faculty of Health, Medicine and Life Sciences, Maastricht University, The Netherlands

⁴Department of Research and Development, CIRO, Horn, The Netherlands.

Introduction: The magnitude of response to pulmonary rehabilitation (PR) is partially influenced by the selection of outcomes and measures. Overall guidance on such subject is somewhat limited as no comprehensive systematic review has gathered all outcomes and measures used in clinical trials of PR for patients with chronic obstructive pulmonary disease (COPD). We aimed to summarise all previously reported outcomes and measures to further contribute to the development of a core outcome set (COS).

Methods: Searches were conducted on Scopus, Web of Knowledge, Cochrane Library, EBSCO, Science Direct and PubMed. Studies reporting on PR of stable patients with COPD were included. Data were extracted into a pre-developed standardised table. Frequency of reporting for each outcome and measure was synthesised using Microsoft Excel®.

Results: 267 studies were included with 43153 patients with COPD. A broad range of outcomes (n=186) was found. PR was mostly conducted in outpatient setting (n=146) 2-3 days/week (n=150) during 8-12 weeks (n=124). Exercise capacity (n=214) with the six-minute walk test (n=138), health-related quality of life (n=181) with the Saint George's respiratory questionnaire (n=84), and symptoms (n=96) with the modified medical research council dyspnoea questionnaire (n=41) were mostly reported. Comorbidities and medication with the number of medication (n=1), sleep with the Pittsburgh sleep quality index (n=1) and self-management with the Flinders university PIh scale (n=1) were less reported.

Conclusions: This study reinforced the need for a COS for PR in patients with COPD, as high heterogeneity in reported outcomes was found. Researchers and clinicians may now choose to use the most reported outcomes and measures to facilitate comparisons across studies, and/or use less reported outcomes and measures to investigate the effectiveness of PR.