

Conflict of interest: The authors declare no conflict of interest.

Funding: Not applicable.

Ethics committee approval: CAAE: 77076624.9.0000.5108.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101289>

27

ACUTE EFFECT OF INSPIRATORY MUSCLE TRAINING ON THE PERIPHERAL MUSCLE OXYGEN DESATURATION RATE IN PATIENTS WITH COPD: A CASE SERIES

Natália Mota da Silva Borges, Kauane Paulino Guedes, Leticia Vitorino, Tatiana Onofre Gama, Danielle Aparecida Gomes Pereira, Rafaela Pedrosa, José Heriston de Moraes Lima, Eduardo Ériko Tenório de França
Programa de Pós-graduação em Fisioterapia, Universidade Federal da Paraíba (UFPB), João Pessoa, PB, Brazil

Background: Chronic Obstructive Pulmonary Disease (COPD) is characterized by prolonged airflow obstruction due to tobacco exposure and environmental factors, making it one of the leading causes of mortality worldwide. In addition to respiratory complications, the disease promotes alterations in the cardiovascular system and peripheral muscle metabolism, contributing to exercise intolerance. In this context, Inspiratory Muscle Training (IMT) emerges as a strategy to enhance exercise tolerance and may influence the modulation of the metaboreflex during IMT application. However, the acute effects of IMT on the peripheral muscle metabolism of individuals with COPD remain poorly understood. Near-infrared spectroscopy (NIRS) is an effective method for analyzing the oxidative capacity of peripheral muscles.

Objectives: To analyze the acute effect of IMT, with different pressure loads, on the peripheral oxygen desaturation rate in patients with COPD. **METHODS:** This crossover case series followed five individuals diagnosed with COPD. They underwent two IMT protocols: one strength-focused protocol (IMT-F), using 60% of the patient's maximal inspiratory pressure, and a Sham IMT protocol. During training, tissue oxygenation behavior was measured using near-infrared spectroscopy on the gastrocnemius muscle. The study included individuals capable of performing the IMT protocol and/or functional tests, who had no associated comorbidities such as psychiatric disorders, cognitive impairments, progressive neurological disorders, chronic pain, or an inability to follow commands. Participants who wished to discontinue their participation during the protocol execution or failed to comply with the protocol were excluded. Before participation, all individuals signed an informed consent form.

Results: All participants showed greater desaturation in the IMT-F group compared to the Sham IMT group. The mean peripheral oxygen desaturation rate was higher in the IMT-F condition (-0.0184 ± 0.0210) compared to the Sham IMT (-0.0137 ± 0.0080). **CONCLUSION:** The results suggest a tendency for greater peripheral oxygen desaturation when patients are exposed to IMT-F. This condition may be explained by various physiological factors present in COPD patients that affect oxygenation and metabolic demand during intense effort. We believe that IMT-F requires more intense contractions of the inspiratory muscles, leading to increased oxygen consumption in this structure, indicating earlier activation of the metaboreflex. This mechanism redirects peripheral blood flow to the inspiratory muscles engaged in activity, potentially being a key factor in the reduction of peripheral tissue oxygenation during this type of training.

Implications: This study may contribute to a better understanding of the acute effects of IMT on peripheral tissue oxygenation behavior in COPD patients and may serve as a guide for the development of more effective respiratory rehabilitation protocols for these individuals.

Keywords: COPD, Oxygen Saturation, Strength Training

Conflict of interest: The authors declare no conflict of interest.

Funding: CNPq - 404976/2023-9.

Ethics committee approval: No. 4.377.348.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101290>

28

PREVALENCE OF SARCOPENIA AND CLINICAL PROFILE OF INDIVIDUALS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) UNDERGOING OUTPATIENT PNEUMOLOGY CARE

Júlia Soares Leite, Jhonata de Marco Vieira, Flávia Del Castanhel, Rosemeri Maurici da Silva
Universidade Federal de Santa Catarina (UFSC), Florianópolis, SC, Brazil

Background: Chronic Obstructive Pulmonary Disease (COPD) is a condition characterized by persistent respiratory symptoms and a partially irreversible limitation of airflow. Patients with COPD are more predisposed to sarcopenia, which is defined as the progressive loss of muscle mass, strength, and physical performance. The coexistence of these conditions results in an unfavorable clinical prognosis, with worse quality of life, increased frequency of exacerbations, and higher mortality.

Objectives: To describe the clinical profile of COPD patients under outpatient care and identify the prevalence of sarcopenia in this population.

Methods: This was a cross-sectional study conducted with patients diagnosed with COPD based on spirometry showing a FEV1/FVC ratio < 0.7 , treated in an outpatient pneumology service. Patients aged between 40 and 90 years of both sexes, with no history of using cardiac electronic devices, were included. The diagnosis of sarcopenia was established through the evaluation of appendicular muscle mass using bioimpedance. Descriptive statistical analysis was used to characterize the variables of interest.

Results: The sample consisted of 65 patients, with a predominance of females (55.4%). The mean age was 67.1 ± 8.5 years. Regarding educational level, 75.4% of patients had completed most primary education. A history of exacerbation was reported by 56.9% of participants. Approximately 26.2% required hospitalization, with 16.9% having one hospitalization, 3.1% having two, and 6.2% having three hospitalizations. The majority of patients were former smokers (67.7%), while 32.3% were still active smokers. Regarding Body Mass Index (BMI), 44.6% had normal weight, 16.9% were underweight, 16.9% were overweight, and 21.5% had some degree of obesity. Hypertension was observed in 55.4% of patients, and Diabetes Mellitus in 7.7%. According to the severity of COPD, as per the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria, 32.3% had moderate obstruction, 44.6% had severe obstruction, and 3.1% had very severe obstruction. According to the GOLD classification, which combines exacerbation history and symptoms, most patients were classified as GOLD B (44.6%) or GOLD E (43.1%), while 12.3% were classified as GOLD A. Sarcopenia was diagnosed in 28 patients (43.1%).

Conclusion: The predominant clinical profile in this sample consisted of female patients, mostly elderly, with a history of exacerbations but without the need for hospitalization. The most prevalent