

**Implications:** Individuals with symptoms of dyspnea and fatigue after infection with COVID-19 have a functional and respiratory disability and should be referred to outpatient public services specialized in rehabilitation.

**Keywords:** COVID-19, Respiratory Muscle Strength, Physiotherapy

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

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## HEART FAILURE AND POST-COVID SYNDROME: A CASE REPORT ON THE EVOLUTION OF THE FUNCTIONAL STATUS AFTER A CARDIOPULMONARY REHABILITATION PROGRAM

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**Background:** Submaximal field walking tests are easy to apply and low cost, but it is necessary to standardize their application, especially in the pediatric population. The feasibility and its use in patients with congenital heart disease (CHD) have been studied.

**Objectives:** To verify the submaximal field walking tests applied in the cardiopulmonary evaluation of children and adolescents with CHD.

**Methods:** Literature systematic review, the search for scientific articles was carried out in the electronic databases Medical Literature Analysis and Retrieval System Online (MEDLINE via PubMed), Latin American and Caribbean Literature in Health Sciences (LILACS), Cochrane Library, Physiotherapy Evidence Database (PEDro), Scientific Electronic Library Online (SciELO) and ScienceDirect, structured in PICO format, without date restrictions. For the search strategy, words from the Medical Subject Heading Terms (MeSH) dictionary were used with the following descriptors: [(“Congenital Heart Defects” OR “Congenital Heart Defect” OR “Malformation of Heart” OR “Heart Abnormality” OR “Congenital Disorders” OR “Neonatal Diseases and Abnormalities” OR “Tetralogy of Fallot” OR “Tricuspid Atresia” OR “Ebstein Anomaly” OR “Ebstein’s Malformation” OR “Birth Defects” OR “Congenital Abnormalities”) AND (“Walk Test” OR “6 -min Walk Test” OR “6-minute Walk Test” OR “Six-minute Walk Test” OR “Endurance Shuttle Walk Test”)], which were later adapted to the other bases that were used in this review. Looking for studies that used submaximal field walking tests in children and adolescents with congenital heart disease aged 5 to 18 years. Methodological quality, effectiveness and safety, and risk of bias were assessed.

**Results:** Five studies met the eligibility criteria with a sample of 160 individuals with CHD, and all used the six-minute walk test ([https://www.physio-pedia.com/Six\\_Minute\\_Walk\\_Test/\\_6\\_Minute\\_Walk\\_Test6MWT](https://www.physio-pedia.com/Six_Minute_Walk_Test/_6_Minute_Walk_Test6MWT)). Note that different methodologies and modifications are used. The only clinical trial showed good methodological quality. Four studies had a low risk of bias, and one study had a moderate risk.

**Conclusion:** In this review, the 6MWT proved to be the first-choice method for assessing exercise capacity in children and adolescents with CHD, however, the lack of standardization in the application of

the test became evident, which made it difficult to compare the results.

**Implications:** Reducing the limitations and heterogeneity in the application of the test will enable more concrete outcomes and facilitate their reproduction in clinical practice.

**Keywords:** Pediatrics, Congenital Heart Disease, Field walking test

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

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## POST-COVID-19 SEQUELAE AND THE ASSOCIATION OF INSPIRATORY MUSCLE TRAINING IN A CARDIOPULMONARY REHABILITATION PROGRAM: A CASE REPORT

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**Background:** Post-COVID-19 symptoms are persistent, and their sequelae include fatigue, dyspnea, and decreased functional capacity. In this context, cardiopulmonary rehabilitation can improve the symptoms, functional capacity, and quality of life of these patients.

**Objective:** This paper reports the case of a woman with COVID-19 sequelae presenting frequent symptoms such as dyspnea and fatigue.

**Methods/Case Description:** Patient I.S, 56 years old, presenting dyspnea and post Sars-Cov-2 fatigue, scheduled for a cardiac rehabilitation program. The pre- and post-intervention assessment was based on the: Post-COVID-19 Functional Status Scale (PCFS), 1-minute Sit and Stand Test (SST1), 2-minute Stationary Gait Test (2MWT), Test of 6-minute walk (6MWT) and Manovacuometry. The progressive recovery program had the duration of 8 weeks, 2 times per week, based on: 1) Aerobic exercises on a treadmill; 2) respiratory kinesiotherapy; 3) Inspiratory Muscle Training with POWERbreathe® equipment, with progressive load; 4) Circuits and Stretches. The first session started with aerobic exercise for 15 minutes, at 5 km/h, without incline, in continuous use of POWERbreathe® in 2 cmH<sub>2</sub>O and respiratory kinesiotherapy exercises. The patient had a 100% adherence to the program. Sessions were based on 20 minutes of aerobic exercise at 5 km/h and rib cage stretching exercises with continuous POWERbreathe® at 4 cmH<sub>2</sub>O.

**Results:** The results obtained were: PCFS Grade 0 pre- and post-intervention, SST1 (24 repetitions vs 29 repetitions), 2MWT (87 lifts/Borg Final 3 vs 130 lifts/Borg Final 3), 6MWT (561 vs 630m) and Manovacuometer (-80cmH<sub>2</sub>O / +100cmH<sub>2</sub>O vs -100cmH<sub>2</sub>O / +120cmH<sub>2</sub>O).

**Conclusions:** A cardiopulmonary rehabilitation program, associated with inspiratory muscle training and respiratory kinesiotherapy, for 8 weeks, was able to promote improvement in respiratory muscle strength and functional capacity after COVID-19.

**Implications:** A functional rehabilitation program for patients with post-COVID associated with inspiratory muscle training promotes care and respect for the singularities of each case, allowing an early return to activities of daily living.

**Keywords:** Inspiratory Muscles, COVID-19, Aerobic Exercise