

comorbidity was systemic arterial hypertension, with primary school education, former smokers, normal BMI, and severe COPD obstruction (GOLD B). The prevalence of sarcopenia was high, observed in 43.1% of the sample.

Implications: The early identification of sarcopenia, along with recognition of the clinical characteristics of COPD patients, can guide evidence-based clinical decisions, favoring appropriate management of these conditions. Early diagnosis of sarcopenia may be crucial for implementing therapeutic and preventive interventions, contributing to a better prognosis for this population.

Keywords: Sarcopenia, COPD, Prevalence Ratio

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ANALYZING DISABILITY IN PATIENTS WITH INTERSTITIAL LUNG DISEASES THROUGH THE INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY, AND HEALTH FRAMEWORK

Wallace Pereira Silva, Giovanna Camargo Mello, Patricia Lira, Ivan Peres Costa, Tatiana Abade, Grasiani Bregghe Pires, Soraia Silva, Luciana Maria Malosa Sampaio
Programa de Pós-graduação em Ciências da Reabilitação, Universidade Nove de Julho, São Paulo, SP, Brazil

Background: Interstitial lung diseases (ILDs) lead to activity limitations and participation restrictions, often resulting in disability. Disability should be assessed using the biopsychosocial model of the International Classification of Functioning, Disability, and Health (ICF), as recommended by the WHO.

Objective: To correlate the ICF domains to explore how bodily functions are associated with activity limitations and participation restrictions in patients with ILD.

Methods: A cross-sectional observational study involving patients with ILD, diagnosed according to the guidelines of the American Thoracic Society (ATS) and the European Respiratory Society (ERS), who had a stable clinical condition for at least three months. Pulmonary function was assessed using spirometry and respiratory muscle strength; activity was measured through the Incremental Shuttle Walk Test (ISWT) and the Six-Minute Walk Test (6MWT); and participation was evaluated using the Saint George's Respiratory Questionnaire (SGRQ).

Results: Of the 25 patients, the majority were men aged over 60 years, and it was observed a positive and moderate correlation ($r = 0.45$; $p < 0.05$) was found between activity and pulmonary function. However, the 6MWT showed a negative and moderate correlation with dyspnea ($r = -0.52$; $p = 0.007$). The participation component (SGRQ) did not show a significant association with the other components.

Conclusion: A significant relationship was found between the activity component and body functions, whereas participation was not linked to these components. This suggests that restrictions in participation are multifactorial, necessitating a comprehensive approach that goes beyond the traditional biomedical model and includes contextual factors.

Implications: These findings emphasize the need for a biopsychosocial approach in rehabilitation, addressing not only physical function but also social and environmental barriers. Personalized

interventions incorporating psychological and social support are essential to effectively enhance participation and patient outcomes.

Keywords: Interstitial lung disease, Disability, International Classification of Functioning, Disability and Health (ICF), Biopsychosocial Model

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

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ADAPTATION, FEASIBILITY AND REPRODUCIBILITY OF THE MODIFIED SHUTTLE TEST FOR PEOPLE WITH DEAFNESS

Taynara da Silva Ribeiro, Rafaela Gonçalves de Mattos, Carla Malaguti
Programa de Pós-Graduação em Ciências da Reabilitação e Desempenho Físico-Funcional, Universidade Federal de Juiz de Fora (UFJF), Juiz de Fora, MG, Brazil

Background: Hearing loss may be associated with lower levels of physical activity, fragmentation of active time, and greater difficulties in performing activities of daily living. However, there are no records of validated exercise tests for the physical assessment of people with deafness, which are crucial for prescribing interventions and monitoring physiological and functional responses. Among these, the Cardiopulmonary Exercise Test (CPET) stands out as the gold standard for assessing physical fitness and limiting symptoms. However, CPET requires expensive equipment, highly trained personnel, and standard laboratory conditions, which limits its wide availability to the general population. On the other hand, the Modified Shuttle Test (MST) is a progressive, standardized, incremental test that is simple to perform in non-laboratory conditions. However, the MST uses auditory stimuli to guide participants, making it unfeasible for people with severe hearing loss or deafness.

Objectives: The central objective of this study was to develop an adaptation of the MST guided by visual cues. Secondly, we intend to test the validity and agreement of the visual TSM.

Methods: This is a cross-sectional study, divided into two phases. Phase I includes the development of resources for adapting the TSM, using visual guidance to replace the audible commands of the conventional test. LED (Light Emitting Diode) RGB (Red Green Blue) light signals were used, positioned above each cone, located at the ends of the path. In this phase, the test will be tested on healthy individuals and its agreement, determined by paired t-test, analysis of the intraclass correlation coefficient (ICC) and 95% confidence intervals (CI) and Spearman's correlation coefficient. In Phase II, the feasibility and reproducibility of the adapted TSM in deaf individuals will be tested.

Results: An agreement analysis of partial data from Phase I was performed using the ICC (intraclass correlation coefficient) between the auditory SST and the visual SST in hearing individuals, considering the peak HR ($n = 8$) $170,7 \pm 15,8$ vs $169,4 \pm 11,0$ bpm ($p > 0,05$) and the distance covered in the tests ($n = 10$) $999,0 \pm 44,3$ vs $987,0 \pm 53,1$ meters ($p > 0,05$), respectively. The partial results demonstrate an agreement between the tests for HR with ICC = 0,81 (95% CI = 0,39–0,93) and for distance covered ICC = 0,85 (95% CI = 0,46–0,96). The correlation between the HRpeak of the tests was $r = 0,68$, and between the distances it was $r = 0,76$ ($p < 0,05$ for both).

Conclusion: The adapted TSM has good agreement and validity when compared to the conventional TSM.

Implications: The results of this study can promote inclusion and accessibility of people with deafness for the assessment of functional capacity, contributing to a more equitable approach in the prescription of exercises. Additionally, we can provide a safe and efficient protocol for the assessment of cardiorespiratory fitness of this population.

Keywords: accessibility, deafness, exercise test

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ULTRASONOGRAPHIC EVALUATION OF DIAPHRAGMATIC FUNCTION AND ITS RELATIONSHIP WITH EXERCISE CAPACITY IN PATIENTS WITH CHRONIC HEART FAILURE

Emanuele Fernandes De Queirós Dias, Anderson Bispo Coelho, Lara Karine Coelho Souza, Julle Anne de Deus Silva, Bárbara Bernardo Rinaldo da Silva Figueirêdo, Paulo André Freire Magalhães, Victor Ribeiro Neves, Fabianne Maisa de Novaes Assis Dantas
Universidade de Pernambuco, Petrolina, PE, Brazil

Background: Heart failure (HF) is characterized by cardiac dysfunction and consequent exercise intolerance. In addition to peripheral muscle dysfunction, common in HF, diaphragmatic dysfunction may contribute to functional limitation and reduced exercise capacity. Maximal respiratory pressure measurement is widely used to identify respiratory muscle weakness, but diaphragmatic ultrasound has emerged as a promising tool for structural and functional diaphragm assessment, enabling early detection and therapeutic management of respiratory muscle dysfunction.

Objectives: To evaluate diaphragmatic function using ultrasound and its relationship with exercise capacity in individuals with chronic HF.

Methods: This is an observational, analytical-descriptive, cross-sectional study conducted with individuals aged 18 to 65 years diagnosed with chronic HF and left ventricular ejection fraction (LVEF) < 50%. Participants underwent diaphragmatic ultrasound assessment, including measurements of diaphragmatic excursion (DE), thickness (Tdi), and thickening fraction (DTF), as well as maximal inspiratory and expiratory pressures (PImax and PEmax). Functional capacity was evaluated using the six-minute walk test (6MWT) and maximal oxygen consumption (VO₂max). Statistical analysis was performed using SPSS 27.0 software, applying mean comparison tests and variable association analyses.

Results: A total of 18 individuals were evaluated, predominantly male (66.7%), with a mean age of 54.9 ± 8.08 years and a mean LVEF of $34.7 \pm 11.7\%$. The mean DE was 2.5 ± 1.3 cm during quiet breathing and 5.8 ± 1.9 cm during deep breathing, with 40% presenting below-normal values. The mean inspiratory Tdi was 4.6 ± 2.2 mm, reduced in 50% of cases, while DTF was decreased in 66.7% of participants. Respiratory muscle strength was relatively preserved, with 88.9% of individuals having PImax above 70% of the predicted value (mean 86.3 ± 24.16 cmH₂O) and 64.7% with PEmax above the reference value (mean 114.8 ± 37.3 cmH₂O). Functional capacity was impaired, with a mean VO₂max of 16.2 ± 3.98 mL/kg/min, where 66.7% were classified as "very weak" and 33.3% as "weak." In the 6MWT, the mean distance covered was 453.8 ± 106.7 meters, with 60% exceeding 80% of the predicted distance. Despite

these alterations, no statistically significant associations were found between diaphragmatic ultrasound parameters, respiratory muscle strength, and functional capacity.

Conclusion: The findings indicate a high prevalence of diaphragmatic dysfunction in HF patients, even in those with preserved respiratory muscle strength. The lack of significant associations between diaphragmatic function and exercise capacity may be related to the small sample size, reinforcing the need for studies with greater statistical power.

Implications: Diaphragmatic ultrasound may contribute to the clinical management of chronic HF, allowing early detection of respiratory dysfunction and personalized interventions such as respiratory rehabilitation and therapeutic adjustments. Additionally, its use in monitoring disease progression may help improve patient prognosis.

Keywords: Heart failure, Diaphragmatic ultrasound, Functional capacity

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INTRADIALYTIC PHYSICAL EXERCISE ON THE SLEEP QUALITY AND HEALTH-RELATED QUALITY OF LIFE IN CHRONIC KIDNEY PATIENTS: A RANDOMIZED CONTROLLED TRIAL

Klebson Da Silva Almeida^{a,b}, Daniel Da Costa Torres^{a,b}, Ian Setubal Reis Chaves^b, Jonas Do Carmo Paschoalin^b, Gisela Cristiane Miyamoto^c, Luciana Dias Chiavegato^{a,d}

^a Masters and Doctoral Program in Physical Therapy, Universidade Cidade de São Paulo (UNICID), São Paulo, SP, Brazil

^b Center University Fibra (FIBRA), Brazil

^c Department of Health Sciences, Ribeirão Preto Medical School, University of São Paulo - FMRP-USP/Brazil

^d Federal University of São Paulo - UNIFESP/Brazil

Background: Changes in renal function resulting from chronic kidney disease (CKD) or hemodialysis (HD) have repercussions on sleep and quality of life. Patients with CKD often experience complications in the musculoskeletal system, such as frailty and fatigue, with impact their lifestyle and physical capacity. Exercise programs performed during HD have potential to reverse such complications and influence both sleep and quality of life. However, the evidence on this topic remains limited.

Objectives: To investigate the effectiveness of an intradialytic resistance exercise protocol compared to intradialytic aerobic exercise protocol on the sleep and quality of life in CKD patients.

Methods: This is a randomized controlled trial. Thirty-two patients with CKD in HD were randomly allocated into two groups of intradialytic exercise, during the first 90 minutes of hemodialysis for 3 months: Group A (resistance exercise protocol, performing 8 exercises using elastic bands, dumbbells, and a Swiss ball, 2 sets of 8-12 repetitions, with an interval of 2-3 minutes between sets, and an exercise of 6 on the modified OMNI scale) and GROUP B (aerobic exercise protocol performing 20 minutes of exercise on a cycle ergometer with an intensity between 5 and 7 on the modified Borg scale). Sleep quality (measured by the Pittsburgh Sleep Quality Index) and health-related quality of life (measured by the EQ-5D-3L) were measured at baseline and 3 months after randomization. Visual inspection of histograms was used to assess data normality.