

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

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

Funding: Not applicable.

Ethics committee approval: No.6222030.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101293>

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

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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

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

Funding: FACEPE.

Ethics committee approval: CAAE: 27822120.7.0000.5504.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101294>

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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

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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.