Linear mixed model was used to assess the differences in intra and intergroup. The level of statistical significance was set at 5%.
Results: Participants in Group A received an average of 31.4 (±3.4) sessions of effective exercise and Group B received an average of 32.5 (± 3.5) sessions. In the intragroup analysis, a significant improvement in sleep quality was observed for Group A (pre: 7.1± 4.0; post: 5.1± 3.7; 95% confidence interval [95%CI]: -3.2 to -0.6), but it did not occur in Group B (pre: 6.6 ±3.0; post: 5.3 ± 2.4; 95%CI: -3.0 to 0.5). For the intergroup analysis, no significant changes were observed (mean difference [MD]: 0.7; 95%CI: -1.6 to 2.9). For health-related quality of life, no significant changes were observed in intragroup analysis (Group A, pre: 0.86 ± 0.16, post: 0.87 ± 0.13, 95%CI: -0.06 to 0.07; and Group B, pre: 0.86 ± 0.1, post: 0.91 ± 0.2, 95%CI: -0.01 to 0.11) and in intergroup analysis (MD: 0.04; 95%CI: -0.04 to 0.1).
Conclusion: Only resistance exercise seems to be effective for sleep quality after 3 months of treatment. However, there are no differences between the exercise protocols for sleep quality and health-related quality of life. These results suggest that future studies should be conducted with the inclusion of other clinical variables, such as pain, which may influence the effect of treatment.
Implications: Intradialytic exercise based on resistance exercise can benefit patients with CKD in the improvement of sleep quality. This type of exercise might be incorporated in hemodialysis centers under the guidance of physiotherapists.
Keywords: Intradialytic Physical Exercise, Sleep quality, Quality of Life

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CORRELATION BETWEEN INSPIRATORY MUSCLE STRENGTH WITH EXPIRATORY THICKNESS, THICKENING FRACTION AND DIAPHRAGMTIC MOBILITY IN INDIVIDUALS WITH COPD

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Background: Chronic obstructive pulmonary disease (COPD) is characterized by progressive airflow obstruction of an irreversible nature, causing persistent respiratory and peripheral symptoms. Diaphragmatic dysfunction can be observed in all stages of COPD development, presenting through structural and functional alterations. This dysfunction may be associated with hyperinflation, systemic inflammation, oxidative stress, and malnutrition. These interactions affect respiratory muscle function and diaphragmatic biomechanics, with diaphragmatic ultrasonography being a valuable method to analyze the anatomy and function of this muscle.
Objectives: To correlate respiratory muscle function with expiratory thickness, thickening fraction, and diaphragmatic mobility in individuals diagnosed with COPD.
Methods: This was a descriptive, quantitative cross-sectional study conducted in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) recommendations and approved by the research ethics committee. To assess respiratory muscle function, an electronic computerized device (KH2; PowerBreath International Ltd. UK) was used. The evaluation of expiratory thickness, thickening fraction, and diaphragmatic mobility was performed using diaphragmatic ultrasonography with a 2.5-5.0 MHz convex transducer and a 7.5-10.0 MHz linear transducer. Statistical analysis was conducted using IBM SPSS Statistics version 25. Descriptive statistics were initially applied to characterize the data, including measures of central tendency (mean) and dispersion (standard deviation). To assess data normality, the Shapiro-Wilk test was used. The correlation between variables was analyzed using Pearson's correlation coefficient, considering a significance level of 5% ($p < 0.05$). Differences between measurements were evaluated using the paired t-test, with the effect size estimated by Cohen's d. All analyses were performed with a 95% confidence interval.
Results: The study sample consisted of 11 participants, 6 male and 5 female. When analyzing the respiratory muscle strength of the patients studied, a reduction in maximal inspiratory pressure was observed compared to predicted values for individuals of the same age group without COPD ($p < 0.002$), indicating that the sample of patients studied demonstrates respiratory muscle weakness. Regarding the correlation analyses of maximal inspiratory pressure with expiratory thickness, thickening rate, and diaphragmatic mobility, only a negative correlation ($r = -0.729$, $p = 0.011$) was observed between inspiratory muscle strength, measured by maximal inspiratory pressure, and the expiratory thickness of the diaphragm muscle. This indicates that for this population of COPD patients, the lower the inspiratory muscle strength, the greater the expiratory thickness of the diaphragm.
Conclusion: Our findings demonstrated that in the studied population of COPD patients with diagnosed inspiratory muscle weakness, there was a negative correlation between inspiratory muscle strength and the expiratory thickness of the diaphragm muscle. These factors are justified by the mechanical disadvantage found in the inspiratory muscles in this population.
Implications: The results may contribute to a better understanding of the pathology and its repercussions, thus favoring a more effective rehabilitation process and positively impacting the quality of life of individuals with COPD.
Keywords: COPD, Diaphragm, Maximal Respiratory Pressures

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EFFECTS OF INSPIRATORY MUSCLE TRAINING ON DYSPNEA AND LUNG CAPACITY IN HEMODIALYSIS PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Respiratory muscle weakness has been shown to be frequent in patients undergoing hemodialysis. In this context, inspiratory muscle training (IMT) emerges as an alternative to improve the respiratory condition of these patients.
Objectives: To evaluate the effect of IMT on dyspnea and lung capacity in dialysis patients. The effect on respiratory muscle strength was evaluated as a secondary outcome, as well as the dialysis efficacy index (Kt/V).
Methods: A systematic review of randomized controlled trials (RCTs) which evaluated the effects of IMT in dialysis patients on the outcomes of dyspnea, lung capacity, respiratory muscle strength and dialysis effectiveness index (Kt/V) was conducted. Searches were completed in February 2025 in the Medline/PubMed, Cochrane Library, LILACS, CINAHL, PEDro, Web of Science, Embase and Google Scholar databases. The search strategy consisted of the following Keywords "Renal Institution, Chronic", "Dialyses, Renal", "Breathing Exercises", "Dyspnea" and "Respiratory Function Tests" in different combinations. Studies with adult participants (> 18 years) with CKD on hemodialysis were included. The intervention was evaluating inspiratory muscle training with linear load. Study quality was assessed using the Cochrane RoB2 tool.
Results: Six studies were analyzed (n = 210). One study showed an improvement in dyspnea [4.17±0.58; 95%CI (0.0073-0.884); p = 0.022], and the meta-analyses found a mean difference of 0.34 L/min [95%CI (0.08−0.61); p = 0.010] in forced vital capacity (FVC) and 25.15 cmH2O [95%CI (17.05−33.24); p < 0.001] in maximum inspiratory pressure (MIP) in the IMT groups. There was no difference in Kt/V. Only one study showed a low risk of bias.
Conclusion: IMT in patients with CKD on HD improved dyspnea, FVC and MIP. Considering the low quality of the studies, new RCTs with greater methodological rigor are needed.
Implications: Understanding the effects of IMT on patients receiving hemodialysis leads to more effective interventions for common respiratory symptoms in these individuals.
Keywords: Hemodialysis, Respiratory therapy, Dyspnea

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ABSENCE OF ADVERSE EVENTS WITH EARLY PHYSIOTHERAPY APPLICATION TO CRITICALLY ILL PATIENTS DURING HEMODIALYSIS IN INTENSIVE CARE UNIT: SCOPING REVIEW

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Background: The critical scenario disease with immobility, physical deconditioning and hemodialysis (HD) has led to the implementation of physiotherapy aimed at early functional recovery and, as a result, a reduction in the length of hospital stays. However, barriers such as lack of knowledge and professional experience limit the implementation of physical therapy intra-dialytic assistance in the Intensive Care Unit (ICU) environment.
Objective: s: To summarize and present the evidence of adverse events of early physiotherapy applied to critically ill patients during hemodialysis in the ICU stay.
Methods: This was a scoping review carried out from May to July 2024, developed in accordance with the PRISMA-ScR guidelines. The Concept, Population, and Context strategy was used to develop research questions and carry out the literature search. Descriptors standardized by DECS and MESH in English and Portuguese were used, arranged in different strategies to maximize the search for results. The search was performed in the MEDLINE via PUBMED, EMBASE, LILACS-BVS, PEDro, Scielo, WoS, Portal de Periódicos CAPES, and CInaHL databases. The gray literature was consulted using Google Scholar. The studies were analyzed in terms of population, outcomes, and results. The main outcome was reported safety and the presence of adverse events during physiotherapy applied to critically ill patients during HD. Inclusion criteria were all experimental and observational studies and literature reviews available in full were included.
Results: The evidence was published in 2016 to 2024. The population of these studies include adults in ICU stay that is performed intermittent or continuous HD. Physiotherapy applied in ICU stay was considered safe. The adverse events were minimal and may have hemodynamic transitory changes. By the way, there is no record of any specific adverse events directly related to physiotherapy. The results were also framed into seven themes on the particularities of early physiotherapy. The context of physiotherapy in the ICU, hemodialysis and vascular access to the necessary care, physiotherapy applied in the intra-dialytic period, the importance of multi-professional action, the recording of adverse events, and the patient's perception.
Conclusion: Early physiotherapy performed on critically ill patients during the hemodialysis period was considered safe and there are no specific adverse events directly related.
Implications: Although physiotherapy during hemodialysis in ICU is not associated with significant adverse events, the assistance must be performed by criteria assessment to promote safety and better practices. It is also necessary to break down cultural factors and personal beliefs of the team member, like inappropriate manipulation as well as prevent the loss of vascular access and improve therapeutic exercise knowledge on intra-dialytic period with the multiprofessional experience.
Keywords: Intensive Care Unit, Kidney Replacement Therapy, Exercise Therapy

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EVALUATION OF PREDICTIVE METHODS FOR RESPONSE TO POSITIVE END-EXPIRATORY PRESSURE (PEEP) IN INDIVIDUALS WITH ACUTE RESPIRATORY DISTRESS SYNDROME (ARDS)

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