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Background: Diabetes Mellitus (DM) is a chronic metabolic condition with a high global prevalence, capable of causing severe complications for individuals. Among these complications is diabetic neuropathy, which leads to a decline in functional performance and quality of life. Cardiovascular rehabilitation (CR) is a viable alternative for managing diabetes and its complications.

Objectives: To evaluate the influence of a CR program on neuro-pathic symptoms, functional performance, quality of life, knowledge, and attitude toward DM in individuals with diabetic neuropathy.

Methods: This is a case series study using tests to assess functional performance (Timed Up and Go, 6-Minute Walk Test, and Short Physical Performance Battery), specific scales for diabetic neuropathy screening (Neuropathic Symptoms and Signs Scale, Visual Analog Scale for Pain), and questionnaires designed to investigate aspects related to fatigue, quality of life, knowledge, management, and acceptance of DM. The intervention consisted of an exercise program conducted twice a week, totaling 16 sessions.

Results: Fourteen patients with type 2 DM, with a mean age of 60.3 ± 9.2 years, participated in the study. A statistically significant improvement was observed in pain scores ($p = 0.028$) and neuropathic symptoms ($p = 0.010$), performance in the 6-Minute Walk Test ($p = 0.028$), coping attitude toward DM ($p = 0.014$), and quality of life domains (functional capacity, physical and emotional aspects, pain, vitality, and summarized mental component).

Conclusions: The CR program proved beneficial for patients with diabetes and neuropathy, leading to positive changes in functional aspects, symptom reduction, improved quality of life, and better coping with DM. Further studies and viable alternatives for implementing a program that includes physical exercise and health education for the diabetic population are warranted.

Implications: This research highlights the benefits of a twice-weekly exercise program for patients with diabetes and neuropathy, reinforcing the important role of physical exercise as an ally in diabetes treatment, bringing positive changes to the individual's biopsychosocial context.

Keywords: Diabetes Mellitus, Diabetic neuropathies, Exercise therapy

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

Funding: CAPES - Finance Code 001.

Ethics committee approval: CAAE: 75664923.3.0000.0003.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101282>

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COMPARISON OF RESISTANCE VERSUS AEROBIC EXERCISE DURING HEMODIALYSIS IN CHRONIC RENAL PATIENTS: A RANDOMIZED CONTROLLED TRIAL

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Background: Musculoskeletal disorders are common in hemodialysis (HD) patients. The duration and frequency of HD procedures contribute to immobility and a sedentary lifestyle, which, combined with changes in the disease itself, affect frailty and fatigue. These changes can be reversed through the adoption of intradialytic exercise programs.

Objectives: To investigate the effectiveness of resistance compared to aerobic exercise during the intradialytic period on peripheral muscle strength, walking speed, frailty, and fatigue in patients with chronic kidney disease.

Methods: In this randomized controlled trial, 32 patients were randomly allocated into two groups: Resistance exercise group (Group A), that included 8 exercises using elastic bands, dumbbells, and a Swiss ball, with 2 sets of 8 to 12 repetitions, an interval of 2 to 3 minutes between sets, and an intensity of 6 on the modified OMNI scale; and Aerobic exercise group (Group B), which consisted of 20 minutes of exercise on a cycle ergometer at an intensity between 5 and 7 on the modified Borg scale. All intervention protocols were performed during the first 90 minutes of hemodialysis, with the patient seated in a reclined chair. Peripheral muscle strength was assessed using the Saehan handgrip dynamometer and the 30-second sit-to-stand test; gait speed and frailty were assessed using the Fried Phenotype Model, and fatigue was evaluated using the Multidimensional Fatigue Inventory (MFI-20). The assessment of data normality was performed through visual inspection of histograms. The linear mixed model was used for intra and intergroup analyses. The level of statistical significance was set at 5%.

Results: Group A performed an average of $31.4 (\pm 3.4)$ effective exercise sessions and Group B performed an average of $32.5 (\pm 3.5)$ effective exercise sessions. There was no significant differences, between groups, in the results of 30-second sit-to-stand test (Group A, pre: 10.1 ± 2.0 and post: 14.9 ± 4.2 ; Group B, pre: 10 ± 2.3 and post: 16.2 ± 2.7), handgrip strength test (HST) (Group A - pre: 25.7 ± 8.7 kgf and post: 28.1 ± 9.7 kgf; Group B - pre: 29.1 ± 9.4 kgf and post: 29.6 ± 8.70 kgf), and gait speed test (Group A - pre: 1.00 ± 0.20 m/s and post: 1.3 ± 0.3 m/s; Group B - pre: 1.1 ± 0.1 m/s and post: 1.5 ± 0.2 m/s). There was a decrease in the number of frail patients in both groups (18.8%), but no significant differences were observed between groups for the total fatigue score (Group A - pre: 55.9 ± 6.2 and post: 55.6 ± 7.9 ; Group B - pre: 58.9 ± 6.6 and post: 56.6 ± 8.8).

Conclusion: No significant differences were observed between intradialytic exercise interventions in terms of peripheral muscle strength, walking speed, frailty, and fatigue. It is suggested that further studies can be conducted on the subject, in addition to the inclusion of variables such as pain, which may influence the results of the outcomes studied here.

Implications: Regardless of the type of exercise performed during hemodialysis, patients with chronic kidney disease can have positive effects on muscle strength, walking speed, frailty, and fatigue.

Keywords: Intradialytic Physical Exercise, Muscle Strength, Frailty

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

Funding: CAPES - Finance Code 001.

Ethics committee approval: CAAE: 79684524.7.0000.5188.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101283>

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DIAGNOSTIC ACCURACY OF PHYSICAL FUNCTION TESTS FOR RISK OF FALLS IN INDIVIDUALS ON HEMODIALYSIS

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Background: Individuals on hemodialysis have systemic complications due to chronic kidney disease and dialysis treatment. Then, impairments in physical function are frequent in this population, which contributes to a higher risk of falls.

Objectives: This study aimed to investigate the ability of physical function tests to discriminate individuals on hemodialysis with and without risk of falls.

Methods: A 12-month prospective study was conducted with individuals on regular hemodialysis. Physical function was assessed by handgrip strength, gait speed over 15 feet, the 5-repetition sit-to-stand test, and the Timed Up and Go test. Following the initial assessment, the falls were monitored monthly for 12 months. A fall was defined as an unexpected event in which the individual came to rest on the ground, floor, or lower level. The Receiver Operating Characteristic curve was used to identify a cutoff point of physical function tests able to discriminate individuals with and without risk of falls, also Area Under Curve was calculated. A p-value of < 0.05 was considered statistically significant.

Results: This study included 112 patients (58.7 ± 12.9 years, 56.3% male). The incidence of falls was 31.3%. Receiver Operating Characteristic curve showed that 5-repetition sit-to-stand test and Timed Up and Go test were significant predictors of risk of falls and the Area Under Curve and cutoff point were 0.629 (0.512 - 0.746, $p = 0.040$) and 0.644 (0.528 - 0.760, $p = 0.017$) and 12.6 seconds (sensitivity of 71.0%, specificity of 52.2%) and 8.1 seconds (sensitivity of 64.7%, specificity of 54.9), respectively.

Conclusion: Physical function tests were able to discriminate individuals on hemodialysis with and without risk of falls.

Implications: Cutoff points identified for physical function tests can be used to screen individuals on hemodialysis with and without risk of falls and to guide fall prevention programs.

Keywords: Renal Dialysis, Accidental falls, Risk

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

Funding: FAPEMIG (grant number APQ 02229, 2018), CAPES [grant number 001, 2020], and CNPq.

Ethics committee approval: CAAE: 74268723.1.0000.9433.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101284>

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IMPACTS OF NICOTINE DEPENDENCE ON SLEEP AND PHYSICAL ACTIVITY IN ELDERLY SMOKERS: PRELIMINARY RESULTS

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Background: Studies indicate that smokers tend to have lower levels of physical activity, associated with higher nicotine dependence. Additionally, smoking can compromise sleep quality due to dependence symptoms, favoring the appearance of sleep disorders.

Examining the relationship between nicotine dependence, sleep quality, and physical activity levels in elderly smokers can help develop interventions to minimize the impacts of smoking on the functionality and quality of life of this population.

Objectives: To investigate the relationship between nicotine dependence, physical activity levels, sleep quality, and daytime sleepiness in elderly smokers.

Methods: This is a cross-sectional study conducted with elderly smokers of conventional cigarettes who had been smoking for at least one year, of both sexes aged 60 years or older, capable of understanding the assessment instruments. Anthropometric measurements and information on smoking habits were collected, and participants were evaluated for nicotine dependence using the Fagerström Test, physical activity levels using the short version of the IPAQ, sleep quality using the Pittsburgh Sleep Quality Index (PSQI), and daytime sleepiness using the Epworth Sleepiness Scale (ESE). Statistical analysis was performed using Jamovi 2.6.26 software, utilizing Spearman's correlation to analyze the relationships between variables, with a significance level of $p < 0.05$.

Results: Nine individuals (55.6% female 66.0 ± 4.8 years), participated in the study. Regarding nicotine dependence, 66.7% of participants were classified as mildly dependent, and 33.3% as moderately dependent. In terms of physical activity levels, 55.6% were classified as very active. Sleep quality was considered poor for 66.7% of participants according to the PSQI, and 44.4% presented mild to moderate daytime sleepiness according to the ESE. Spearman's analysis indicated a positive correlation between nicotine dependence and daytime sleepiness ($Rho = 0.759$, $p = 0.018$), suggesting that higher levels of nicotine dependence are related to greater daytime sleepiness and possibly a higher risk of sleep disorders. No significant correlation was found between nicotine dependence, physical activity levels, and sleep quality, which may be related to the small sample size, limiting the detection of associations between these variables.

Conclusion: Elderly smokers with higher nicotine dependence showed higher levels of daytime sleepiness, highlighting the impacts of smoking on sleep quality. Although no correlation was identified with physical activity levels, previous studies indicate that more dependent smokers tend to exercise less, which may potentiate the deleterious effects of smoking on health.

Implications: These findings reinforce the importance of integrated strategies for smoking cessation in the elderly population, also considering interventions that improve sleep quality and encourage physical activity. Reducing morbidity risk and promoting healthier and more functional aging.

Keywords: Tobacco Use Disorder, Exercise, Sleep quality

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

Funding: Not applicable.

Ethics committee approval: CAAE: 59915322.8.0000.5147.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101285>

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ANALYSIS OF THE SEVERITY OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) AND ITS ASSOCIATION WITH PROGNOSIS THROUGH THE BODEXS90

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