kilograms of force (kgf), with a Saehan® hydraulic dynamometer. The values obtained were analyzed in relation to the predicted values and between subgroups with different PCFS levels using the Student's T test, adopting a significance level of 5%.
Results: 68 people were evaluated between May/2021 and July/2022, aged 50 ± 14.7 years, 41 women (60%) and 40 with PCFS grade II (59%), which indicates the presence of persistent symptoms and reduced performance in activities. The post-covid time was 66 days, ranging from 19 to 485 days since diagnosis. Furthermore, 37 individuals were hospitalized for acute Covid (54%), 43 were previously sedentary (63%) and the majority were overweight or obese (83%). The FPP obtained was lower than predicted for the total sample and when distributed by PCFS grades, not differing significantly between the groups by PCFS. Then, HGS was compared between the subgroups of grades I/II with those of grades III/IV, for which there was a similar proportion of sedentary people and those hospitalized for Covid-19. The proportion of women was higher in the subgroup with PCFS III/IV (92% × 53%). BMI (body mass index) was higher in the PCFS I/II group (30.9 × 27.6 kg/m^2; p:0.052). People with PCFS I/II had higher HGS than people with grades III/IV (29.4± 11.2 × 18.23 ± 6.89 kgf, respectively; p:0.0008).
Conclusion: Post-covid HGS was generally compromised, but significantly among people with a higher degree of post-covid dysfunction, as measured by the PCFS scale.
Implications: These findings, in addition to showing the need for monitoring and intervention to recover muscle strength in the post-covid period, point to the discriminatory aspect of this scale in the assessment and assertive therapeutic prescriptions for this population.
Keywords: Post-Acute COVID-19 Syndrome, Functional Status, Muscle Strength

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ASSOCIATION BETWEEN MAXIMAL PHONATION TIME AND SLOW VITAL CAPACITY IN PEOPLE WITH HEART FAILURE HOSPITALISED FOR ELECTIVE CARDIAC SURGERY

Matheus de Castro Sales, Larissa Maria Lima, Fernanda Magalhães Lazzaretti, Carolina Lira, Sofia Machado Nogueira De Oliveira, Carina Batista de Oliveira, Daniela Gardano Bucharles Montalverne, Rafael Mesquita
Department of Physiotherapy, Universidade Federal do Ceará (UFC), Fortaleza, CE, Brazil

Background: A reduction in lung function in people with heart failure (HF) after cardiac surgery is common and associated with morbidity. In this scenario, lung function is commonly assessed pre- and postoperatively with the slow vital capacity (SVC) measured with a ventilometer. However, new outcomes have been suggested to reflect the impact of surgery on lung function, such as the maximum phonation time (MPT). So far, the association between MPT and SVC has not been studied properly in HF.
Objectives: To investigate the association between MPT and SVC in people with HF hospitalised for elective cardiac surgery.
Methods: This cross-sectional analysis included people with HF evaluated in the hospital before elective cardiac surgery. Sociodemographic data, anthropometric, and clinical characteristics were collected for sample characterisation. SVC was measured in mL with a ventilometer, by asking participants to inhale deeply and exhale slowly and completely into the device after a demonstration. MPT was measured as the maximum time in seconds, recorded with a stopwatch, to sustain the vocalisation of the vowel /i/ (in portuguese), in natural tone and intensity, after a demonstration. For both variables, the greatest result out of three repetitions was used for analysis. Jamovi 2.6.25 software was used to run the statistical tests: Spearman correlation coefficient and Mann-Whitney test. P-values < 0.05 was considered statistically significant.
Results: 74 individuals were included (57% women, 60 ± 11 years, New York Heart Association Functional Classification of 2 ± 1 points). The mean SVC was 2640 ± 874 mL, while the mean MPT was 12.2 ± 9.4 seconds. These two variables showed a weak and non-significant correlation (rs = 0.19; p = 0.10). After dividing the sample in two according to the mean SVC (< or = 2640 mL), no statistically significant difference was observed when comparing MPT between the two groups (10.3 ± 7.8 vs. 13.9 ± 10.5 seconds, respectively; p = 0.18).
Conclusion: In this study, MPT was not associated with SVC in individuals with HF before elective cardiac surgery. Future studies should investigate the same analyses investigated in our study, but in larger samples and at different time points, such as after surgery.
Implications: Despite the ease of measuring MPT, our findings suggest that MPT should not be used to reflect the impact of cardiac surgery on lung function in people with HF when SVC is not available.
Keywords: Cardiac Surgical Procedure, Preoperative Period, Vital Capacity

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ASSOCIATION BETWEEN SMOKING DURATION, PHASE ANGLE, AND CARDIORESPIRATORY CAPACITY IN ELDERLY SMOKERS: PRELIMINARY RESULTS

Alan Gonçalves Batista[a], Marcela Monteiro Ribeiro Lemos[b], Bruna Beckman Arnaud[b], Laerte Jonatas Leray Guedes[a], Saul Rassy Carneiro[c], Laura Maria Tomazi Neves[c]
[a] *Programa de Pós-Graduação em Ciências do Movimento Humano, Universidade Federal do Pará (UFPA), Belém, PA, Brazil*
[b] *Faculdade de Fisioterapia e Terapia Ocupacional, Universidade Federal do Pará (UFPA), Belém, PA, Brazil*
[c] *Complexo Hospitalar Universitário João de Barros Barreto, Programa de Pós-Graduação em Ciências do Movimento Humano, Universidade Federal do Pará (UFPA), Belém, PA, Brazil*

Background: Smoking can contribute to the functional decline of elderly individuals, negatively impacting cellular integrity and cardiorespiratory function. Thus, prolonged exposure to harmful cigarette substances may accelerate the decline in functional capacities. Investigating the association between smoking duration and these markers can provide a better understanding of the impacts of smoking on cell healthy and cardiorespiratory capacity.
Objectives: To investigate the association between smoking duration, phase angle, oxygen consumption (VO_2 peak), and forced vital capacity (FVC) 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 walking without assistance, and understanding the instructions for tests and questionnaires. Body composition was measured with tetrapolar bioimpedance and cardiorespiratory capacity through the cardiopulmonary exercise test (CPET) using ramp protocol. Statistical analysis was performed using Jamovi 2.6.26 software. Linear regression was conducted to analyze the associations between variables, with a significant level of $p < 0.05$.
Results: Eight individuals (62.5% males, 66.2 ± 14.3) years presents body max index of 26.5 ± 3.6 kg/m^2. The average smoking duration was 47.3250 ± 6.923 years, and the average tobacco load was 34.700 ± 29.5477 packs/year. In body composition and CPET assessments, the phase angle was 5.775 ± 0.465, which is considered borderline for this population and may indicate compromised cellular integrity due to smoking. The FVC was 2.751 ± 0.706 liters, and the relative VO_2 peak was 20.913 ± 5.515 ml/min/kg. Linear regression analysis indicated that smoking duration was associated with a reduction in relative VO_2 peak (ß = -0.613; 95% CI: -1.408 to -0.131; p = 0.026), explaining 59% of the VO_2 peak variation (R^2 = 0.592). There was no statistically significant association between smoking duration and phase angle (p = 0.996) or FVC (p = 0.924).
Conclusion: Smoking duration was inversely associated with VO_2 peak, suggesting a negative impact of chronic smoking on cardiorespiratory capacity. Although no significant association was found with phase angle, the observed values indicate a possible compromise of cellular integrity. Studies with larger samples and considering other outcomes, such as body composition, may provide a deeper understanding of the mechanisms by which smoking affects the functionality of elderly individuals.
Implications: Cardiorespiratory decline is associated with a higher risk of morbidity and mortality in the elderly. Therefore, cessation strategies should be initiated early and associated with cardiorespiratory rehabilitation programs. These findings highlight the importance of monitoring functional capacity in elderly smokers.
Keywords: Aged, Cardiorespiratory Fitness, Smoking

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TRANSCRANIAL NEUROSTIMULATION AND AEROBIC EXERCISE IN FUNCTIONAL CAPACITY, MUSCLE METABOLISM, AND QUALITY OF LIFE OF INDIVIDUALS WITH PERIPHERAL ARTERIAL DISEASE

Annicia Lins Freitas[a], Maria Anita Oliveira Souza Paiva[a], Edvan José Alves Da Silva[c], Fabina Gondim Gomes de Vasconcelos[c], José Heriston de Morais Lima[a,c], Eduardo Ériko Tenório de França[a,c], Danielle Aparecida Gomes Pereira[b], Rafaela Pedrosa[a,c]
[a] *Programa de Pós-graduação em Fisioterapia, Universidade Federal da Paraíba (UFPB), João Pessoa, PB, Brazil*
[b] *Programa de Pós-Graduação em Ciências da Reabilitação, Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, MG, Brazil*
[c] *Departamento de Fisioterapia, Universidade Federal da Paraíba (UFPB), João Pessoa, PB, Brazil*

Background: Peripheral arterial disease (PAD), commonly caused by atherosclerosis, reduces blood flow to the extremities, resulting in muscle ischemia and intermittent claudication. Aerobic training is an effective strategy for treating individuals with PAD, and high-definition transcranial direct current stimulation (HD-tDCS) has been studied as an adjunct therapy due to its positive effects on exercise endurance, perceived effort, and functional capacity (FC).
Objectives: To identify the effects of combining aerobic exercise and transcranial neurostimulation on quality of life (QoL), FC, peripheral muscle metabolism, and subjective perception of effort in individuals with PAD.
Methods: This case study was conducted with four volunteers diagnosed with PAD. FC was assessed using the Incremental Shuttle Walking Test (ISWT), muscle metabolism through Near-Infrared Spectroscopy (NIRS), QoL using the Short Form 36 (SF-36), and subjective perception of effort through the Modified Borg Scale. Assessments were conducted before and after 12 weeks of intervention. Participants were divided into two groups: the intervention group (IG) and the control group (CG), with two volunteers in each. The IG received active stimulation on the left dorsolateral prefrontal cortex (DLPFC-L) during exercise on a cycle ergometer, while the CG received placebo stimulation, both for 30 minutes.
Results: Regarding QoL, only the two IG participants were reassessed, as the CG participants declined to participate in the reassessment. An improvement in QoL was observed in Volunteer 1 (V1) in the following domains: general health perception (55/100), vitality (95/100), social function (100/100), and mental health (92/100); and in Volunteer 2 (V2) in the domains of physical functioning (60/100), emotional role limitation (67/100), bodily pain (68/100), general health perception (70/100), and mental health (80/100). In terms of subjective perception of effort, both volunteers reported an effort level of "too light" (Borg = 1) at the beginning, end, and recovery phases of the exercise test. FC showed a clinically significant minimal difference in three cases (?V2 = 500m; ?V3 = 110m; ?V4 = 70m). No significant differences were observed between the CG and IG regarding improvements in muscle metabolism after the intervention, except for resistance time (?V1 = 31.6s; ?V2 = 225.2s; ?V3 = 26.4s; ?V4 = 101.6s) in both the occlusion maneuver and the ISWT and lower-limb cycle ergometer tests.
Conclusion: The combination of HD-tDCS and aerobic exercise may contribute to increased QoL and FC in individuals with PAD. Additionally, an improvement in subjective perception of effort and walking distance in the ISWT was observed in the IG. However, no significant changes were noted in tissue oxygenation behavior.
Implications: These findings highlight the need for further robust studies and emphasize the importance of additional research on HD-tDCS as an adjunct therapy for PAD treatment, aiming for its integration into clinical practice. Despite limitations, this intervention may contribute to symptom mitigation and functional capacity restoration.
Keywords: Peripheral Arterial Disease, Exercise, Transcranial Direct Current Stimulation

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DOES CARDIOVASCULAR REHABILITATION IN PATIENTS WITH DIABETIC NEUROPATHY INFLUENCE FUNCTIONING AND NEUROPATHIC SYMPTOMS?

Emanuel Davi Simões dos Santos, Daniela Gardano Bucharles Montalverne, Jose Carlos Tatmatsu Rocha