The Acute Effects of the Combination of Aerobic, Strength, and Breathing Exercises on the Pulmonary Function in Women with Post-COVID-19 syndrome: A Feasibility Study

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ABSTRACT

Persistent respiratory symptoms are often found after acute post-COVID-19 infections. This study aimed to determine the feasibility and the acute effects of the combination of aerobic, strength and breathing exercises on pulmonary function and oxygen saturation among women experiencing post-COVID-19 symptoms.
This study involved 36 women with post-COVID-19 symptoms participating in a 45-minute-aerobic, strength, and breathing exercise with an intensity of 65-75% maximum heart rate. The spirometer was used to assess the pulmonary function (i.e., FVC, FEV1; FEV1/FVC; SVC; MVV; MVVf; MVVt; MRf; MVt, and MVVt). Oxygen saturation was measured with an oximeter embedded in the spirometer. These measurements were taken before and immediately after the exercise. Exercise feasibility was assessed as participants' ability to complete the exercise protocol and the incidence of adverse effects. A pair-t-test and effect size were assessed to estimate the acute effects of the exercise on the outcome measures based on Cohen's d estimation. All patients complied with the study protocol and no adverse events were reported, thus, supporting the feasibility of the exercise protocol. There was an increase in post-exercise FEV1, FEV1/FEV, PEF, SVC, MVV, MVVt, and oxygen saturation (p values ranged from <.001 to .03), with effect sizes ranging from 0.5 to 0.8. There was no change, however, in FVC, MRf and MVt. To conclude, combining aerobic, strength, and breathing exercises is feasible and safe for women experiencing post-COVID-19 and potentially improves several pulmonary function parameters. Further research is recommended to evaluate the long-term adaptation of the exercise on the pulmonary responses in post-COVID-19 patients.

Kata Kunci: *exercise, oximeter, spirometer, post-COVID-19*