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Empowerment Through Research: Bridging Academia and Society

The Effect of Aerobic Exercise Training on The Physical Activity Level, Cardio-Respiratory Fitness Parameters and Quality of Life of Long Covid-19 Patients: A Systematic Review and Meta-analysis.

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Background

Aerobic exercise has been one of the non-pharmacological management of symptoms associated with critical conditions. To date, there is no published systematic review to determine its effectiveness in physical activity, cardiorespiratory fitness, and quality of life of individuals with long COVID-19.

METHODS.

A systematic review was conducted between August 2023 and December 2023 to determine the effectiveness of aerobic exercise on physical activity, cardiorespiratory fitness, and quality of life in Long Covid patients. Various databases were searched, including PubMed, Google Scholar, Web of Science, PsycINFO, Sport Discus, and ProQuest. Studies were included if written in English, peer-reviewed, had original research data and assessed the effect of aerobic exercise in adults aged ≥ 18 years with long COVID-19 sequelae. The outcomes measured were physical activity, cardiorespiratory fitness, and quality of life. Independent appraisal of study quality was done using a Down and Brown checklist as adapted by Dairo et al 2016. Finally, a subgroup meta-analysis of the included studies was done using Rev-Man software version 5.3 to determine the effectiveness of aerobic exercise, and aerobic combined with resistance exercise intervention on the cardiorespiratory fitness of long Covid participants.

RESULT

From the 1309 articles searched, eleven studies (5 RCTs, 3 Interventional studies, and 3 quasi-experimental studies) were included for the systematic review comprising 471 participants, aged 38.0 ± 10.3 to 60.8 ± 7.1 years, 49.16% male and 50.84% female. Five of the included studies use aerobic exercise as intervention and while six studies combine aerobic exercise with resistance training.

Participants symptoms of long covid ranged from three to six months. The included studies have moderate to high methodological quality. Pooled results of the meta-analysis of the Cardiorespiratory fitness in the 5 studies that used aerobic exercise showed a standard mean difference (SMD) of 0.76 [95% CI: 0.31 to 1.21], $p = 0.001$, $I^2 = 42\%$), while the pooled result of the cardiorespiratory fitness in the 6 studies that combine aerobic with resistance training showed the standard mean difference (SMD) of 0.48 [95% CI: 0.26 to 0.70], $p = 0.0001$, $I = 0\%$). However, there was no sufficient data to determine the effect of aerobic exercise for physical activity and Cardiorespiratory fitness in a Long Covid.

Conclusion

- Aerobic exercise, aerobic with resistance training were effective in increasing cardiorespiratory fitness of individual with long covid.
- However, aerobic combined with resistance exercise training were more effective in improving CRF of Long Covid.
- There is a need for future studies that will provide primary data and determine the effectiveness of Aerobic with resistance exercise on PA, QoL and CRF in a Long Covid individual.

References

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