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**Adaptations following an intermittent hypoxia-hyperoxia training in coronary artery disease patients: a controlled study.**

Background:

Repeated exposure to intermittent normobaric hypoxia improves exercise tolerance in cardiac patients. Little is known on the effects of intermittent normobaric hypoxia-hyperoxia exposure in coronary artery disease (CAD) patients (New York Heart Association II-III).

Hypothesis:

IHHT improves exercise tolerance, cardiometabolic profile, and quality of life in CAD patients.

Methods:

The study design was a nonrandomized, controlled, before-and-after trial. Forty-six CAD patients volunteered to take part in the study: a group of 27 patients undertook the intermittent hypoxia (O<sub>2</sub> at 10%)-hyperoxia (O<sub>2</sub> at 30%) training (IHHT), whereas a control group (CTRL) of 19 patients, who already completed an 8-week standard cardiac rehabilitation program, was allocated to sham-IHHT treatment (breathing room air, O<sub>2</sub> at 21%). Exercise performance, blood and metabolic profiles, and quality of life (Seattle Angina Questionnaire [SAQ]) were measured before and after in the IHHT group (IHHG) and sham-IHHT in the CTRL group.

Results:

The IHHG showed improved exercise capacity, reduced systolic and diastolic blood pressures, enhanced left ventricle ejection fraction, and reduced glycemia, but only at 1-month follow-up. Angina as a reason to stop exercising was significantly reduced after treatment and at 1-month follow-up. The IHHT SAQ profile was improved in the IHHG and not significantly different to the CTRL group after standard rehabilitation. The IHHG was also compared to the CTRL group at 1-month follow-up, and no differences were found.

Conclusion:

In CAD patients, an IHHT program is associated with improved exercise tolerance, healthier risks factors profile, and a better quality of life. Our study also suggests that IHHT is as effective as an 8-week standard rehabilitation program.