

Ingestible Oxygen Supplementation does NOT Impact Maximal Aerobic Performance Measures

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ABSTRACT

Oxygen supplementation has been used to improve physical performances for decades, most commonly in the form of bottled oxygen. Other forms of inhalable and/or ingestible oxygen have been investigated more recently with mixed results. An ingestible oxygen supplement (Ox66™) consisting of oxygen molecules contained within an aluminum ion clathrate structure has been shown to increase SaO₂ at rest and reduce inflammation in clinical settings. This ingestible oxygen enters through the portal vein rather than the pulmonary system. It is unclear whether this oxygen supplement would have an impact on factors related to maximal aerobic capacity (VO₂max). **PURPOSE:** The purpose of this study was to evaluate the ergogenic impact of acute Ox66™ ingestion on factors related to maximal aerobic performance. **METHODS:** 36 apparently healthy, college age participants completed the study (20 men, 16 women). Participants attended three testing sessions separated by at least 72 hours. During the first session, participants were familiarized with the Bruce protocol GXT and baseline measures were taken for VO₂max, max blood lactate, max HR, time to exhaustion, max VE and RPE. Participants were then randomly assigned to double-blind placebo or oxygen supplementation during their second and third testing sessions. **RESULTS:** VO₂max was significantly higher among all participants combined in the Ox66™ condition (p=.04). When separated by sex, the difference in VO₂max was evident among women (p=.05), with no differences among the men. There were no other differences between placebo and supplement conditions for any other variables. **CONCLUSION:** Given that VO₂max was determined using indirect calorimetry which assumes that VO₂ is the difference between inspired and expired oxygen volumes, oxygen not taken in through the pulmonary system would not be measurable. Hypothetically, improvements would more likely be seen in time to exhaustion, blood lactate, heart rate, or RPE. In a post-hoc review, 10 of the 16 women completed the placebo condition first. Motivation to exceed their previous performance could explain improvement. Though statistically significant, the marginal improvement in VO₂max among the women with Ox66™ (45.02 v. 45.82 ml*kg⁻¹*min⁻¹) would have little impact on overall aerobic performance.