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Effect of oxygen breathing following submaximal and maximal exercise on recovery and performance.

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Abstract

To determine whether supplemental oxygen following exercise hastens recovery or enhances subsequent performance we evaluated its effectiveness in 13 male athletes. The exercise periods consisted of two 5-min submaximal efforts on a treadmill ergometer followed by a single bout to exhaustion. Intervals of exercise were separated by a 4-min recovery period during which the subject breathed either 1) room air, 2) 100% oxygen, or 3) 2 min of 100% oxygen followed by 2 min of room air on three nonconsecutive days. We found that breathing 100% oxygen produced no significant difference on the recovery kinetics of minute ventilation or heart rate, or improvement in subsequent performance as measured by duration of exercise (3.33 +/- 0.04 min, air vs 3.46 +/- 0.03, oxygen) and peak VO₂ (59.9 +/- 2.2 ml.kg⁻¹.min⁻¹, air vs 54.5 +/- 2.2, oxygen). In addition, the perceived magnitude of exertion estimated by the Borg scale was no different during oxygen breathing. These findings offer no support for the use of supplemental oxygen in athletic events requiring short intervals of submaximal or maximal exertion.

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