

PHYSIOLOGICAL DIFFERENCES BETWEEN FIT AND UNFIT COLLEGE-AGE MALES DURING EXERCISE IN NORMOBARIC HYPOXIA (67 pp.)

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Previous research suggests that physical activity may result in to decreases in arterial saturation (SaO_2) and cerebral blood flow when exposed to a low oxygen environment between aerobically fit and unfit males. **Purpose:** The purpose of this study was to determine differences in SaO_2 , cerebral blood flow, minute ventilation (V_E), and blood lactate between fit and unfit young males during exercise in hypoxia compared to normoxia. **Methods:** Apparently healthy college age males took part in two trials consisting of normobaric normoxia and normobaric hypoxia (12% oxygen). Fit ($n = 3$; $\text{VO}_{2\text{max}} = 51.5 \text{ ml} \cdot \text{kg}^{-1} \cdot \text{min}^{-1} \pm 3.1$) and Unfit ($n = 3$; $\text{VO}_{2\text{max}} = 34.4 \text{ ml} \cdot \text{kg}^{-1} \cdot \text{min}^{-1} \pm 5.6$) males cycled at 50% of their altitude adjusted $\text{VO}_{2\text{max}}$ (-26% of normoxia $\text{VO}_{2\text{max}}$) for one hour after a two-hour baseline. **Results:** SaO_2 , cerebral blood flow, and RER were significantly decreased during hypoxia in all subjects ($P < 0.05$), but did not differ between groups. An interaction showed that Fit subjects had a higher SaO_2 during exercise in hypoxia ($P < 0.05$). V_E and lactate was greater during hypoxia ($P < 0.05$). The Fit group demonstrated a higher V_E during exercise in hypoxia ($P < 0.05$). No differences in blood lactate were found between the two groups. **Conclusion:** The data suggests that when exposed to hypoxia aerobically unfit males may demonstrate decrements in oxygen utilization which may lead to decreases in physical activity and/or performance.