

A comparison of oxygen sensitivity in two South African sea-level populations.

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Different degrees of ventilatory sensitivity to hypoxia exist in populations native to high altitude (HA) versus native to low altitude (LA) (Hochachka *et al.*, 1999). Differences may even exist between two HA populations living at similar altitudes in different global regions (Beall *et al.*, 2000). No studies have investigated a difference between two LA populations of distinctly different heritage. Our aim was to determine whether two sedentary LA South African populations differ in oxygen sensitivity, as expressed by the ventilatory parameter known as the hypoxic ventilatory response (HVR).

Twenty families (10 Caucasian (C); 10 Xhosa (X); total n=63) volunteered. We applied a square wave protocol (Robbins & Zhang 2000) of 21% oxygen (balance nitrogen), and 8% oxygen (balance nitrogen), to quantify non-invasively the acute isocapnic HVR. Results are given as the change in minute ventilation (VE)/ the change in arterial oxygen saturation (SaO₂), ($\Delta VE/\Delta SaO_2$). C and X had a mean HVR of -0.5015 ± 0.3946 and -0.4060 ± 0.4166 (L/min/%) respectively (not significantly different, $p > 0.1$). ANCOVA of HVR nested for gender and covaried for age showed no significant difference ($F=0.57$).

These data show that hypoxia sensitivity, as measured by the HVR, is evident in LA Southern African populations to a comparable extent.

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