

Effect of a repeated series of intermittent hypoxic exposures on ventilatory response in humans.

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The purpose of this study was to elucidate the magnitude and the time course of ventilatory changes resulting from a repeated series of hypoxic exposures. Eight healthy males participated in the present study. The subjects spent 1 h/day in normobaric hypoxia (12% inspired oxygen). Inspired minute ventilation ($V(I)$), end-tidal partial pressure of carbon dioxide ($P(ET(CO_2))$), and arterial oxygen saturation (SaO_2) were measured in a hypoxic tent. These measurements were taken for 10 consecutive days (series 1), and were taken again after the subjects had been away from hypoxic exposure for 1 month (series 2). $P(ET(CO_2))$ decreased and SaO_2 increased progressively in the hypoxic tent during the 10 days of intermittent hypoxia in series 1. At the onset of series 2 (days 1 to 3), $P(ET(CO_2))$ was significantly lower and SaO_2 was significantly higher than those on day 1 during series 1. These results suggest that humans who have had previous hypoxic exposure adapt sooner to hypoxic condition due to an increase in the magnitude of hyperventilation in the first few days of a series of reexposures to hypoxia.

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