

[High Alt Med Biol](#). 2008 Spring;9(1):43-52.

**Effects of intermittent hypoxia training on exercise performance, hemodynamics, and ventilation in healthy senior men.**

[Shatilo VB](#), [Korkushko OV](#), [Ischuk VA](#), [Downey HF](#), [Serebrovskaya TV](#).

**Source**

Institute of Gerontology, Kiev, Ukraine.

**Abstract**

The efficacy and safety of intermittent **hypoxia** training (IHT) were investigated in healthy, 60- to 74-yr-old men. Fourteen men (Gr 1) who routinely exercised daily for 20 to 30 min were compared with 21 (Gr 2) who avoided exercise. Their submaximal work-load power values before the IHT training were 94 +/- 3.7 and 66 +/- 3.1, respectively. Before and after 10 days of IHT, the ventilatory response to sustained **hypoxia** (SH; 12% O<sub>2</sub>) for 10 min, work capacity (bicycle ergometer), and forearm cutaneous perfusion (laser Doppler) were determined. During SH, no negative electrocardiogram (ECG) changes were observed in either group, and the ventilatory response to SH was unaltered by IHT. In Gr 1, IHT (**normobaric** rebreathing for 5 min, final Sa(O<sub>2</sub>) = 85% to 86%, followed by 5 min normoxia, 4/day) produced no changes in hemodynamic indexes and work capacity. In Gr 2, IHT decreased blood pressure (BP) by 7.9 +/- 3.1 mmHg (p < 0.05) and increased submaximal work by 11.3% (p < 0.05) and anaerobic threshold by 12.7% (p < 0.05). The increase in HR and BP caused by a 55 W-work load was reduced by 5% and 6.5%, respectively (p < 0.05). Cutaneous perfusion increased by 0.06 +/- 0.04 mL/min/100 g in Gr 1 and by 0.11 +/- 0.04 mL/min/100 g in Gr 2 (p < 0.05). Hyperemia recovery time increased significantly by 15.3 +/- 4.6 sec in Gr 1 and by 25.2 +/- 11.2 sec in Gr 2. Thus, healthy senior men well tolerate IHT as performed in this investigation. In untrained, healthy senior men, IHT had greater positive effects on hemodynamics, microvascular endothelial function, and work capacity.