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Effects of intermittent hypoxic training on cycling performance in well-trained athletes.

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This study aimed to investigate the effects of a short-term period of intermittent hypoxic training (IHT) on cycling performance in athletes. Nineteen participants were randomly assigned to two groups: normoxic (NT, n = 9) and intermittent hypoxic training group (IHT, n = 10). A 3-week training program (5 x 1 h-1 h 30 min per week) was completed. Training sessions were performed in normoxia (approximately 30 m) or hypoxia (simulated altitude of 3,000 m) for NT and IHT group, respectively. Each subject performed before (W0) and after (W4) the training program, three cycling tests including an incremental test to exhaustion in normoxia and hypoxia for determination of maximal aerobic power [Formula: see text] and peak power output (PPO) as well as a 10-min cycle time trial in normoxia (TT) to measure the average power output (P (aver)). No significant difference in [Formula: see text] was observed between the two training groups before or after the training period. When measured in normoxia, the PPO significantly increased ($P < 0.05$) by 7.2 and 6.6% in NT and IHT groups, respectively. However, only the IHT group significantly improved (11.3%; $P < 0.05$) PPO when measured in hypoxia. The NT group improved ($P < 0.05$) P (aver) in TT by 8.1%, whereas IHT group did not show any significant difference. Intermittent training performed in hypoxia was less efficient for improving endurance performance at sea level than similar training performed in normoxia. However, IHT has the potential to assist athletes in preparation for competition at altitude.