

Intermittent Hypoxic Training Improves Yo-Yo IR2, But Not Time-Trial Performance in Team-Sport Athletes.

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Abstract

PURPOSE:

To determine the time-course for physical capacity adaptations to intermittent hypoxic training (IHT) in team-sport athletes, and time-course for benefits remaining post-IHT.

METHODS:

A pre-post parallel-groups design was employed, with twenty-one Australian Footballers assigned to IHT (n=10) or control (CON; n=11) matched for training-load. IHT performed eleven 40-min bike sessions at 2500-m altitude over 4-wks. Yo-Yo Intermittent recovery test level 2 (Yo-Yo IR2) was performed pre, after 3, 6, and 11 IHT sessions, and 30 and 44 days post IHT. Repeated time-trials (2- and 1-km TT, with 5-min rest) were performed pre, post, and 3 weeks post IHT. Haemoglobin mass (Hbmass) was measured in IHT pre, after 3, 6, 9 and 11 sessions.

RESULTS:

Baseline Yo-Yo IR2 was similar between groups. After 6 sessions, the change in Yo-Yo IR2 in IHT was very likely higher than CON (27% greater change, Effect size 0.77, 90% confidence limits 0.20;1.33), and likely higher 1-day post (23%, 0.68, 0.05;1.30). The IHT group change remained likely higher than CON 30-days post (24%, 0.72, 0.12;1.33), but was not meaningfully different 44-d post (12%, 0.36, -0.24;0.97). The change in 2-km TT performance between groups was not different throughout. For 1-km TT, CON improved more post, but IHT maintained performance better after 3-wks. Hbmass was higher post (2.7%, 0.40 -0.40;1.19).

CONCLUSION:

Short-duration IHT increased Yo-Yo IR2, compared to training-load matched control in two weeks. An additional 2 weeks of IHT provided no further benefit. These changes remained until at least 30-d post-training. IHT also protected improvement in 1-km TT.