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**MCMILLAN K, et al.****[Physiological adaptations to soccer specific endurance training in professional youth soccer players.](#)**

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**McMillan K, Helgerud J, Macdonald R, Hoff J**

Glasgow Celtic Football Club, Medical Department, 95 Kerrydale Street, Glasgow G40 3RE, UK. kennymcmillan@hotmail.com

**BACKGROUND:** Improved oxygen uptake improves soccer performance as regards distance covered, involvements with the ball, and number of sprints. Large improvements in oxygen uptake have been shown using interval running. A similar physiological load arising from interval running could be obtained using the soccer ball in training.

**OBJECTIVES:** The main aim was to study physiological adaptations to a 10 week high intensity aerobic interval training program performed by professional youth soccer players, using a soccer specific ball dribbling track.

**METHODS:** Eleven youth soccer players with a mean (SD) age of 16.9 (0.4) years performed high intensity aerobic interval training sessions twice per week for 10 weeks in addition to normal soccer training. The specific aerobic training consisted of four sets of 4 min work periods dribbling a soccer ball around a specially designed track at 90-95% of maximal heart frequency, with a 3 min recovery jog at 70% of maximal heart frequency between intervals.

**RESULTS:** Mean VO<sub>2</sub>max improved significantly from 63.4 (5.6) to 69.8 (6.6) ml kg<sup>-1</sup> min<sup>-1</sup>, or 183.3 (13.2) to 201.5 (16.2) ml kg<sup>-1</sup> min<sup>-1</sup> (p<0.001). Squat jump and counter movement jump height increased significantly from 37.7 (6.2) to 40.3 (6.1) cm and 52.0 (4.0) to 53.4 (4.2) cm, respectively (p<0.05). No significant changes in body mass, running economy, rate of force development, or 10 m sprint times occurred.

**CONCLUSION:** Performing high intensity 4 min intervals dribbling a soccer ball around a specially designed track together with regular soccer training is effective for improving the VO<sub>2</sub>max of soccer players, with no negative interference effects on strength, jumping ability, and sprinting performance.

PMID: 15849290

MeSH terms: Adaptation, Physiological, Adolescent, Exercise Tolerance, Humans, Male, Oxygen Consumption, Physical Education and Training, Physical Endurance, Physical Fitness, Running, Soccer, Task Performance and Analysis, Track and Field

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