

Abstract Model

COMPARAISON BETWEEN TWO TYPES OF INTERVAL TRAINING IN SOCCER PLAYERS: PHYSIOLOGICAL AND PERCEPTIVE SOLICITATIONS.

LE MOAL E.¹ ; DRUST B.² ; DULUC C.¹ ; ZOUHAL H.¹

¹ M2S Laboratory, University of Rennes II-ENS Cachan, France. ² RISES, LJM University, Liverpool, United Kingdom.

Introduction

Endurance is considered as an important factor of performance in soccer (Iaia et al., 2009). It is now well accepted that high intensity intermittent exercise (HIIE) may develop endurance. Since few years, other methods appear such as small-side games or specific track. One of those tracks is the Höff track (Höff et al., 2002). This last seems present good results despite the lack of data concerning the physiological and perceptive solicitations compared to a HIIE. Therefore, the purpose of this study is to compare the physiological and perceptive solicitations of two HIIE: 15s/15s at 120% of maximal aerobic speed (MAS) and an integrated exercise on the Höff track (Höff T).

Methods

Seven high-level soccer players (24.1±4.5 yrs) realized a maximal graded test to determine their peak oxygen uptake (VO_{2peak}), MAS and peak heart rate (HR_{peak}). During the same week, they realized two randomized exercise: 1) physical controlled exercise (15s/15s Test) at 120% of MAS (corresponding to 90-95% of HR_{peak}) during 4×4 minutes with 3 minutes of active recovery between series and 2) four sets of 4 minutes in the Höff T to dribbling the ball at an intensity of 90-95% of HR_{peak} interspersed with 3 minutes of active recovery. The intensity of the active recovery was closed to 70% of HR_{peak} during the two tests. HR, oxygen consumption (using a gas exchange telemetric system: VO_{2000} , Medical Graphics, Minnesota, USA), lactate and rating of perceived exertion (RPE) were measured.

Results & Discussion

The mean VO_2 were significantly higher ($p<0.05$) during the Höff T (2.67 ± 0.30 ml/min; 39.3 ± 2.3 mL/min/kg) than during the 15s/15s Test (2.49 ± 0.34 ml/min; 36.8 ± 1.9 mL/min/kg). On the same way, the total O_2 consumed was significantly higher ($p<0.05$) during the Höff T (66.8 ± 7.6 L) than during the 15s/15s Test (62.3 ± 8.6 L). Blood lactate concentration was significantly higher after the first set of the Höff T (12.5 ± 2.0 mmol/L) than the 15s/15s Test (10.6 ± 2.0 mmol/L). Hence, as shown by the RPE score values, players perceived the 15s/15s test more difficult than the Höff T (13 ± 1.8 vs. 11.7 ± 1.4 , $p<0.05$).

Conclusion

Our results demonstrate that players consume more oxygen and produce more lactate during the Höff T than during the 15s/15s (especially during the first set). Despite that, they perceived the Höff circuit less difficult than 15s/15s test. Thus, the use of the Höff T for aerobic training appears as an interesting alternative to develop endurance in soccer players. However, fitness coaches had to propose this Höff circuit so far from the soccer game because it may induce more anaerobic participation to the energy production.

References

Iaia, M et al., (2009). *Int J Sports Physiol Perf*, 4(3): 291-306

Höff, J et al., (2002). *Br J Sports Med*, 36(3): 218-221

Contact

Please include your email address at the very end of your abstract [email@email.xx]