

Heart rate response to duration and players' number variations in Futsal specific drill

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Introduction: Recent findings demonstrate that Futsal is a multiple-sprint sport in which high-intensity exercise constitutes a greater proportion of match time than all other team sports (Barbero-Alvarez et al., 2008), but the research of training intensity is a unknown way. Sport specific drills with variations are constantly used in Futsal practices, however the knowledge about how these variations influence drill intensity is very insufficient (Duarte et al., 2007). Therefore, this study aimed to measure the effects of duration and players' number variations in a Futsal specific drill by the elicited percentage of maximal Heart Rate (HRmax%) and percentage of time spent in three Heart Rate intensity zones (HRzone1<65%HRmax; HRzone2=65-85%HRmax; HRzone3>85%HRmax).

Methods: The studied sample was constituted by eight players from a Portuguese First Division team [age 25.9(4.5); weight 67.6(7.5); height 1.7(0.1); BMI 22.4(2.0)]. The exercise testing consists in a "half-pitch game" with official rules. To test the effect of players' numerical relations, the drill was played in 4v4, 3v3 and 2v2 conditions, during 4 minutes and followed with an active break (continuous running with low intensity) of 4 minutes. In order to test the effect of exercise duration, the drill was played during 4 minutes and 10 minutes conditions, maintaining an active break of 4 minutes.

Results: In players' number variation statistically significant differences were found in HRmax% [4v4 81.5(10.6) to 3v3 86.8(7.3) and to 2v2 87.9(11.7); p=0.01] and in percentage of time spent in HRzone2 [35.4% in 4v4, 12.5% in 3v3 and 10.4% in 2v2; p=0.01]. In the exercise duration statistically significant differences were found only in percentage of time spent in HRzone3 [50% in 4 minutes and 29.2% in 10 minutes; p=0.04].

Conclusions: The decrease in the number of players resulted in an intensity increase, probably due to the larger ratio of area per player and to the progressive decision making constraint by the limited choices of the ball carrier to cooperating with the teams-mate. The variation of the exercise duration did not induce any change in HRmax%. However, playing the “half-pitch game” during 4 minutes period brings more significant percentage of time spent in higher Heart Rate zone and induce more elevated physiological stimulation.

Keywords: Heart Rate, Specific Drill, Futsal

References:

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