THE PHYSIOLOGICAL ANALYSIS OF ALTERING PLAYING AREA SIZE IN RUGBY SMALL-SIDED GAMES

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Small-sided games (SSGs) have been shown to provide an effective aerobic interval training method in soccer (Hoff et al., 2002; Owen, et al., 2004) and rugby union (Gamble, 2004). However, there is limited research into the application of SSGs for aerobic conditioning in rugby league. Therefore, the purpose of this study was to determine the effects of altering playing area size on exercise intensity within rugby SSGs. Nine junior players from a professional club’s Scholarship squad (age 13.8 ± 1.2 y, body mass 64.1 ± 16.3 kg, stature 168.6 ± 12.2 cm, 54.6 ± 6.4 ml.kg⁻¹.min⁻¹, HRmax 199 ± 6 b.min⁻¹) volunteered to participate in a series of laboratory and field tests. Initially, individual maximal heart rates (HRmax) were measured (Polar Team System, Polar, Oy, Finland) during a progressive maximal treadmill test. Thereafter, players’ heart rate (HR) responses to a 4 vs. 4 offside touch SSG were recorded during three conditions involving grid sizes 5 x 20 m, 20 x 30 m and 25 x 35 m (small, medium and large, respectively). Each SSG was played twice in each playing area size and was four minutes in duration with three minutes of active recovery between games. There was no significant difference in mean HR between the different small, medium and large playing areas, which were 87.1 ± 3.6, 86.0 ± 3.4 and 86.4 ± 3.5% HRmax, respectively (F,1.163, 9.3 = 0.22, P = 0.685). The proportion of time spent above 85% HRmax was 73.8 ± 15.3, 72.3 ± 14.5 and 70.2 ± 13.8% in the small, medium and large playing areas, respectively. These values were again not significantly different from each other (F,1.206, 9.650 = 0.14, P = 0.76). Moreover, intra-class correlation coefficients indicated that the intensity of each game was repeatable in successive bouts when performed in small (r = 0.70, P<0.05), medium (r = 0.70, P<0.05) and large (r = 0.80, P<0.05) areas. These results suggest that each playing area size for this game and player number is sufficient for aerobic conditioning. Further research might consider the effects of manipulating player number and game rules.

References

Keywords: Conditioning, Rugby, Applied Physiology