SWINTON, P., BURGESS, K. and CARVER, P. 2012. Effectiveness of skill-based conditioning games in team sport athletes with different fitness levels. Poster presented at the 2012 International convention on science, education and medicine in sport (ICSEMIS 2012), 19-24 July 2012, Glasgow, UK.

Effectiveness of skill-based conditioning games in team sport athletes with different fitness levels.

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2012

EFFECTIVENESS OF SKILL-BASED CONDITIONING GAMES IN TEAM SPORT ATHLETES WITH DIFFERENT FITNESS LEVELS

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Key knowledge in this field to date:

Skill-based conditioning games can provide an effective means of simultaneously improving the skills and physical fitness levels of team sport athletes[1,2].

Improvements in technical skills as a result of medium-term interventions of skill-based conditioning games may not be as great as those achieved from traditional instructional training sessions[2].

Physical fitness levels can vary substantially across a team of athletes dependent upon factors such as the specific sport[3].

How this work adds to the field:

This study highlights the difficulty in creating an optimal stimulus for each athlete when implementing skill-based conditioning games as a means of improving physical fitness.

Methods:

Heart rate (hr) response of 8 professional youth soccer players (age: 17.2 ± 0.6 yr; stature: 178.2 ± 7.1 cm; mass: 68.9 ± 7.2 kg) were measured during 3 separate training sessions comprising skill-based conditioning games. Each training session lasted approximately 90 minutes and included a 20 minute warm-up period. Maximum hr and VO2max values were established using the Yo-Yo intermittent endurance test (YYIE2). The response of each athlete to individual training sessions were determined by recording how much time was spent in 4 hr zones (60-70%, 70-80, 80-90% and 90-100% of max hr). V02max was calculated using performance on the YYIE2 and a previously published regression equation[4]. Time spent in each hr zone was averaged over the three training sessions and correlated with estimated V02max values using Pearson's coefficient.

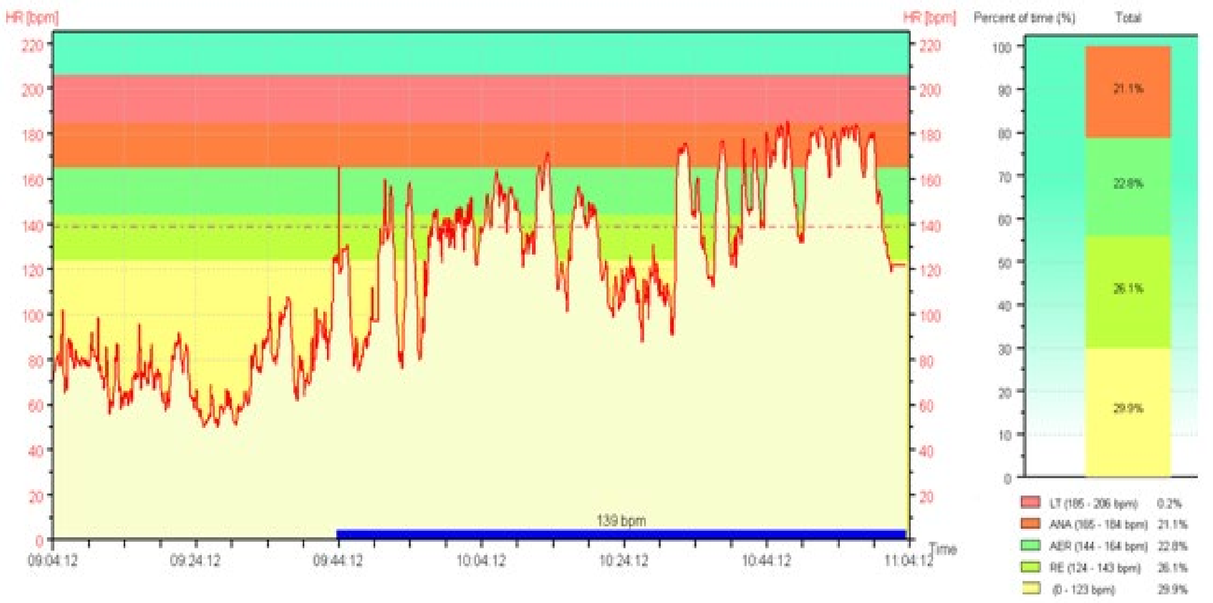
Results:

Group VO2max values, max hr and average time spent in each hr zone are shown in table 1. Illustrated in Figure 1 is a comparison of the hr response of the individual with the highest and lowest scoring VO2max values to the same skill-based conditioning game. A strong positive correlation (r=0.90) was obtained for fitness level and time spent in the lowest hr zone. In contrast, strong and moderate (r=0.76 & r=0.61) negative correlations were obtained for fitness level and time spent in the two highest hr zones. The results demonstrate that the fittest players spend more time in lower hr zones, whereas the less physically fit players spend more time in higher hr zones.

Table 1: Group summary data (mean ± SD)

VO2max (ml/kg/min)	HR (b/min)	60-70%	70-80%	80-90%	90-100%
57.2 (1.59)	150.8 (11.5)	24.9 (6.4)	25.0 (4.6)	22.7 (5.9)	13.8 (9.8)

Figure 1: Comparison of heart rates from the individual with the highest and lowest VO2max values to the same skill-based conditioning game



Conclusions:

Coaches should be aware of this potential limitation of skill-based conditioning games and design training sessions which take into account individual fitness levels.

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