

PRIOR HIGH-INTENSITY INTERVAL RUNNING REDUCES EXERCISE INTENSITY AND SKILL PERFORMANCE IN SMALL-SIDED RUGBY GAMES

Kempton, T. 1) & Coutts, A.J. 1)

1) School of Leisure, Sport & Tourism, University of Technology Sydney, Australia

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Introduction

Small-sided games (SSGs) are commonly used to improve technical and tactical abilities of rugby players. However, relatively little is known about the exercise prescription factors that influence the aerobic training stimulus and skill demands with rugby SSGs. Specifically, it is unknown if SSGs provide a different training stimulus if completed with or without acute fatigue. Therefore, the aim of this study was to assess the influence of an acute interval training bout on exercise intensity and skill performance in rugby specific SSGs.

Methods

Ten elite youth rugby union players completed two different training sessions of similar intensity (~85% HR_{max}) and duration (~24 min). In each session, players completed a block of intense interval running (30–30s, 120% maximal aerobic speed) and a modified “offside” rugby SSG in a random order. A randomized crossover design with a week washout was used. Both internal (heart rate (HR) and rating of perceived exertion (RPE)) and external (m/min) measures of exercise intensity were assessed. HR was sampled every 5 s and movement demands were collected using 5-Hz global positioning systems. The skill performance (involvement, errors and disposal efficiency) was assessed from notation analysis during video playback of the SSGs. Paired samples t-tests were used to detect any differences in exercise intensity and skill performance s during each SSG condition. Significance was set at $p < 0.05$.

Results and Discussion

The external load (118±11 vs. 132±13 m/min, $P=0.02$) but not internal load were reduced when the SSGs were completed following the interval session. The lack of difference in the HR and RPE between conditions (despite the lower external load with acute fatigue) may be due to the metabolic inertia from the preceding interval session. There were the reductions in the number of effective disposals (17.3±4.2 vs. 11.9±5.9) and disposal efficiency (89±13 vs. 79±9 %) in the SSGs when completed after the interval session (all $P < 0.05$), suggesting an acute fatigue influence on skill abilities. These findings show that a greater aerobic training stimulus can be achieved by potentiating HR and RPE responses with a priming bout of high-intensity interval training. However, if the goal of a SSG is to complete high quality, fast paced skills then SSGs should be completed without prior high-intensity training. Conversely, players may benefit from developing skill performance under fatigue when interval training is completed before SSGs within the same session.

Conclusion

Acute fatigue prior to rugby specific SSGs may reduce player movement intensity and skill performance but can stimulate the internal training response.