HIGH-INTENSITY DISTANCE IN ELITE FEMALE SOCCER PLAYERS BASED ON A GENDER-SPECIFIC THRESHOLD

Bellistri G[1,2], Porcelli S[2], Marzorati M[2], Sforza C[1,2], Giudici A[2], Bradley PS[3].
[1]Università degli Studi di Milano (Italy), [2]IBFM-CNR (Italy), [3]Leeds Beckett University (UK).

Introduction

The total distance covered in elite matches by female soccer players is relatively lower than their male counterparts (Bradley et al. 2014). The majority of female match play is spent in low-intensity activities with high-intensity distance been 30% lower than male players (Andersson et al. 2010). To date, studies on female players utilized the same absolute velocity threshold of male players despite female player having a lower physical capacity than male players (Bradley and Vescovi, 2015). The aim of this study was to examine high-intensity distance covered during matches by elite female soccer players using different thresholds.

Methods

Nineteen elite female players participated in this study (age 23±4 yr; height 165±7 cm; body mass 54.7±6.5 kg). Maximal oxygen consumption (VO_{2max}) and respiratory compensation threshold (VT_2) were determined by graded exercise test to exhaustion on a motorized treadmill. Players activities across 6 friendly matches (32 observations) were tracked by Global Positioning System (K-Gps 10hz, K-Sport, Italy). Distance covered in total (TD) and at high-intensity (HID) were evaluated. The latter was calculated using both the typical male speed threshold of 15 $km \cdot h^{-1}$ (MALE) and an individual speed threshold (IND) corresponding to VT_2 (Hunter et al. 2015).

Results

Players VO_{2max} was 49.1±3.7 $mL \cdot kg^{-1} \cdot min^{-1}$ and occurred at a speed value of 14.7±0.8 $km \cdot h^{-1}$. VT_2 corresponded to a running speed of 13.5±0.9 $km \cdot h^{-1}$. The total distance covered was 7726±891 m with HID higher ($p<0.0001$) in IND (1125±533 m) than in MALE (785±353 m). When expressed as percentages of TD, HID was 14.4±5.8% in IND and 9.9±3.8% in MALE.

Discussions

These data demonstrate in female soccer that the quantification of high-intensity running activities during match play can be impacted by applying relative or absolute speed thresholds. Even if arbitrary speed thresholds enable longitudinal monitoring of match-demands and comparison within and between players/teams/gender, the utilization of individualized speed threshold should be pursue in order to quantify the correct exercise stimulus in female soccer players. Further studies are needed to understand the best method characterizing the multiple transitions between intensity-domains in female soccer.

References

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Contact

giuseppe.bellistri@unimi.it