

Can simulation tasks reproduce the taekwondo match physiological responses?

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Background and Study Aim: Using specific training methods is an important aspect in the preparation of taekwondo athletes. The purpose of the present study was the knowledge about physiological responses, during three different training protocols and official taekwondo matches.

Material and Methods: Eleven black-belt taekwondo athletes: age 24 ± 5 years; body mass 76.8 ± 15.3 kg; height 178 ± 0.1 cm and MBI 24.1 ± 3.7 kg/m²) completed a official taekwondo competition and three experimental conditions of training (2, 4 and 6 kicks bandal tchagui, each 10 seconds, respectively) with the same total duration (3 rounds of 2 min with 1 min rest between each round), the physiological variables were measured, blood lactate concentration, heart rate (HR) and rating of perceived exertion (RPE). **Results:** For the HRpeak a round effect was identified ($F_{1,294}; 12.936 = 59.940$; $p < 0.001$, $\eta^2 = 0.857$ [large]), with round 2 was superior to round 1 ($p = 0.001$), round 3 was superior to round 1 ($p < 0.001$) and round 2 ($p < 0.001$). For the blood lactate concentration a round effect was identified ($F_{3,30} = 133.441$; $p < 0.001$, $\eta^2 = 0.930$ [large]), with lower values being observed at pre compared to all post-rounds measurements ($p < 0.001$ for all comparisons).

Conclusions: The taekwondo exercise reached the same heart rate peak and blood lactate concentration that the rates presented during the taekwondo match, therefore, can replicate the physiological response of the official competition. However, it will be necessary to verify the effects

of more prolonged periods of these exercises to know if the stress generated is adequate to improve the physical performance. © 2018 the Authors.

Athletic performance

Blood lactate concentration

HR zones

Rating of perceived exertion

adult

article

athlete

athletic performance

competition

controlled study

heart rate

height

human

human tissue

lactate blood level

physical performance

rest

simulation

stress

taekwondo

young adult