ELABORATION OF A CIRCUIT FOR THE TRAINING AND THE EVALUATION OF THE SPECIFIC ENDURANCE IN TAEKWONDO

Roberto Villani$^1$, Marco Minotti$^2$, Mauro Minotti$^2$

(T.M.P.A. Combat Sport, Motor Science Faculty, Cassino University; IUSM Rome; Centro studi e ricerche sport di combattimento – CSEN – www.combatsportresearch.it$^1$, T.M.P.A. Combat Sport, Motor Science Faculty, Cassino University; Centro studi e ricerche sport di combattimento – CSEN Italy – www.combatsportresearch.it$^2$, Italy)

Introduction
The elaboration of tae-kwon-do matches endurance training, foresees a precise study of fighting, by the evaluation of the physical stress the athletes face. The endurance ability has a great importance for the efficiency of the matches’ actions (Lehmann, 1996), so we experimented a specific speed-endurance circuit in TKD.

Methods
We conducted the experimentation on a group of 10 athletes (age 23±5; h 176±5; years of practice 9±3; weight 72±14) of middle and high agonistic level.

The circuit is like a TKD match, with 3 rounds of 2 min. and 1 min. of recovery. During each round a blue athlete and a red one, performed: 20" attack, 10" counterattack, 20" counterattack, 10" attack.

The protocol scheduled 2 sessions. In the first one the athletes executed a match simulation, with regular fights; in the second, they executed the circuit. We controlled the HR in different situations: basal, at the end of the fight/circuit, 3 min. and 6 min. after the end of the fight/circuit. We detected the lactate production in 3 moments: basal, 3 min. and 6 min. after the end of the fight/circuit.

We evaluated the test reliability with the correlation between test and retest (made in two successive training-day). We studied the validity of the circuit, comparing the circuit and the fight considering the La and the HR (correlation; %difference; Anova).

Results
Test-retest correlation (reliability) is very high either for the HR or for the La, with r higher than 0.81 (p<0.01).

The validity study showed a high correlation between HR and La results in fight and circuit. Regarding to the HR there is a percentage difference absolutely meaningless between the results of fight and circuit in the different phases. The lactate produced is on average lower to the circuit of 12-14%, maybe because in the fight the pauses and the recovery phases tactic are more frequent. Also in this case the differences, aren’t significant (p = n.s.). The statistic non significant difference of the results of La and HR, is the researchers’ common data. So there is no significant difference between the circuit and the fight in relation to the production of lactate and to the trend of the HR.

Conclusions
We can state that the circuit is a specific exercise of simulation of the physical stress in a tae-kwon-do matches. The absence of a significant difference between the circuit and the fight in relation of the lactate production and of the cardiac frequency trend, permits us to state that the circuit we adopted puts to work the athletes in a similar way of the sportive fight of TKD.

The circuit can be considered as an effective mean of training and specific evaluation the trainers have at their disposal.

References
Lehmann G. (1996), Leistungsport, 4, 6-11

Keywords: Testing, Tae Kwon Do, Lactate