CONSIDERING THE WORST-CASE METABOLIC SCENARIO, BUT TRAINING TO THE TYPICAL-CASE COMPETITIVE SCENARIO: RESPONSE TO AMTMANN (2012)

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Summary.—This response to Amtmann’s letter emphasizes that the knowledge of the typical time structure, as well as its variation, together with the main goal of the mixed martial arts athletes—to win by knock out or submission—need to be properly considered during the training sessions. Example with other combat sports are given and discussed, especially concerning the importance of adapting the physical conditioning workouts to the technical-tactical profile of the athlete and not the opposite.

After our publication about mixed martial arts (MMA) time-motion analysis (Del Vecchio, Hirata, & Franchini, 2011), we read with great interest the letter from Amtmann (2012), whom we thank for the additional comment concerning the preparation of the athlete for the worst-case metabolic scenario. We agree that the athlete must be prepared for most of the metabolic possibilities during a competitive event. However, it is important to consider that some conditions have more probability of occurrence than others, and this must be determined through systematic time-motion analyses in different competitions, considering both the athlete specific profile, as well as the next opponent’s profile. Only when reliable information concerning the probabilities of occurrences during MMA events is available could the typical worst-case metabolic scenario be defined properly.

Better knowledge about specific worst-case metabolic scenario is especially important because nonspecific training stimuli can result in adjustments that do not contribute to athletes’ performance increase or can even cause performance decrease (Issurin, 2010). Thus, attention must be taken when defining the worst-case metabolic scenario and the amount of training directed to adapt to this possibility. We are aware of Jimmy Pedro,
the U.S. judo competitor, who has had a successful and long-term competitive career, and the positive influence of strength and conditioning training organization on his achievements. One of the authors (EF) of the present paper has been working with one high-level judo athlete for the last six years (International Judo Federation, number one judo athlete on the <81 kg World Ranking List, February 2012) and this approach has been working for his technical-tactical profile, preparing him for the typical scenario and considering the probability of the worst-case scenario, based on statistically derived data from judo competitions (Miarka, Panissa, Julio, Del Vecchio, Calmet, & Franchini, e-pub ahead of print), his own matches’ time structure, the physiological demand of judo (Franchini, Del Vecchio, Matsushigue, & Artioli, 2011), and the recovery process across the competition (Franchini, Bertuzzi, Takito, & Kiss, 2009).

This basic approach should be useful if adapted to MMA combats, especially because this combat sport is different from judo in many aspects, including: (1) the number of tournaments per year is much lower in high-level MMA (3 to 4 events) compared to judo (8–10 competitions), which allows more time for preparation, resulting in the possibility of better periodization, avoiding concurrent training, for example; (2) in general, the MMA athlete performs only one match per tournament and the opponent is previously known, which allows the development of integrated technical-tactical and strength and conditioning training to deal with specific characteristics of the opponent; (3) although MMA athletes are trying to improve in both striking and grappling skills, it is still possible to classify them as strikers and grapplers, which may affect the combat time-structure and consequently its physiological demand. Thus, it is important that further studies address these issues and that the distribution of typical occurrences be determined so coaches can direct their training sessions according to the probability of a given physiological demand. Additionally, it is important to emphasize that high-intensity intermittent exercise has been reported to improve both anaerobic and aerobic profiles of combat sport’s athletes (Ravier, Dugué, Grappe, & Rouillon, 2009; Farzad, Gharakhanlou, Agha-Alinejad, Curby, Bayati, Bahraminejad, et al., 2011), and this approach can be less time-consuming and result in better benefits compared to traditional endurance exercise.

REFERENCES


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