SPECIFICITY OF HIGH-INTENSITY INTERMITTENT ACTION REMAINS IMPORTANT TO MMA ATHLETES’ PHYSICAL CONDITIONING: RESPONSE TO PAILLARD (2011)1

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Summary.—This response to Paillard (2011) focuses on the intermittent nature of mixed martial arts (MMA). It also emphasizes that the main goal of MMA athletes is to win by knockout or submission and that these actions normally are high-intensity actions or preceded by high-intensity actions. Additionally, there is evidence that high-intensity intermittent exercise protocols are able to improve aerobic fitness. It is important only to adjust physical training to the athletes’ techniques and tactics.

After our publication about time-motion analysis in mixed martial arts (MMA; Del Vecchio, Hirata, & Franchini, 2011), we read with great interest the letter from Paillard (2011), whom we thank for the interesting comments. One of Paillard’s criticisms is related to the intermittent nature of mixed martial arts and the athlete’s physiological profile. Indeed, this suggestion for future research is promising and has many possible applications in combat sports in general and in mixed martial arts in particular. Certainly, other investigations analyzing larger muscle groups and more specific exercises are needed to determine if the findings from Gariod, Favre-Juvin, Novel, Reutenauer, Majean, & Rossi (1995), using ankle flexion and extension exercise, can be confirmed. However, the authors agree that the time-motion analysis can be influenced by the athlete’s physiological profile, and reinforce that additional studies should explore this perspective.

Unpublished data derived from 251 mixed martial arts fights of the Ultimate Fighting Championship (UFC) indicated that the majority of fights (54.6%) finished in the last round. Despite the fact that a match is finished in the last round, it is still important to consider the possibility of high-intensity intermittent effort inside this structure and that the physiological demand for this kind of effort is quite different from that demanded in, for example, continuous activities (Gaitanos, Williams, Boobis, & Brooks, 1993; Glaister, 2005). Additionally, considering that the main goal of mixed martial arts combatants is to finish the fight by knockout or submission and that these actions normally are high-intensity actions or preceded by high intensity action, it is important to prepare the athlete to be

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able to repeat this kind of effort in a fashion more than “progressively increasing the duration of efforts for a given mechanical power,” as suggested by Paillard (2011, p. 804), because the technical-tactical nature of combat normally does not allow for longer action.

Additionally, there is evidence that high-intensity intermittent exercise protocols are able to improve aerobic fitness of combat sports athletes, when such protocols are added to the sport specific training sessions. Karate athletes and wrestlers increased the time to exhaustion 23.6% and 32.3%, respectively, and VO\textsubscript{2} max 4.6% and 5.4%, respectively, when submitted to high-intensity intermittent training in addition to the traditional training (Ravier, Dugué, Grappe, Rouillon, 2009, Farzad, Charakhanlou, Agha-Alinejad, Curby, Bayati, Bahraminejad, et al., 2011). In wrestlers, improvements in peak and mean power were also observed in successive Wingate bouts (Farzad, et al., 2011). This approach should be used in mixed martial arts athletes, adopting sport-specific actions and considering time structure as reference (Del Vecchio, et al., 2011). Furthermore, it is important to emphasize the need to establish the action profile of each athlete, to confirm this characteristic during matches and, then, to adjust the physical training to one’s technique, tactics, and combat strategy as well as in relation to the opponent.

REFERENCES


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