Abstract

Taekwondo (TKD) is an Ancient Martial Art that originated in Korea more than 2000 years ago as a system of defense for aristocrats. TKD entered the Olympic Games in Sydney 2000, was included in the first edition of the Youth Olympic Games in Singapore 2010 and was integrated into the rank of disciplines at the European Masters Games 2011. TKD has distinguished itself from the other martial arts for its particular dynamism and spectacular kicking techniques (turning and flying kicks and complex kicking sequences), and it can be considered a situational full contact sport, the performance outcome of which is mostly determined by the psychological and biological parameters and the technical and tactical skills of the athletes. Moreover, the progressive evolution of the international competition rules and the recent involvement in this practice of new competition age classes (i.e. Cadets and Master athletes) and technical skill levels, makes a new specific analysis of psychological, physiological and technical-tactical aspects of performance necessary. Thus the aim of this doctoral project was to investigate physiological, psychological, time-motion and notational parameters during official TKD combats, in the different age classes (i.e. Cadet, Master and Senior Elite athletes) in the wake of the recent evolution of the competition rules and the introduction of the new electronic trunk protector scoring system.

The studies “Time-Motion Analysis of Youth Olympic Taekwondo Combats” and “Technical-Tactical Analysis of Youth Olympic Taekwondo Combat” evidenced the facts that Cadet combat performance is characterized by a 1:2 ratio of F and NF phases, by a high sparring intensity determined by a frequent occurrence of tactical movements and technical exchanges during F and that there is a similar duration of activities and combat intensity among the gender and weight divisions of athletes, independently of round and tournament stage. From a technical-tactical point of view, Cadets demonstrated that they are more prone to perform offensive rather than defensive actions and that they prefer to stay in Clo-STA during F and in Alt-STA during NF phases. During technical exchanges they executed mostly one-point techniques, frequently using the rear leg to kick rather than the front one. Concluding winners demonstrated more efficiency in both attack and defense actions, and to both head and trunk targets.

The study “Performance Analysis of Taekwondo Matches in European Masters Games” demonstrated that Master combat imposed a heavy exercise load on athletes and that the time-motion parameters mirrored the intermittent nature of TKD combat, characterized by a 1:3 F to NF ratio. Masters performed more offensive than defensive actions, but winners used more defending techniques as compared to the losers. The strategy was characterized by the winners’ staying in Clo-STA during F and Alt-STA during NF phases and using the right rear leg during the execution of both offensive and defensive kicks. Moreover, Master athletes showed a preference for performing one-point kicks.

The study “Effects of Taekwondo Competition on Mood State in Young and Elite Athletes” showed that official TKD competition imposed a high exercise load on the athletes and induced a high level of psychobiological stress, independently of their gender. From a psychological point of view, athletes showed low pre-competition scores on the negative POMS scales and high scores on the positive Vigour-activity scale, reflecting the desired iceberg profile, while in post – competition higher scores in A, D and F were found, and lower scores for T and V. In particular, young athletes showed highest T and A values, and lowest V values.

The study “Specific Performance Models evidenced in elite Taekwondo athletes based on different body protector systems” evidenced that elite athletes using the “LaJust System” performed at a high level of intensity during Fighting and Non-Fighting activities, and were very efficient in attacks to the head, while during the use of the “Daedo System”, they executed a high number of Defense actions, being very efficient to the trunk.

In conclusion, this PhD work shows that the actual taekwondo performance model is quite different among the differing age classes of combat athletes. Moreover, it shows that there is an evolutionary movement in act specifically regarding
technical and tactical patterns, so further research is necessary to follow this tkd combat development, with the goal of furnishing valid and practical information to the coaches.