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THE IMPORTANCE OF TECHNICAL AND TACTICAL ANALYSIS OF TEACHING TEACHERS AT THE OLYMPIC TAEKWONDO GAMES

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Abstract
The purpose of this study was to define the technical and tactical profiles of official youth taekwondo competitions played under the most recent rules of the Taekwondo Federation. Tactical actions (i.e., attack, defense, and block), technical executions (from 1- to 4-point scores), kicking legs (i.e., front/rear and right/left), and overall technical effectiveness were investigated in relation to match outcome of semifinal and final competitions of youth (aged 13–14 years) black belt athletes during the Uzbekistan Taekwondo Cadet Championship. Differences were found among all action typologies. In general, these findings showed that Cadets tend to adopt an offensive strategy. In considering that the adoption of the new electronic system requires athletes to execute correct technical actions to have a score assigned, coaches should emphasize the effectiveness of scoring techniques and help athletes to effectively improve their defense and counterattack capabilities.

Keywords: Time-motion, notation, tactic, kicking leg, technical effectiveness, olympic taekwondo, physiological, international competitions, technical-tactical actions.

Introduction

The ancient Korean martial art of taekwondo has evolved into a modern combat sport, which received Olympic recognition in 2000 and has been included in the first edition of the Youth Olympic Games. Although taekwondo combat (kyorugi) and forms (Poomsae) competitions are regularly organized at regional, national, and international levels, Olympic taekwondo comprises only combats, which are organized during 1-day tournaments (including qualifying, semifinal, and final phases). A match consists of 3 rounds during which an athlete tries to produce a displacement of his/her opponent's body segment punching his/her torso or kicking his/her torso and head. To control for main differences between athletes, matches are organized according to the athlete's age, gender, skill level (i.e., belt color), and weight category.

Although physiological, technical, tactical, and psychological aspects of official taekwondo competitions have been studied in elite and young athletes, the recent introduction of new competition rules (i.e., the reduction of the round duration and the competition area dimension, the adoption of the electronic trunk protectors, and the definition of a new valid point score

classification) has determined an evolution of Olympic taekwondo, which makes it impossible to generalize information gathered under previous combat conditions.

Taekwondo athletes start training and competing at around 10 years of age and can enter International competitions (i.e., World Junior Taekwondo Championships and Youth Olympic Games) at 14 years of age. To promote the potential of youth athletes and to plan effective youth programs for taekwondo academies, there is a need of studies on sport-specific technical-tactical skills of children. In fact, investigations focusing on both time-motion (i.e., the analysis of duration of specific combat phases) and notational (i.e., the analysis of technical and tactical aspects) analyses are necessary to advance our understanding of the combat activity profiles of athletes and to help coaches in planning sound training sessions to develop the sport skills of children.

A general profile of the scoring techniques used by both elite and youth athletes in official taekwondo competitions showed that kicking techniques are the most frequently chosen. In particular, under the stringent time constraints of combats, 10-year-old taekwondo athletes (allowed to score points only to the torso) almost exclusively perform rear-leg kicks, probably because of their limited coordinative capability to execute less natural front-leg kicks. Actually, investigating various technical-tactical kicking actions in relation to the different functions and abilities of the 2 limbs (i.e., kicking vs. support legs, and dominant vs. nondominant legs), several authors reported significant differences between the kinetic variables of front and back legs. In considering the high situational variability of a combat, athletes need to rely on a broad basis of technical capability to kick with both their front and rear legs in the attempt to cope with a wide range of technical-tactical offensive and defensive situations in relation to the opponent. Therefore, there is a need to analyze tactical aspects, technical exchanges, and kicking leg actions of taekwondo matches in relation to the interaction between the 2 competitors. Furthermore, to emphasize the technical and spectacular aspects of the combat, the new scoring point system established a match duration in relation to the age of the competitors (elite athletes: three 2-minute rounds with 1-minute breaks in between; older than 15 years: three 1.5-minute rounds with 1-minute breaks in between), reduced the competition area to 8 × 8 m, and introduced a new valid point score classification system to be ascertained by means of the electronic trunk protectors. In particular, a valid attack assigns 1 point (i.e., kick or punch) to the trunk protector, 2 points to a valid turning kick to the trunk protector, 3 points to a valid kick to the head, and 4 points to a valid turning kick to the head.

Thus, to help coaches in developing sound training for young athletes, the purpose of this study was to define the technical and tactical profiles of official youth taekwondo competitions carried out under the latest rules of the International Taekwondo Federation. It has been hypothesized that technical and tactical variables differ in relation to match outcome.

Tactical actions were considered in relation to the athlete's preparation of: (a) the attacking actions (ATT) during an attempt to score, (b) the defending actions (DEF) when an athlete uses a defensive technique to counterattack with the aim of scoring, (c) blocking actions (BLOCK) when an athlete defends himself/herself from a kick directed to his/her head or torso by covering the potential targets with his/her arms (Direct Block), or avoids an attack by moving

out of his/her path using footwork, changing stances, or closing the distance (Indirect Block) with the aim of confusing his/her opponent's perception of position in the competition area. Technical execution included all types of kicks and punches executed with a correct or incorrect technique. Based on the new valid score point system, correct technical executions were considered only those performed toward the opponent's scoring areas (head and torso). Conversely, incorrect techniques were considered the technical executions performed out the scoring areas or not fulfilling the technical requirements of taekwondo kicks.

To the knowledge of the authors, this is the first work that analyzes the technical and tactical aspects of official youth TKD combats after the introduction of the new WTF competition rules, which reduced the duration of the round and dimension of the competition area, and introduced the electronic trunk protectors and the new valid point score classification system. The main findings of this study showed that at this age the athletes were (a) more prone to perform offensive rather than defensive actions; (b) scored points mainly with one-point techniques; and (c) more frequently used the rear leg, independently of body size. Furthermore, match outcome determined differences only for tactical actions and scoring efficiency. In particular, the winners performed less offensive and more defensive actions with respect to their non-winning counterparts, profiting more from technical executions to the heads and torsos of their opponents.

According to the literature on young taekwondo athletes, the youth athletes adopted an offensive style of combat, substantiating the speculation that offensive strategies are more natural with respect to those required to effectively avoid the attacks of the opponent. In fact, during the development of tactical skills at an early stage of the taekwondo academy, the capability to interpret and execute an offensive action requires less ability with respect to the complex tactical and technical requirements of defensive situations, which necessitate the anticipation and proper reaction (i.e., counterattack) to the opponent's behavior (i.e., feints, changes of stance and direction, diversionary steps, footwork, and shifts). Furthermore, the lack of differences for competition phase also indicates a limited tactical capability of young athletes in managing different strategies throughout the match. Consequently, specific training and extensive competitive experience are needed to allow youth athletes to acquire a better interpretation of the defensive phase. Nonetheless, the present results indicate that this Cadet category (13–14 years) can be considered to be at a “border line” with respect to the more instinctive combating style of the very young athletes and the beginning of a more reflective and strategic style reported for elite athletes. In particular, the crucial importance of defensive capability is also confirmed by the fact that winners attacked less and defended more frequently with respect to non-winners, in addition to their overall effectiveness in scoring points.

Youth taekwondo competitions are based on a progression of rules with the aim of matching the psychophysiological characteristics of children, of facilitating the development of their sport-specific skills, and of preventing injuries. Actually, comparisons with the available literature on youth taekwondo competitions are difficult because of the more stringent regulations governing the scoring area (i.e., only torso), the match duration (i.e., three 1-minute rounds) for athletes younger than 12 years, and the different point scoring system adopted for

kicking actions. In Italy, the 2014 Uzbekistan Cadet Championship was the first in which the new electronic scoring rules system was applied. Although it is possible to speculate that the athletes had not developed the proper technical-tactical ability, the lower frequency of occurrence of 1-point techniques and the higher frequency of occurrence of 3-point techniques with respect to data previously reported in the literature could indicate a technical evolution going on in youth taekwondo.

In agreement with the literature on young and adult athletes, the present study confirmed that a competitor prefers to kick with his/her rear leg. These findings support the speculation of the presence of a generalized difficulty that young athletes have in switching the body weight to the rear leg to be able to kick with the front one. However, additional tactical reasons should be also taken into consideration. In fact, the use of the front leg to kick exposes an athlete to a major risk of receiving a counterattack by his opponent. Consequently, independent of match outcome, the rear leg was the most used for both offensive and defensive combat phases. Conversely, kicks performed with the front leg are often preceded by a specific preparatory activity (i.e., shifts and flying steps) that permits the execution of a more rapid and dynamic action being nearer to the opponent. In considering that this technical skill could be useful in resolving specific combat situations in a positive manner, coaches should help children in developing the coordinative capabilities needed to perform kicks with the front leg.

The adoption of the new electronic scoring system requires that athletes execute correct technical actions because points are assigned only when kicks delivered to the torso determine an effective contact between the foot and the electronic device of the trunk protector. To have their kicks land with adequate impact, athletes have to rotate their foot appropriately in relation to the type of kick selected. Hence, the overall effectiveness parameter can be considered closely related to the acquisition/management of specific technical skills and could be used to evaluate the technical proficiency of young athletes. Although match outcome did not determine differences in the number and typology of technical actions, successful athletes resulted more efficient during both offensive and defensive actions directed toward the head and torso when compared with non-winners.

In youth sports, skill acquisition is favored in the presence of expert coaching and proper training plans. The lack of differences in many technical and tactical variables investigated in this study indicates a comparable skill level of competitors, which gives credit to the efforts of the Uzbekistan Taekwondo Federation in establishing quality standards and in promoting common guidelines for taekwondo academies. In considering that success in competition also depends on a combination of psychological, physiological, and physical characteristics of the athlete, further research on youth athletes in their actual competitive and training settings is needed.

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