

Tactical exercises to improve the effectiveness of the counterattack in youth taekwonkas

Ejercicios tácticos para mejorar la efectividad del contraataque en taekwondocas juveniles

Alberto Montoya-Valverde¹, Daniel David Hechavarria-Cardero²

¹Lic. Escuela de Iniciación Deportiva “Capitán Orestes Acosta Herrera”. Santiago de Cuba, Cuba. albertotkd@nauta.cu

²Doctor en Ciencias de la Cultura Física. Profesor Auxiliar. Universidad de Oriente. Santiago de Cuba, Cuba. dhechavarria@uo.edu.cu

Date of reception: May 19, 2020.

Date of acceptance: June 23, 2020.

ABSTRACT

The aim of the research was to develop a set of exercises to better the effectiveness of the counterattack in youth taekwondo. The sample was made up of 7 youth taekwondokas from the provincial team of Santiago de Cuba and selected in a simple random way. The design used was pre-experimental with data processing through non-parametric contrast statistics Wilcoxon signed-rank test at a significance level of 0.5. The horizontal comparison showed significant changes in the effectiveness of the participants' counterattack.

Key words: Tactical exercises; Counterattack effectiveness; Female taekwondo; Youth taekwondokas

RESUMEN

El propósito de la investigación fue elaborar conjunto de ejercicios para mejorar la efectividad del contraataque en el taekwondo juvenil. La muestra estuvo conformada por 7 taekwondocas juveniles del equipo provincial de Santiago de Cuba y seleccionadas de forma aleatoria. El diseño utilizado fue preexperimental con procesamiento de los datos a través de estadísticos de contraste no paramétricos prueba de los rangos con signos de Wilcoxon a un nivel de significación de 0.5. La comparación horizontal evidencio cambios significativos en la efectividad del contrataque de las participantes.

Palabras clave: Ejercicios tácticos; Efectividad del contrataque; Taekwondo femenino; Taekwondokas juveniles

INTRODUCTION

Taekwondo is an adversary sport with direct interaction of two competitors, in a shared space and with opposite objectives. In the fighting there is an exchange of blows, where the techniques (especially the leg) are executed with great fluidity, speed and explosiveness. Its complexity lies in the fact that several factors must be harmoniously combined to achieve sporting success (Bridge et al., 2014; González-Prado, Iglesias, & Anguera, 2015; López-López, et al., 2015; De la Fuente, & Castejón, 2016; Menescardi et al., 2016, 2017, 2019a, b).

Taekwondo, like the rest of fighting sports, is characterized by its marked tactical purpose. It is not about making it faster or more technical, these aspects are not as decisive as effectiveness (Guillen et al., 2018).

Morales-Cuellar (2014), recognizes the effectiveness of technical-tactical actions, such as the ability of taekwondokas to correctly apply technical-tactical actions and meet the proposed objectives in the different situations that occur during combat. It is measured by collecting information on the number of actions carried out by assaults, highlighting those that meet or do not meet the proposed objectives, that is, positive or negative actions.

They are offensive actions that arise in response to the opponent's attacks, so they depend entirely on the opponent. The counterattack is the action that arises in response to the opponent's initiative to attack. They are motivated by the opponent's attack, with the common objective of wanting to score; depend on and adapt to the opponent's actions taking into account the moment of their execution

In correspondence with what was previously stated, the objective of developing a set of tactical exercises was raised to increase the effectiveness of the counterattack in the Taekwondo team, female youth category of the EIDE Santiago de Cuba.

METHODS

We work with a population of 12 athletes and a sample made up of 7 female taekwondokas from the youth category of the provincial EIDE of Santiago de Cuba,

which was selected randomly, 100% are continuous, of these, three were national champions, three runners-up at the same level and the remaining, a bronze medalist. They were also distinguished by recognition from the national commission of this sport, two of them as the best athletes in Cuba that year. The mean age of experience in sport 7.14 ± 0.69 years.

The pre-experiment in its pre-test-post-test variant was used as a general design. The independent variable was introduced for the period from the 2017-2018 academic year from the Incoming mesocycle of the general preparation stage to the Precompetitive mesocycle of the competitive stage. The set of exercises was composed of 53 elements and they were applied grouped according to the stage to which they belonged.

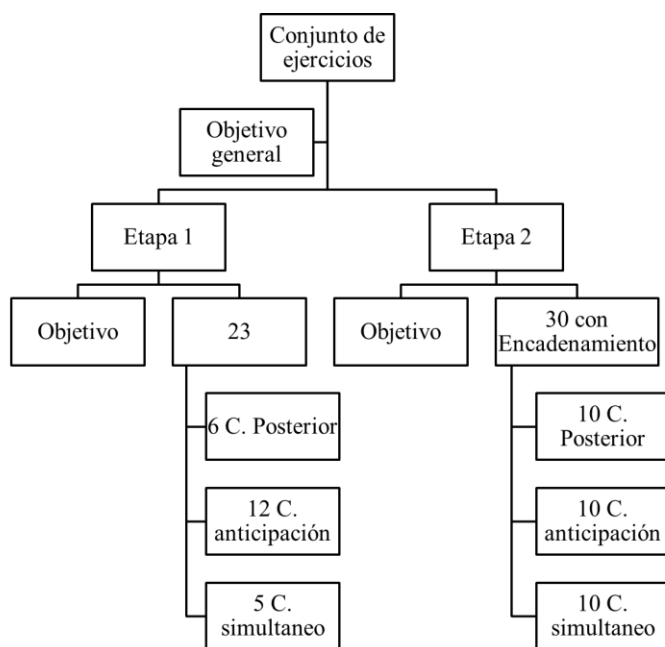


Figure 1. Organization of tactical exercises by counterattack typology (C: counterattack). Source: Authors' elaboration

Statistical processing was performed by analyzing empirical frequency distributions and the results of the Wilcoxon signed rank test with a significance level of 0.05.

RESULTS

At the beginning during the diagnosis, the statistical analysis of the data recorded in each of the taekwondokas revealed in a general way an average of 2.25 points per action with a standard deviation of 0.496. Attack actions were predominant,

reaching 61.7% of the total actions carried out. According to the points achieved, the first type of action allowed the achievement of 660 points and the counterattack of 427 points. Each of these score totals, in 298 and 185 shares in the same order. Such elements indicate the need to increase counterattack actions.

In correspondence to the existing difference (113 actions executed), between attack and counterattack actions, and scoring actions (233 points), an observation protocol was applied to record the tactical behavior of the taekwondokas in the counterattack.

The analysis of the effectiveness of the counterattack actions showed a tactical behavior of the athletes still insufficient in terms of the cost of the action from the energy and risk point of view. The relative frequency of both types of actions, those that were effective expressed in obtaining a score and those that did not contribute points, shows a predominance of those that did not contribute, since they constitute 66.5%. An approximate ratio somewhat less than 2 to 1.

The analysis of the counterattack actions showed differences according to their effectiveness or not. In effective actions the tendency to perform certain actions is accentuated. Therefore, it shows the limited resources to ensure scores through the execution of other tactical actions.

Another behavior is observed during tactical actions that did not contribute points, that is, ineffective. In this case, the actions were more diverse. A similar behavior occurs in terms of scores, since in ineffective actions, rates were executed for 4 points, which was not the case in effective actions.

The efficiency of the counterattack actions was determined from the relationship between the total points won divided by the total actions that give points. The efficiency achieved by the set of taekwondokas was 2.43. When considering the values and the relationship between these referred to the actions that do not

They contribute points and the points not won, it was appreciated that there was an efficiency below that possible to achieve, since the latter was 2.44.

The determination of the effectiveness of the tactical behavior of the athletes on the counterattack, from the difference between the ratios of the total points achieved and the possible points to be achieved divided between the effective and

non-effective actions in correspondence to the same order, revealed the ineffectiveness of the counterattack as the result achieved was -0.01.

The analysis by each of the taekwondokas showed a similarity of behaviors of these aspects. The results achieved that show the efficiency of the counterattack actions in all the fights carried out present a range of 2.27 to 2.46. The same happens with effectiveness. From this, the results achieved in the athlete no. Stand out as exceptional behavior. 7. On the contrary, 71.42% have negative results.

After applying the tactical exercises, the evaluation was carried out to determine their impact on the effectiveness of the counterattack of the taekwondokas.

The comparison between effective counterattack actions between diagnosis and evaluation showed a difference between them. To corroborate these differences, a hypothesis test was applied using the non-parametric contrast statistic Wilcoxon signed rank test with a significance level of 0.05. This statistic was chosen because a discrete variable of ordinal scale was used.

For this it was necessary to propose a working hypothesis. The null hypothesis: the exercises applied failed to increase the points obtained from the counterattack actions of the taekwondokas; and as an alternative: the applied exercises managed to increase the points obtained from the counterattack actions. The result obtained through the hypothesis test shows significant differences between the points earned and not earned, which is why the alternative working hypothesis is accepted (table 1).

Table 1. Comparison of points earned and not earned in diagnosis and evaluation

	PGE – PGD	PNGE - PNGD
Z	-2.366	-2.384
Significance	0,018	0,017

Source: Authors' elaboration

PEG: points earned in the evaluation; PDG: points earned in diagnosis; PENG: points not earned in the evaluation; PDNG: points not earned at diagnosis

The analysis of the efficiency of the athletes showed an improvement in this aspect. The mean was 2.48 ± 0.096 from results located from 0.29 to 2.36 for a run of 2.65. The result of the standard deviation and the route of the data expresses a

low dispersion of the same. In addition, the average is higher than that obtained in the diagnosis.

In order to determine if there is an incidence of the exercises after being applied, a comparison was developed between the efficiency results obtained in the diagnosis and the evaluation from the Wilcoxon signed rank test with a significance level of 0.05. The null working hypothesis refers: the exercises applied failed to increase the efficiency of the counterattack actions of the taekwondokas; and as an alternative: the applied exercises managed to increase the efficiency of the counterattack actions. The results obtained have a significance lower than the established level, so the alternative working hypothesis is accepted with 95% reliability (Table 2).

Table 2. Comparison of the efficiency of counterattack actions in diagnosis and evaluation

Counterattack efficiency (diagnostic) - counterattack efficiency (evaluation)	
Z	-2,366 ^a
Significance	0,018

Source: Authors' elaboration

After evaluating the incidence of the exercises in terms of the number of points achieved in the counterattack actions carried out by each of the taekwondokas and the respective efficiency of these same actions in each of the bouts, we proceeded to determine the incidence in terms of its effectiveness.

The analysis of the effectiveness of the taekwondokas showed the achievement of results superior to those detected in the diagnosis. The mean was 0.07 ± 0.06 from results located from 0.02 to 0.17 for a 0.15 run. Like the behavior evidenced in terms of efficiency, the result of the standard deviation and the data path expresses a low dispersion of the same.

A comparison was made between the effectiveness values obtained in the diagnosis and evaluation from the Wilcoxon signed rank test with a significance level of 0.05. The null working hypothesis refers to: the exercises applied failed to increase the effectiveness of the counterattack actions of the taekwondokas; and as an alternative: the applied exercises managed to increase the effectiveness of

the counterattack actions. The results obtained have a significance lower than the established level, so the alternative working hypothesis is accepted with 95% reliability (Table 3).

Table 3. Comparison of the effectiveness of counterattack actions in diagnosis and evaluation

Counterattack efficiency (diagnostic) - counterattack efficiency (evaluation))	
Z	-2,028 ^a
Significance	0,043

Source: Authors' elaboration

DISCUSSION

The tactical exercises provided the possibility for the coaches to adjust during the selection of the counterattack action to execute according to the characteristics of the taekwondokas, without changing the objectives. These can be included in the system of planned exercises in the macro cycle, providing tactical exercises that are included in the preparation document and are in correspondence with the needs of the diagnosis.

The results of the application show that the exercises to achieve greater effectiveness when performing the counterattack actions in the youth taekwondokas of the provincial team of Santiago de Cuba were positive, demonstrating an improvement of the values obtained in the execution, effectiveness, as well as the general percentages, but there are still dissatisfactions of not having reached the level of very good, which indicates that work should continue to improve the effectiveness of counterattack actions.

BIBLIOGRAPHIC REFERENCES

- Bridge, C.; Ferreira, J.; Chaabene, H.; Pieter, W., & Franchini, E. (2014). Physical and physiological profiles of taekwondo athletes. *Sports Medicine*, 44(6), 713-733. <https://doi.org/10.1007/s40279-014-0159-9>
- De la Fuente, G., & Castejón, O. (2016). Análisis del combate en taekwondo. Categorías para la evaluación de las acciones tácticas. *Cultura, Ciencia y Deporte*, (11)32, 157-170.

- Guillen, L. et al. (2018). Methodology for improving the teaching-learning process of technical-tactical elements in combat sports. *Retos*, 34, 33-39
- González-Prado, C., Iglesias, X., & Anguera, M. T. (2015). Detección de regularidades en taekwondo de alto nivel. *Cuadernos de Psicología del Deporte*, 15(1), 99–110.
- López-López, J., Menescardi, C., Estevan, I., Falcó, C., & Hernández-Mendo, A. (2015). Análisis técnico-táctico en Taekwondo con coordenadas polares a través del software Hoisan. *Cuadernos de Psicología del Deporte*, 15(1), 131-142.
- Morales-Cuellar, Y. (2014). La gestión del aprendizaje y el desempeño técnico-táctico del taekwondista escolar. *Lecturas: Educación Física y Deportes*, N° 192. <http://www.efdeportes.com/efd192/desempeno-tecnico-tactico-del-taekwondista.htm>
- Menescardi, C., Moya, I., Ros, C., & Estevan, I. (2016). Análisis del tiempo de lucha y no lucha en taekwondocas cadetes. *Sportis. Scientific Journal of School Sport, Physical Education and Psychomotricity*, 2(2), 164-176. doi: 10.17979/sportis.2016.2.2.1423
- Menescardi, C., Estevan, I., Falco, C., & Hernández-Mendo, A. (2017). Generalizability theory applied to olympic male taekwondo combats. *European Journal of Human Movement*, 39, 65–81.
- Menescardi, C., Falco, C., Estevan, I., Ros, C., Morales-Sánchez, V., & Hernández-Mendo, A. (2019a). Is It Possible to Predict an Athlete's Behavior? The Use of Polar Coordinates to Identify Key Patterns in Taekwondo. *Frontiers in Psychology*, 10. doi: 10.3389/fpsyg.2019.01232
- Menescardi, C., Falco, C., Ros, C., Morales-Sánchez, V., & Hernández-Mendo, A. (2019b). Development of a Taekwondo Combat Model Based on Markov Analysis. *Frontiers in Psychology*, 10. doi: 10.3389/fpsyg.2019.02188