STABILITY OF MAINTAINING BODY BALANCE AMONG YOUNG TAEKWONDO FIGHTERS AND ITS IMPORTANCE FOR PERFORMING ACCURATE BLOWS WITH THE RIGHT AND LEFT LEGS

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ABSTRACT

The article analyzes the results of the study of the stability of maintaining body balance among young taekwondo athletes 15-16 years old in the Yopchage poses with support on the left and right legs, as well as the accuracy and speed of serial strikes against the background of the aftereffect of 15 seconds of body rotation to the right and left. At the same time, not only an insufficiently developed ability to maintain body balance with support on a leg of a different name was established, but also a pronounced asymmetry was found in the manifestation of the accuracy and speed of performing serial blows with the right and left legs in the aftereffect of 15 seconds of rotation of the body to the right and to the left.

Keywords: Young taekwondo fighters, equilibrium, body, sustainability, accuracy, body rotation to the right and left, asymmetry.

INTRODUCTION

In the practice of training taekwondo athletes, as well as in other sports, the effectiveness of teaching technical and tactical techniques, their improvement and assimilation, including the successful conduct of competitive fights, is largely ensured by the level of development of physical and psycho-functional capabilities [Yu.A. Shulik, E.Yu. . Klyuchnikov, 2010, p. 56-101; Ya.E. Bugaets, 2018, pp. 73-79; Yu.B. Kalashnikov, 2000, pp. 40-46; A.S. Mavletkulova, 2007, p. 22; E.V. Volkova, 2019, p. 6-13; I.A. Seleznev, 2013, p. 29-34; S.L. Podpalko, 2007, p. 23; OG Epov, 2007, pp. 26-32]. At the same time, it should be assumed that in conditions of increasing severity of competition for the achievement of victorious results of a duel in competitions, during which multidirectional high-speed maneuvers are performed (jumps, turns, rotations, flexion and extension of body parts in different planes, etc.), there is a pronounced decrease in the stability of maintaining static and dynamic balance, leading to discoordination of motor acts and their accuracy. And this has been proven in the studies of a number of authors on the example of other sports [AI Yarotskiy, AN Livitskiy, 1991, p. 221-231; A.A. Pulatov, 2017, pp. 215-218; F.A. Pulatov, 2019, from 30-33].

The Main Part

The aim of this research is to study the accuracy of kicks depending on the stability of maintaining body balance in young taekwondo athletes 15-16 years old when exposed to rotational movements.

To assess the stability of maintaining the balance of the body and the accuracy of kicks, the following simulated tests were developed; - determination of the duration of maintaining the balance of the body in the "Yopchage" posture with support on the left and right legs without and with visual orientation (Fig. 1.); - determination of the duration of maintaining balance

with rotation of the body within a circle with a diameter of 70 cm to the left and to the right without and with visual orientation in the position of the torso 90º forward (Fig. 2); - Determination of the number of exact blows by the right and left legs on the face of the dummy out of 6 possible before (without) and after 15 seconds, the leg of rapid rotation of the body to the left and to the right in the position of the body tilt forward 90 (Fig. 3).

fig-1

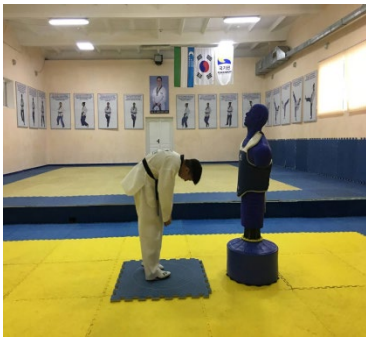

fig-2

fig-3

Note: the first 6 strikes with the right and left foot are performed without rotational load; then they are performed after a rotational load; the speed and accuracy of strikes are evaluated.

The study involved 16 young taekwondo fighters 15-16 years old, whose tests were taken five times within 5× days in compliance with the standard conditions and procedural rules of testing.

Results and Discussion

The results of the study showed that in young taekwondo athletes 15-16 years old, the duration of maintaining body balance in the Yopchage position with support on the left leg with visual orientation averaged 19.9 ± 6.77 seconds, and without visual control - 10.7 ± 3.65 sec. The difference between these values was 9.2 cm (Table 1).

Table 1

Tests	With visual orientation	Without visual orientation	Difference in indicators
Duration of maintaining body balance in the Yopchage pose with support on the left leg (sec)	19,9±6,77	10,7±3,65	9,2
Also with support on the right leg	14,6±3,21	7,3±2,33	8,3
Duration of maintaining balance when rotating the body to the left in the position of the trunk tilt forward by 90º (sec)	10,8±2,06	5,4±1,29	5,4
Also - when rotating the body to the right	6,9±1,13	3,7±1,04	3,2

Indicators of stability of maintaining body balance among young taekwondo fighters 15-16 years old in the "Yopchage" pose. -n = 16x5 = 80 (x ± b)

When performing the same test, but with support on the right leg, these average values were respectively; 14.6 ± 3.21; 7.3 ± 2.33; 8.3 sec. Evaluating the data presented, we can note the fact that, firstly, it seems to us that the duration of maintaining body balance in the Yopchage position with support on the left and right legs, even in conditions of visual orientation, turned out to be relatively low for taekwondo athletes of this age, who are already at have been practicing this type of martial arts for 5-6 years

Secondly, a pronounced decrease in the stability of this ability in conditions of turning off visual control indicates an insufficient development of the function of the vestibular analyzer, which regulates the sphere of manifestation of postural-tonic reactions while maintaining static balance. Thirdly, a significant asymmetry was revealed in the manifestation of the duration of maintaining body balance with support on the left and right legs in the first, which is a negative sign from the point of view of the priority in sports of the phenomenon of versatility of motor actions fulfillment.

The duration of maintaining balance when the body was rotated to the left in the position of the body tilted forward by 90º with visual orientation was 10.8 ± 2.06 seconds, and when the body was rotated to the right, it was 6.9 ± 1.13 seconds. At the same time, the performance of the same tests without visual orientation, these indicators were, respectively, -6.4 ± 1.29 and 4.7 ± 1.04 sec. It can be seen that, firstly, the indicators of the duration of maintaining balance during body rotations to the left and to the right, both with visual and without visual orientation, turned out to be much lower than the values recorded while maintaining the static pose "Yopchage". Secondly, the values of stability for maintaining equilibrium during rotation of the body to the right were significantly low in comparison with similar data obtained when the body was rotated to the left. In other words, a significant asymmetry was also traced between these two categories of balance indicators during body rotations to the left and to the right, which is the reason limiting the range of versatility of the manifestation of the motor skills of taekwondo athletes. Moreover, the asymmetry found in the study of stability, maintaining body balance in the Yopchage posture with support on the left and right legs, as well as during rotation of the body to the right and left, can have a negative impact on the accuracy of strikes with the “non-leading” leg or hand in taekwondo.

To determine the validity of this assumption, we made an attempt to study the quantitative and speed parameters of accurate blows with the right and left legs on the face of the dummy before and after a 15-second rapid rotation of the body to the left and to the right in the position of the torso forward 90º. In young taekwondo athletes 15-16 years (Table 2). It can be seen from the table that the number of exact blows with the right leg without (before) performing a rotational load is on average 5.5 ± 0.71 times, and the speed of their implementation was on average 11.3 ± 2.06 sec., And with the left - respectively -4.8 ± 0.5 times and 12.4 ± 2.17 sec. However, in the aftereffect of a 15-second rotation of the body to the left, which is a convenient side for right-sided athletes, the accuracy of blows with the right leg decreased by more than two times, and with the left one - by three times. The speed of blows with both the right and left feet slowed down significantly, especially when implementing blows with the left foot. For example, the accuracy of blows with the right foot immediately

Table 2: Indicators of the number of exact kicks on the face of the dummy without and after 15 seconds of rapid rotation of the body to the left and to the right in the position of the body tilt by 90º in young taekwondo athletes 15-16 years old. -n = 16x5 = 80 (x ± b)

Execution of strikes / Conditions of blows	Strikes out of 6 possible			
	Right foot		Left foot	
	Accuracy (quantity)	Speed (sec)	Accuracy (quantity)	Speed (sec)
Impacts without performing a rotational load.	5,5±0,71	11,3±2,06	4,8±0,51	12,4±2,17
Impacts against the background of aftereffect 15 sec. rotation of the body to the left.	2,7±0,19	-13,8±1,87	1,6±0,11	15,5±1,96
Impacts against the background of aftereffect 15 sec. rotation of the body to the right.	1,6±0,05	-15,3±1,96	1,1±0,03	17,4±2,02

After a 15-second rotation of the body to the left was 2.7 ± 0.19 times, and the speed was -13.8 ± 1.87 sec.

The accuracy and speed of performing blows with the left leg were 1.6 ± 0.11 times and 15.5 ± 1.96 sec, respectively. At the same time, the number of blows with the right leg against the background of the aftereffect of 15 seconds of rotation of the body to the right was 1.6 ± 0.05 times, and the speed of blows was 15.3 ± 1.96 seconds. In this case, when the left foot was performed, the accuracy decreased even more and amounted to 1.1 ± 0.03 times. At the same time, the speed of the blows increased to 17.4 ± 2.02 sec.

A comparative analysis of the above data allows us to single out the following facts: firstly, the number of blows with the right leg under the influence of body rotation to the left turned out to be much higher, and the speed of their execution is much lower than similar indicators of accuracy and speed of blows with the left leg, which indicates the presence of a pronounced asymmetry between these parameters of the blows produced; secondly, the same asymmetry between these indices was traced according to the data of quantitative and temporal parameters of blows with the right and left legs in the aftereffect of 15 seconds of rotation of the body to the right. Moreover, this asymmetry was accompanied with an extremely low level of accuracy of strikes and a significant lengthening of the speed of their execution.

The above data allow us to assume that in the course of the educational process of the surveyed young taekwondo athletes 15-16 years old, due attention is not paid to the use of a symmetric approach to the training procedures and the training of blows with both the right and left legs within the framework of adherence to the technique and taking into account their assessment. quantitative and temporal parameters.

CONCLUSION

Based on the differentiated analysis of the research results, the following conclusions can be made;

1. It was found that the stability of maintaining the balance of the body in the examined young taekwondo fighters 15-16 years old, both in the Yopchage poses with support on the left and right legs, and when the body was rotated to the left and right in the position of the torso forward by 90º was relatively low under the conditions of their execution with visual orientation, and it decreases even more when visual orientation is turned off. It should be assumed that such a consequence can have a certain negative impact on the accuracy and speed of the implementation of serial strikes with both the right and left legs.

1. A pronounced asymmetry was noted when performing the act of maintaining body balance with support on a different leg and during rotation of the body to the left and to the right in the forward tilt position by 90 что, which focuses on the need to train these versatile motor functions with an emphasis on their symmetrization.

2. Different indicators were revealed, indicating a significant decrease in the number of precise strikes and a noticeable drop in the speed of their execution by the “non-leading” leg under the aftereffect of 15-second body rotation to the left, which were characterized by a further deterioration in their values against the background of a similar body rotation to the right. Moreover, these negative consequences occurred within the framework of significant asymmetry, which also requires symmetric training of these functions in order to expand the range of versatility of mastery of performing attacking actions in taekwondo.

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