

VERTICALLY DIRECTED THROWS OF THE MEDICINE BALLS AN EXERCISE, MODELING THE POWER ACTIVITY OF WORKING THE MUSCLES OF THE HANDS IN WRESTLERS OF STYLE WITH A CLIP FOR THE BELT

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ABSTRACT

In this article, there are shown the example of wrestlers on belts that the level of speed-power endurance “for a while”, estimated by the sum of the vertical throws of a stuffed ball and by the data of their heart rate value, turned out to be higher than the lower their weight category, and when this load is fulfilled “to refusal” manifestations of this quality were more significant among wrestlers with a larger weight category.

Keywords: Belt wrestlers, weight category, speed-strength endurance, isokinetic exercises, stuffed ball throws, heart rate, pulse cost.

INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

In the types of wrestling included in the program of the Olympic Games, the process of conducting fights is carried out both by hands and feet, and in national types of wrestling, cultivated by a number of peoples and nationalities, fights are carried out strictly with a grip on the belt and without the participation of legs in attacking actions, which requires the dominance of speed-strength endurance of the muscles of the hands, manifested in a dynamic mode of isokinetic nature. According to leading experts on the theory and methodology of sports training, isokinetic exercises should be the main means of strength training, especially when developing maximum and explosive strength (L.P. Matveev, 2005; V.N. Platonov, 2004; Zh.K. Kholodov, V.S. Kuznetsov, 2008). It is assumed that multiple throws of any weights in the vertical direction, for example, a stuffed ball, can be used as modeling exercises for the development of specific speed-strength qualities in national-style wrestlers with a grip. Unfortunately, these and many extremely important problems of training and training fighters with a grip for the belt were almost not subjected to detailed scientific development (A.I. Babakov, S.V. Ulyankin, 2012; M.G. Akhmadiev, 2000; M..B. Musakaev S.V. Tulenkov, 2008; Z.S. Artikov, 2019). The aim of the study is to study the level of manifestation of speed-strength endurance of the arm muscles according to the data of vertical throws of a stuffed ball and their pulse value for Uzbek wrestlers of the national style “belt wrestling” depending on their weight categories. Methodology of the Research. The following methods were used in the study: determination of quantitative and temporal parameters of manifestation of speed-strength endurance according to the test “Vertical throws of a stuffed ball weighing 3 kg. to a shield measuring 1x1m², installed at a height of 3 m.”; the test was carried out in two versions - with the determination of the number of shots in 60 seconds and the number of throws to failure; Before and after testing, the heart rate (HR) was determined using the MI Band 2 device.

71 highly qualified wrestlers of different weight categories, including 60 kg, took part in the studies. - 19 people, 73 kg. - 21 people, 81 kg. - 17 people, 90 kg. - 14 people (wrestlers of the weight category of 50 and 100 kg. and above are not involved due to their small number).

Research results and discussions. The results of the study showed that wrestlers' weight category 60 kg. number of vertically directed throws of a stuffed ball in 60 sec. averaged 30.5 ± 3.61 times (Table 1). The heart rate before testing was 69.6 ± 3.13 bpm, and after - $146.8 \pm 5, 24$ bpm. The pulse cost of the test load was 77.243 . / Min. Wrestlers' weight categories are 73 kg. These averages were respectively: the number of shots - 28.8 ± 3.54 times .; Heart rate up to - 73.7 ± 3.78 bpm; after - 141.2 ± 4.69 bpm; pulse cost - 67.5 bpm. In the weight category of 81 kg .: 27.9 ± 3.78 times; 71.4 ± 3.51 bpm; 137.5 ± 4.12 bpm; 66.1 bpm.

Weight category 90 kg .: 26.4 ± 3.67 times .; 67.3 ± 3.12 bpm; 129.7 ± 4.67 bpm; 62.4 bpm From the above average statistics, it can be seen that as the weight category of the wrestlers increases, the number of vertically directed shots of the stuffed ball in 60 seconds consistently decreases, and the pulse cost of this test load increases as the weight category of wrestlers decreases. At first glance, such consequences are paradoxical, since the number of shots of a stuffed ball weighing 3 kg. for a while, wrestlers with a higher weight category should have made more and the pulse cost, respectively, was also higher than that of wrestlers with a lower weight category.

Table 1: Indicators of speed-strength endurance according to the maximum number of vertical throws of a stuffed ball in 60 seconds.and its pulsometric value for wrestlers of different weight categories ($\bar{X} \pm \delta$)

Weight category, (kg)	N	Heart rate before testing (bp/m)	Number of throws of a stuffed ball (number)	Heart rate aftertesting (bp/m)	Pulse cost of test load (bp/m)
60	19	$69,6 \pm 3,13$	$30,5 \pm 3,61$	$146,8 \pm 5,24$	77,2
73	21	$73,7 \pm 3,78$	$28,8 \pm 3,54$	$141,2 \pm 4,69$	67,5
81	17	$71,4 \pm 3,51$	$27,9 \pm 3,78$	$137,5 \pm 4,12$	66,1
90	14	$67,3 \pm 3,12$	$26,4 \pm 3,67$	$129,7 \pm 4,67$	62,4

It is assumed that such multidirectional and contradictory dynamics of the studied indicators in wrestlers of different weight categories is associated with the presence of a more pronounced coordination endurance in wrestlers with a lower weight category. The study of speed-strength endurance in wrestlers of different weight categories according to the data of vertically directed throws of a stuffed ball without taking into account time (“to failure”) and their pulse cost allowed us to identify indicators that reflect the opposite picture relative to the results of the previous study using a dosed test time load. In particular, the wrestlers in the weight category of 60 kg. the average maximum number of vertically directed throws of a stuffed ball “to failure” was 34.7 ± 3.89 times., heart rate before the test load was 66.4 ± 3.17 bpm, and after - $149.3 \pm 7 69$ bpm It can be seen that the pulse cost of the test load was 82.9 bpm. (table 2).

Table 2: Indicators of speed-strength endurance according to the maximum number of vertical throws of a stuffed ball without taking into account time (“to failure”) and its heart rate value for wrestlers of different weight categories ($\bar{X} \pm \delta$)

Weight category, (kg)	Heart rate before testing (bp/m)	Number of throws of a stuffed ball (number)	Heart rate aftertesting (bp/m)	Pulse cost of test load (bp/m)
60	66,4±3,17	34,7±3,89	149,3±7,69	82,9
73	70,2±3,49	36,5±4,17	145,7±6,05	75,5
81	67,8±3,21	37,9±4,33	139,6±4,51	71,8
90	69,5±4,13	39,4±4,92	137,9±4,07	68,4

73 kg weight category wrestlers. The studied average indicators were respectively: 36.5 ± 4.17 ; 70.2 ± 3.49 ; 145.7 ± 6.05 ; 75.5 . Weight category 81 kg.: 37.9 ± 4.33 ; 67.8 ± 3.21 ; 139.6 ± 4.51 ; 71.8 . Weight category 90 kg.: 39.4 ± 4.92 ; 69.5 ± 4.13 ; 137.9 ± 4.07 ; 68.4 . A comparative analysis of these indicators allows us to note that as the rank of the weight category of wrestlers increases, the average total number of vertically directed throws of a stuffed ball “to failure” consistently increases from 34.7 ± 3.89 to 39.4 ± 4.92 times, and their pulse the cost, on the contrary, decreases - from 82.9 to 68.4 bpm. Such dynamics of an increase in the number of throws of a stuffed ball and a decrease in their pulse cost suggests that the smaller the weight category of wrestlers, the faster they develop the process of fatigue, therefore, the level of speed-strength endurance decreases, and the more the weight category, the opposite picture appears physical activity and rhythmic reaction of myocardial function.

CONCLUSION

The results of such a study using tests to assess the maximum number of vertically directed ball shots for a while and “to failure” and determining their pulse cost can be used in the diagnosis of specific speed-strength endurance of wrestlers with a grip on the belt (Belt Wrestling). The basis for this view is the fact that in such types of national struggle with a grip for the belt, vertically directed speed-power forces are repeatedly applied, performed in the isokinetic mode of muscle work of the upper limbs and trunk.

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