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Evaluation of the Negative and Positive Effects of the Process of Extreme Training on the Physiological and Anthropometric Indicators of Athletes

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Abstract Doing excessive training and loads without sufficient recovery during training can cause overtraining. Extreme training causes a number of physiological and anthropometric disorders depending on the type of sport. For example, if it causes atherosclerosis in weightlifters, it causes weight loss in athletes. This article analyzes the changes that occur in the athlete's body as a result of training disorders and extreme training in weightlifting and canoeing athletes.

Keywords Training, Hyperfunction, Body mass index, Adaptation, Weightlifting, Canoeing

1. Introduction

Overtraining can reduce an athlete's fitness level, negatively affect sports results, and cause injuries. Weightlifting can cause heart and blood vessel diseases [1,2,3,4].

Therefore, the athlete should control his training limit and sense of fatigue.

The following signs of overtraining were studied separately:

1. Not eating enough food;
2. Decrease in muscle mass;
3. Increased bone pain and bone injuries;
4. Exacerbation of nervousness and agitation;
5. Decrease in working capacity;
6. Sleep disturbance;
7. A sharp decrease in immunity.

Dynamic power is used in weightlifting and canoeing. Holding a barbell puts static strain on the athlete's chest and torso, and static strain on the chest and lower back in canoeists. These sports mainly develop the strength of the skeletal muscles and, accordingly, the respiratory and circulatory organs work with strength. In the sports selected in the study, not only strength, but also the quality of speed play an important role. Movements in weightlifting are short-term, and maintaining balance is one of the main problems. The time spent by the canoeists depends on this distance. Better weight and strength development allows weightlifters to lift heavier loads and maintain better balance than lighter weight athletes. In canoe rowers, the development of arm and back muscle strength increases the athlete's physiological capabilities [5,6,7]. The strength of these muscles depends not only on their structure, but also on their mass and conjugate sets [8]. During training and competitions, weightlifters repeat the barbell. Therefore, the total workload for weightlifters is very large. The average strength increase is 50% of the initial value [9,10,11].

2. Literature Analysis

The increase in strength is related not only to morphological and functional changes, but also mainly to the improvement of the activity of the nerve centers that innervate them [12]. Weightlifters and canoeists have greater muscle stiffness and tension at rest and during exercise than in athletes of other specialties [13,14,15,16] Hyperfunction of skeletal muscles is often accompanied by an increase in body weight in selected sports (some up to 15-30 kg). This is mainly due to an increase in muscle mass, not fat tissue [17,18]. During the study, it was found that the indicators of body weight in trained and untrained organisms have a particularly significant indicator at the age of a teenager. The data and comparisons that the chest expansion and body weight increase of trained athletes are 0.3% more in weightlifting than in other sports, and 0.1% more in canoe rowers are given by V.V. It can be seen in Kucheryavi's textbook "Physiology based on biochemistry" [19,20].

3. Research Methodology

Having reviewed similar literature, it was found that the

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weight and chest, height and body mass index of the athletes engaged in weightlifting in Uzbekistan and the athletes of the "Rowing & Canoe" Federation of Uzbekistan are consistent with each other. checked. The main purpose of this is to determine the differences between the trained and untrained body and to study the positive and negative effects of weight on physiological indicators.

Weightlifting students admitted by the State University of Physical Education and Sports of Uzbekistan in the 2019-2020 academic year, athletes of the "Rowing & Canoe" Federation of Uzbekistan and representatives of the control group who did not play sports were selected as the object of the experiment.

4. Research Results and Discussion

The first study of chest circumference in 18- to 19-year-olds who play sports and who don't play sports shows that this figure is in line with the average age norms in all groups. comes, that is, on average, it was in the range of 75-80 cm. At the same time, it was observed that in 18-year-old weightlifters and canoe rowers, the chest circumference increased in the diameter of the chest compared to their peers who did not do sports.

The average chest circumference in athletes who started weightlifting was 96 cm, in canoe rowers it was 95 cm, and in peers who did not do sports it was on average 94 cm. An explanation of these indicators is shown in Table 1. We used the most alternative methods we developed to increase the chest circumference and increase breathing rates to the sports level in the national team of weightlifting and canoeing. This, in turn, led to the expansion of the athlete's chest, the reduction of the athlete's panting, the prevention of premature exhaustion, as well as the reduction of access to oxygen debt.

The absolute value of the chest circumference for 18-19-year-old athletes engaged in weightlifting for 1 year was 101 cm, and for canoe rowers it was 99 cm. It was 96 cm on average for athletes who started weightlifting, 95 cm for athletes who started canoeing, and 94 cm for representatives of the sample group who did not do sports. Experience shows that the difference between the chest circumference of participants who started playing sports and those who did not play sports is only 2 cm. After playing sports, the chest circumference increased by about 1%.

Table 1. Indicators of chest circumference of athletes who did not play sports and did weightlifting for 1 year. (n=157; m±7)

Objects	**Chest circumference indicator (cm)**	**Objects**	**Chest circumference indicator (cm)**
Individuals who do not play sports	**94±0,7 sm**	Individuals who do not play sports	**96±0,7 sm**
Athletes who started weightlifting	**96±1sm**	Athletes who started weightlifting	**101±1 sm**
Athletes who started canoeing	**95±1 sm**	Athletes who started canoeing	**99±1 sm**

Table 2. Changes in weight indicators of control and test groups

Group	**Yil**	n	m (kg)	The difference
Control group	2019	50	55,8±1	+3,8 kg
	2020		59,6±1	
Trial group (Weightlifting)	2019	50	56,5±2	+13,5
	2020		70±4	
Trial Team (Canoeers)	2019	57	62 ±2	+6,2 kg
	2020		68,2±3	

Table 3

Objects	Amount	Under weight	Normal	1st degree overweight	2nd degree overweight	3rd degree overweight
		<18,5	**18,5-24,9**	**25-29,9**	**30-34,9**	**35<**
Individuals who do not play sports	**Amount**	**17**	**21**	**8**	**4**	**0**
	Persentage%	**34**	**42**	**16**	**8**	**0**
Athletes who started weightlifting	**Amount**	**1**	**8**	**17**	**13↑**	**11↑**
	Persentage%	**2**	**16**	**34**	**26↑**	**22↑**
Athletes who started canoeing	**Amount**	**9**	**29**	**14**	**5↑**	**0**
	Persentage%	**15,78%**	**50,87**	**24,56**	**8,77↑**	**0**

It is known that the morphological and functional specialization of physiological systems and the organism as a whole is manifested, among other things, in the formation of the appropriate and stable structure of intersystem relations in the body, which provides optimal conditions for the manifestation of the maximum value of special physical work ability. Especially the importance of training and private exercises is extremely great. It affects all physiological systems, but primarily the motor and autonomic system. In other words, until now, one of the most important conditions for the manifestation of the maximum possible level of work capacity is the formation of anthropometric indicators in accordance with the intensity and mode of work of the muscles involved in the performance of a certain physical load. In this regard, it is very important to assess the nature and closeness of the inter-parameter interaction to determine the functional fitness of the athlete's body. Such an opportunity is provided by analyzing the level of interdependence between various parameters of physiological systems of the body. It is known that the degree of strength of inter-parameter relations is determined by the capabilities of functional systems and the force of external influence on the organism. The difference between a trained and untrained organism changes depending on the force of external influence. According to the law of adaptation, differences in the structure of the body begin to be felt in the trained organism.

When analyzing the physical development of young weightlifters, the task of studying the weight categories of athletes of different ages was set. As a result of two-year observations, the analysis of the dynamics of body weight shows that this indicator of physical development of the participants of the experimental and control groups changes according to the age characteristics of the body development and the effect of physical loads. This can be seen in the superiority of weightlifters, canoeists and their peers in the control group in terms of absolute values of body weight at the 1-year claim (see Table 2).

The above table shows that the difference in weight between the control group representatives in 1 year was 3.8 kg, while the muscle mass in the trained body of weightlifters differed by 13.5 kg compared to the untrained body, canoe rower in athletes, the muscle mass in the trained body differs by 6.2 kg. From this it can be concluded that muscle mass increases when doing sports, especially weightlifting and canoeing. This happens directly under the influence of external factors, food and training. But there is also a situation in which there is a lot of physical load, insufficient time between recovery, improper organization of the rest period, incorrect loading in relation to body mass, non-observance of the law of adaptation "from small to large" in sports. it was found that overtraining occurs.

The aim of this study was to compare body mass index (BMI) and body fat status between three groups with different levels of physical activity. The formula TMI=kg/m2 was used to calculate body mass index. It was found that extreme training of athletes led to a change in the body mass index. Extreme training has made the opposites possible in weightlifting and canoeing.

TMI higher than the norm was observed in 24 highly trained weightlifters and 5 canoe rowers. It was found that athletes suffer from several physiological disorders due to high TMI. It was found that 48% of weightlifters suffer from atherosclerosis due to overtraining and the wrong weight category, and 2 athletes have type 2 diabetes secretly. Conservative medical treatment was recommended for them. Excessive exercise early in the sport significantly increases the likelihood of overtraining compared to adults who are well-adapted to heavy training. Excessive training missed early significantly weakens the protective properties of the body, increases the risk of developing diseases caused by excessive training in the future.

According to the study, 48% of weightlifters and 8.77% of canoeists were class 2 overweight according to body mass index, and 34% of overweight athletes and non-athletes. Athletes and 24.6% of canoe rowers suffer from overweight of the 1st degree, which leads to atherosclerosis in 48% of athletes, the formation of type 2 diabetes in 1% of athletes, hypertension in 57.3% of athletes, osteoarthritis in 28% of athletes, It was found that 58.5% of athletes had mental fatigue, and 49.2% had physical fatigue.

5. Conclusions

The problem of overtraining of young athletes, which arose as a result of incredible training and pursuit of sports achievements in this period, has attracted the attention of researchers for many years. Due to the high number of diseases caused by the violation of the golden rule that sport is first for health and then for results, especially in weightlifting, the number of people practicing this sport is decreasing regressively. However, quitting sports is not the solution to this problem, especially in connection with the constant expansion of the calendar of youth and adolescent competitions, it is recommended to organize sports loads correctly, prevent the above reasons, and conduct physiological examinations.

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