

# Actual Problems of Development of Special Endurance of Weightlifters Who Specialize in the Push of Weights on a Long Cycle

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**Abstract** Analysis of the scientific literature has shown that weightlifters who specialize in pushing weights over a long cycle to develop special endurance use the interval method of training in lifting weights. In contrast to this technique, it is proposed to alternate the interval and uniform method, the introduction at the special preparatory stage and in the competitive period of competitive actions in modes - one in a microcycle lasting over 5 minutes and the other during the stage lasting over 10 minutes. Analysis of the protocols of the World Weightlifting Championships for the period from 2016 to 2020 showed that they are the current champions of Ukraine and winners of world championships. The closest results to the standard of the master of sports of the international class are that the athlete of a weight category to 78 kg lacked only 1 rise, athletes of weight categories to 63 and 85 kg did not have enough on the 2 lifts, weight category over 95 kg did not

have enough 8 lifts, weight category to 68 lifts was not enough for 68 kg, 13 lifts were not enough for the weight category up to 68 kg, 28 lifts were not enough for the weight categories up to 95 kg. The results of Ukrainian weightlifters remained insufficiently high. This determined the need to explore current issues to improve the training process of the national team of Ukraine in weightlifting. The *purpose* of the study is to study the effectiveness of methods for developing special endurance weightlifters who specialize in pushing weights over a long cycle and develop exercises that will further qualitatively and professionally perform at world-class competitions. Our study showed that the application of our proposed exercises, duration of approaches, and rest intervals between them have a positive training effect to improve athletic performance, as well as the development of functional training of athletes, which will further contribute to their

special endurance in world competitions.

**Keywords** Weightlifting, Push over a Long Cycle, Athlete, Special Endurance

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## 1. Introduction

An analysis of the results of performing the national team of Ukraine at the World Weightlifting Championships (long-distance weightlifting) showed that over the past five years, athletes of the Ukrainian national team have taken 2-3 places but no world champion in long-weightlifting. According to weightlifting experts, the main reason is that our best weightlifters are significantly inferior to the world's leading athletes in physical and technical training [1]. Constant changes are taking place in the rules of weightlifting competitions, which are aimed at improving the spectacle, and so are the requirements for the development of physical qualities. First of all to improve special endurance. One task of sports training is to ensure the level of development of physical qualities, capabilities of functional systems, and special skills that are necessary to get a proper sports result [2].

Analysis of the scientific and methodological literature on weightlifting has shown the problems of developing special endurance weightlifters who specialize in pushing weights over a long cycle are given insufficient attention [3]. The problems of training athletes who specialize in the classical duel are considered. In the works of scientists [4]. It is established that in a classical duel to achieve high results, there is the development of general endurance and on its basis special endurance to work with weights. For athletes of light and medium weight categories, the priority

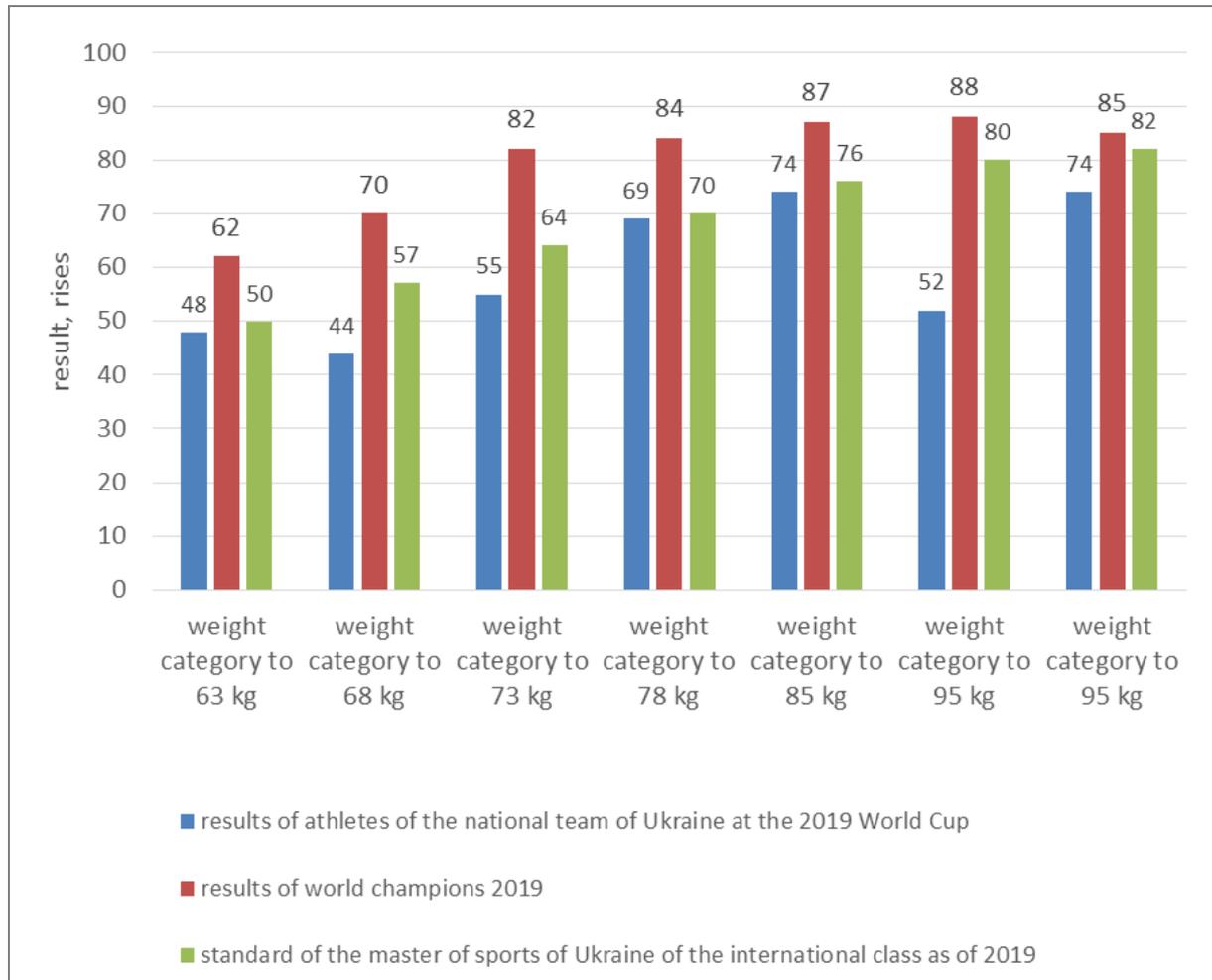
task has been the development of strength qualities and endurance, and for heavyweight categories - endurance, the requirements for strength qualities are reduced. The general theory of the training system of athletes established different values of different components of training at different stages of long-term training [5]. This gives us the reason to say that the problem of finding and developing the latest methods for developing special endurance weightlifters who specialize in pushing weights over a long cycle is relevant

The purpose of the study is to investigate the effectiveness of the method of developing special endurance of weightlifters who specialize in pushing weights over a long cycle. To achieve this goal, the following tasks are defined:

- to study modern theoretical and methodological principles of the development of special endurance of weightlifters.
- to develop a method of developing special endurance of weightlifters who specialize in pushing weights over a long cycle.

## 2. Materials and Methods

The study uses theoretical analysis, systematization and generalization of scientific literature, documentary sources, and guidelines in the field of physical education, a compilation of literature sources to identify the essence of the problem and identify ways to solve it; synthesis - to substantiate the structure and content of the program of physical training and identify the main problems of the system of physical education, the method of mathematical statistics.



**Figure 1.** Dynamics of changes in the results of athletes of the national team of Ukraine at the World Championships in weightlifting in the long cycle of 2019 in comparison with the results of world champions and the standard of master of sports of international class.

### 3. Results

To study the effectiveness of the development of special endurance weightlifters who specialize in pushing weights over a long cycle on certain indicators, we analyzed the protocols of the world championships in weightlifting for the period 2016 to 2020. As can be seen in figure 1, we noted that the athletes of the national team of Ukraine at the 2019 World Cup (Novi Sad, Serbia) show lower results by 20-30% than athletes from leading countries, even though they are the current champions of Ukraine and winners of world championships. But there is not a single athlete of the national team of Ukraine who would show the standard of master of sports of international class, they all show results at the level of the standard of Master of Sports of Ukraine. The closest results to the standard of master of sports of the international class are an athlete of weight category up to 78 kg he lacked only 1 lift, athletes of weight categories up to 63 and 85 kg they lacked 2 lifts, weight category over 95 kg lacked 8 lifts, weight category up to 68 kg did not have enough 9 lifts, weight category up to 68 kg did not have enough 13 lifts, weight categories up to 95 kg

did not have enough 28 lifts. At the same time, the results of Ukrainian weightlifters remained insufficiently high. This determined the need to explore current issues to improve the training process of the national team of Ukraine in weightlifting.

### 4. Discussion

The results of pedagogical observations of the process of training and competitive activities of weightlifters show that athletes who specialize in dueling and a long cycle use similar tools to develop special endurance. In our opinion, this is the same sport "weightlifting" but the disciplines are different. Therefore, the means for the development of special endurance should be slightly different.

Competitive load in the push of the weights for a long cycle is to perform the exercise for 10 minutes, and in a duel - 20 minutes (push - 10 minutes, jerk - 10 minutes). VS Rasskazov points to the large physiological loads in dueling, because the performance of the second exercise (jerk) in weightlifting against the background of significant

fatigue and incomplete recovery after a shock requires special training of the athlete. This also determines the differences in the planning of loads during the training process [6].

To improve sports results, scientists Platonov V., Matveev L., and other researches are carried out and it is specified that one of the most important methodical conditions of improvement of rational technics is interrelation and interdependence of structure of movements and level of development of physical qualities. Improving physical fitness requires a transition to a new level of technical skill and vice versa - better technical skills of the athlete require reinforcement with appropriate physical fitness [7].

General physical training expands the functional capabilities of the body, allows to increase physical activity, and provides conditions for the development of special physical fitness of the athlete and achieve high results in competitions [8]. Studies by many scientists indicate that in addition to the necessary skills, athletes achieve a high level of physical and psychological fitness. The functional state of the main body systems and efficiency improves [9].

Weightlifters who specialize in pushing weights over a long cycle to develop special endurance usually use tools and methods borrowed from weightlifting. Special endurance is the ability to effectively perform work and overcome fatigue under load conditions due to the requirements of effective competitive activity in a particular sport [10].

In the process of developing special endurance training exercises can be performed within two main methods - interval and continuous. The interval method is characterized by performing exercises with regulated rest breaks. The continuous method involves a single performance of a training exercise [11].

In our opinion, the development of physical qualities in terms of weight - for dueling endurance and strength training, for a long cycle in the first place the development of strength qualities then endurance and on their basis is formed a special endurance to work with weights related to their competitive activities. In the case of weight distribution of physical qualities, this is confirmed by the opinion of leading experts in the field of weightlifting [12].

To develop the special endurance of weightlifters who specialize in pushing weights over a long cycle by the specifics of their competitive activities, it is necessary to use special training exercises, which would be characterized by full coordination or elements of direction.

Exercises to improve special endurance, which most accurately reflects the preparedness of athletes for competitive activities in the push of weights over a long cycle:

- push the weights on a long cycle (number of times);
- push the weights from the chest (number of times);
- lifting two weights of 32 kg on the chest (number of times);
- rack with two weights of 32 kg in the starting position (duration of keeping the weights in a static position);

- push-up barbell (weighing 60% of the athlete's body weight) over a long cycle (number of times);
- jump with a weight of 40 kg (holding it in the hands lowered) (number of times);
- rack with two weights of 24 kg in the fixing position (duration of keeping the weights in a static position).

The expediency of these exercises is determined by the peculiarity of physiological changes in the body of athletes during their performance. Execution of these exercises occurs against the background of an optimal work of functional systems of an organism. Thus, pulse values reach the maximum and remain at such level all-time when performing exercises. These exercises involve many muscle groups, the work of which is performed in any order, which helps to improve intermuscular coordination. The proposed exercises will have a better training effect on the cardiovascular and respiratory systems of bodybuilders who specialize in a long cycle and will promote the effective development of their special endurance. The coach selects the time of training approaches individually for each athlete, depending on the level of training. Pedagogical observations show that in the practice of training weightlifters of different qualifications, approaches lasting 30 s, 1 min, 2 min, 3 min, 4 min, 5 min are used. If the duration of the approach is 1 min, then the duration of the rest interval between them should not be large, usually also 1 min, i.e., to ensure the implementation of the next approach against the background of fatigue after the previous one. If the duration of the approach is for example 3 minutes, the duration of the rest interval between them should also be 3 minutes. Load intensity - the pace of the exercise should be competitive or 1-2 climbs higher with an approach duration of 5 minutes or more. When the duration of the approach is 4 minutes or fewer, the pace of the exercise can be further increased [13].

The combination of segments of different duration has a significant influence on the development of special endurance of weightlifters when performing the program of a separate training session. In the practice of weightlifting, various training methods are used both with a constant duration of the exercise, a uniform method and a variable method of training, a gradual decrease or increase in the exercise's duration.

The number of individual exercises depends on their nature, load, qualification, and level of training of the athlete, methods of building a training session, and more [14].

According to experts, to increase the level of special endurance, it is proposed to introduce at a special preparatory stage and in the competitive period of competitive actions in modes - once in a microcycle lasting over 5 minutes and once during a stage lasting over 10 minutes.

Based on the analysis of the protocols of the World Weightlifting Championships, the low level of training of

domestic athletes compared to athletes from leading countries was determined [15].

Based on the analysis of scientific and methodological literature, it was determined that weightlifters use tools in training to develop special endurance in dueling, which does not fully meet the specifics of their competitive activities.

The results of pedagogical observation suggested that the use of the proposed exercises, the duration of approaches, and rest intervals between them, will have a positive training effect to improve athletic performance, as well as the development of functional fitness of athletes and promote their special endurance.

Based on the analysis of the protocols of the World Weightlifting Championships, the low level of training of domestic athletes compared to athletes from leading countries was determined. The results of pedagogical observation suggested that the use of the proposed exercises, the duration of approaches, and rest intervals between them, will have a positive training effect to improve athletic performance, as well as the development of functional fitness of athletes and promote their special endurance.

## 5. Conclusion

Our analysis of modern theoretical and methodological principles of special endurance of weightlifters and our development of methods and exercises for the development of special endurance of weightlifters who specialize in weightlifting over a long cycle gave a positive result on the use of the proposed exercises. In turn, the duration of approaches and rest intervals between them in the future will have an even more positive training effect to improve sports results, as well as the development of functional training of athletes and contribute to their special endurance.

## Disclosure Statement

No author has any financial interest or received any financial benefit from this research.

## Conflict of Interest

The authors declare that there are no conflicts of interest.

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