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INDIVIDUAL METHODS AND MEANS OF SPEED-STRENGTH TRAINING FOR WRESTLERS

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Abstract:

Speed-strength qualities hold significant importance in wrestling, as highlighted by many authors and researchers. Recent studies and observations indicate a marked increase in their relevance in recent years. According to numerous experts, the growing demands for the spectacularity of wrestling competitions necessitate a shift in the approach to previously employed training methods. The need to increase the tempo of matches requires the demonstration of both absolute and explosive strength. A wrestler must display a high level of preparedness from the very start of the competition.

Keywords: Sports wrestling, intermuscular coordination, muscle reactivity, speed-strength training, speed-strength qualities, neuromuscular system, explosive strength, circuit method.

Introduction

In specialized scientific and methodological literature on wrestling, significant attention is paid to the improvement of methods and means for speed-strength training. It is worth noting, however, that the concepts of "speed-strength qualities" and "speed-strength training" themselves have only recently been introduced into the theory and practice of sports wrestling as a type of strength manifestation for athletes.

An analysis of literary sources indicates that in the practice of training highly skilled wrestlers, a variety of exercises using general and specialized physical training tools are employed to develop speed-strength qualities. These methods enable the enhancement of speed-strength abilities within the framework of sports movements, thereby simultaneously improving both physical attributes and movement techniques.

According to various authors, general developmental exercises can also be utilized for this purpose. Meanwhile, other researchers advocate for the development of innovative and unconventional training tools.

It can also be noted that many movements in wrestling are inherently characterized by speed-strength properties. For this reason, the author believes that the development of these qualities should be carried out in close connection with the improvement of wrestling techniques. To this end, the author recommends the use of specialized training tools.

RESULTS AND DISCUSSION

Based on the above considerations and the necessity to intensify the performance of wrestlers during matches, it is crucial to adopt a more rigorous approach to the development of athletes'

physical qualities. Authors such as B. Ribalko, V.I. Rudnitsky, A.D. Egizarov, V.V. Moroz, and others emphasize that the main criterion for selecting speed-strength training tools should be the alignment of the key external and internal structural parameters of exercises with technical movements.

According to N.M. Galkovsky and A.Z. Katulin [1], the most effective tools for developing wrestlers' speed-strength qualities are core exercises and matches themselves. The authors also recommend using specialized exercises that closely mimic the characteristics of muscular tensions exhibited in wrestling.

A.P. Kupsov points out that it is incorrect to rely solely on specialized exercises, as many general developmental exercises serve as a foundation and contribute to the development of specialized physical qualities, including speed-strength abilities. Among these, the author includes running, jumping exercises, and activities derived from other sports. Importantly, all general developmental exercises should be performed in a manner that aligns with speed-strength principles.

G.C. Tumanyan, in the textbook "Sports Wrestling," highlights that the methodology of speed-strength training should be guided by three key aspects of human movement physiology:

- The level and specificity of intermuscular coordination;
- The level and specificity of intramuscular coordination;
- The reactivity of the muscles.

Considering these factors, core exercises should include both specialized and weighted exercises.

Athletes’ skills are often improved by performing large volumes of workload, without considering the specific characteristics of the applied tools, as noted by V.G. Ivlev [2]. According to the author, the most effective tool for developing strength and speed-strength qualities is the technical movement itself. Additionally, the use of "strength-oriented" methods and exercises performed on training machines is recommended.

Yu.M. Zakaryaev [3] emphasizes that the development and enhancement of movement qualities in wrestlers is one of the essential conditions for achieving high performance. The effectiveness of teaching technical-tactical actions largely depends on the level of their development. Moreover, when performing speed-strength exercises, an optimal work intensity (in terms of heart rate) is determined, which ranges between 150–160 beats per minute.

To develop explosive strength in athletes, V.R. Martyanov and V.G. Ivlev recommend the method of "electrostimulation training." Based on their research, they concluded that for training athletes with low and medium skill levels, it is advisable to use commonly accepted tools and training machines. For highly skilled athletes, it is recommended to perform specialized exercises with weights while employing additional external stimuli. Under such conditions, the growth of speed-strength qualities is significantly higher compared to regular training.

Research conducted by V.G. Olenik and co-authors has shown that the physical preparation structure varies depending on the athlete's individual style and their use of technical-tactical tools during matches. "Playmaker" wrestlers exhibit a high level of speed-strength readiness.

"Speed-focused" wrestlers, despite having average indicators in strength and speed-strength training, achieve higher scores in general and specific endurance evaluations compared to other groups.

The study also revealed that during the competition phase of the preparation period, wrestlers must extensively use strength training tools to achieve peak speed-strength readiness. However, in the direct preparation phase, various tools should be used to develop speed capabilities, as the ability to produce significant muscle tension in the shortest possible time is more critical in wrestling than possessing a high level of absolute muscle strength.

According to the research of P.G. Tereshenko and A.A. Ishmuhamedov [4], training conducted in moderate mountainous conditions can serve as a factor for improving specialized, including speed-strength, readiness.

A.A. Petrunyov's findings indicate that the introduction of new rules has led to an increase in the intensity of matches during competitions. This necessitates the demonstration of both absolute and explosive strength by athletes. Therefore, a more serious approach is required to develop these qualities. The author recommends selecting tools based on the external and internal structural alignment of exercises with specific technical movements.

The selection and rational application of effective tools and methods for improving speed-strength qualities must be addressed in dedicated experimental research. Significant contributions in this area include the works of B.M. Ribalko, V.I. Zakaryaev [3], V.V. Moroz, Yu.I. Chuyko, and V.S. Dakhnovskiy [5].

In the experimental work of B.M. Ribalko, it has been demonstrated that the targeted application of tools, rather than their mere use, is of paramount importance. Investigating the functional topography of the neuromuscular system to determine the muscle groups receiving the primary load during specialized exercises provided the author with objective conditions for setting tasks related to wrestlers' strength and speed-strength training.

During the research, the author proved that a differentiated and targeted impact on the strength and speed-strength qualities of specific muscle groups improves the reliability and effectiveness of technical movements performed by the wrestler. Consequently, speed-strength training of athletes depends on the appropriate selection of exercises that ensure the primary improvement of the strength potential of certain muscle groups and their ability to express this potential in a short amount of time.

For this purpose, the author recommends performing specialized exercises with a suspended mannequin, where the development of speed-strength qualities occurs within the framework of core sports skills. This reflects the principle of "combined influence."

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A.A. Petrunyov observed that the introduction of new competition rules increased match intensity, requiring athletes to exhibit absolute and explosive strength. Consequently, it is necessary to adopt a more serious approach to developing these qualities. He recommends selecting tools based on the structural and functional alignment of exercises with key technical movements.

The author also describes the use of a variety of exercises with weights aimed at selectively targeting specific muscle groups. The main methodological condition of these exercises is their structural and functional similarity to the dominant elements of the competitive style.

According to V.I. Rudnitsky's dissertation, "explosive" strength is crucial in sports wrestling and should be developed considering the dynamic structural characteristics of techniques. In addition to developing specialized speed-strength capabilities, there is a need to enhance the ability to demonstrate these capabilities in specific movements. The main criterion for selecting exercises should be their structural similarity to the core technical movements of wrestling based on the characteristics of neuromuscular tension. The author recommends various exercises, such as weighted exercises and jumping drills, to develop explosive strength.

S.F. Ionov [6] found a strong correlation between the technical preparedness of sambo wrestlers and their specialized speed-strength readiness, highlighting the importance of these motor qualities. The author suggests using specialized exercises with speed-strength characteristics and similar to primary movements in terms of muscle activity modes to improve wrestlers' technical-tactical efficiency.

A.D. Yegizaryan [7] revealed that speed-strength qualities and the strength readiness of specific muscle groups are essential for improving attacking movements across wrestlers of different age groups, even though his study focused on high-level wrestlers in classical styles. To develop these capabilities, the author recommends using specialized machines with different weights and has developed a set of specialized speed-strength exercises.

V.V. Moroz's experimental work focused on instrumental methods for monitoring and optimizing the biomechanics of movements during the development of specialized speed-strength qualities. Studying speed-strength capabilities during machine-assisted exercises allowed him to identify their manifestation characteristics based on the athlete's weight. Based on this, the researcher emphasized the need for an individualized approach to evaluating these qualities when planning their development and selecting tools and methods to facilitate their realization. Moroz recommends using special machines with measurement tools and tailored exercise programs for this purpose.

Yu.I. Chuyko discovered that the level of physical qualities, including speed-strength, among wrestlers is closely related to the genetic structure of muscle fibers. Accordingly, the author categorizes wrestlers into three types:

a) those with high endurance but lower speed-strength qualities;

b) those with high speed-strength qualities but relatively low endurance;

c) "universal" types.

When planning long-term preparation, it is essential to consider an athlete's individual predisposition to developing motor qualities. Training should prioritize enhancing the athlete's leading physical qualities. To increase wrestlers' speed-strength levels, specialized exercises performed using the "circular" method are proposed.

In the experiments of K.T. Dunaev [8], the factorial structure of physical preparation in high-performance athletes was identified. Indicators representing the speed-strength qualities of wrestlers were found to be dominant. Therefore, increasing the volume of speed-strength-

oriented exercises by 15% compared to the total volume of specific physical training tools significantly enhances the level of physical preparation in athletes. According to the author, specific exercises, as well as complexes of selectively targeted exercises (such as exercises with weights performed during circuit training, exercises with elastic bands, the "power" method, and various other tools), are effective means of developing speed-strength qualities.

Thus, an analysis of scientific-methodological literature shows that the issue of developing speed-strength qualities in athletes has become the subject of numerous studies. Most of them emphasize that achieving high results in several sports, including wrestling, depends on the development level of an athlete's speed-strength qualities.

Based on the literature review, it can be confirmed that the training process helps to improve the speed-strength preparation of athletes. The manifestation of speed-strength qualities, however, is specific to each sport. Therefore, speed-strength training must be more targeted.

From the literature analysis, it is evident that a variety of general and specific training exercises are used to develop speed-strength qualities.

Numerous studies have been dedicated to the use of various training tools in sports preparation. It has been determined that the level of speed-strength preparation in athletes significantly increases after performing fundamental exercises at maximum speed. The most effective means of developing this quality are specific exercises that closely resemble the primary movements of the chosen sport in terms of the structure and characteristics of neuromuscular tension.

Currently, unconventional tools for developing speed-strength qualities in athletes are also widely applied in pedagogical practice. These include various training devices and equipment, moderate-altitude conditions, and methods involving electrical stimulation.

Conclusion

It is essential to consider the selective involvement of muscle activity during speed-strength-oriented training, as evenly distributed loads across all muscle groups may not effectively contribute to the physical development of highly skilled athletes. This is because their level of preparedness tends to be already stable. The question arises: What needs to be done to enhance the speed-strength potential of high-performance athletes? This issue remains one of the main tasks for every athlete and coach striving for top results.

While analyzing practical approaches to the planning of speed-strength tools in wrestling, we identified a critical observation: during a weekly microcycle, traditional usage of small-volume speed-strength exercises remains limited to two or three sessions after mat training. Such a distribution of workload helps maintain a specific level of speed-strength qualities but, in our opinion, this approach should only be applied in reduced volumes during the transitional or recovery periods of the annual cycle. This volume is inadequate for the key stages of the competitive period, as moderate development of speed-strength qualities cannot ensure high results or exceptional levels of technical preparation.

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