Methodology for improving speed and strength endurance of qualified taekwondo athletes at the stage of improving their sports skills

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Abstract

Objective of the study is to theoretically substantiate the methodology for improving speed and strength endurance in qualified taekwondo athletes at the stage of improving their sports skills.

Methods and structure of the study. To substantiate the methodology, a pedagogical experiment was conducted on the basis of the Volga Region State University of Physical Culture with qualified taekwondo athletes. An experimental group (n=10) and a control group (n=10) were created for the experimental work. We used the following research methods: analysis of scientific and methodological literature; pedagogical testing; pedagogical experiment; mathematical and statistical methods.

Results and conclusions. A method of developing the speed and strength endurance of qualified taekwondo practitioners was developed, which was included in the content of the main part of the training session. The methodology includes the following principles: gradualness; individual approach; compliance with the means and methods of training; compliance with the FSSP for the sport "taekwondo". Classes according to the experimental method were held for 20 weeks, 2 times a week. In total, 40 classes were held, where the methodology was given 30 minutes. The main means were: special-preparatory exercises, exercises on special equipment, working in pairs on equipment with a partner in full ammunition, competitive fights.

Keywords: *technique, speed and strength endurance, qualified taekwondo athletes, competitive fights, special preparatory exercises, exercises on special equipment.*

Introduction. The issue of special physical training of taekwondo athletes is becoming particularly relevant, as it is necessary to develop specialized physical qualities necessary for effective performance of competitive exercises. Modern requirements for the physical fitness of taekwondo athletes, among which speed and strength qualities play an important role, are becoming increasingly high [2].

The process of training in taekwondo is complicated by the need to combine the striking technique of hands and feet with the development of different types of endurance, which emphasizes the importance of this topic. An analysis of the scientific validity of the topic under study allowed us to conclude that few researchers have devoted their work to the problem of studying the features of the development of speed and strength endurance in taekwondo athletes [1, 3]. Thus, generalizing the experience of leading specialists and coaches, as well as developing scientifically based training methods for the development of special endurance, becomes extremely relevant.

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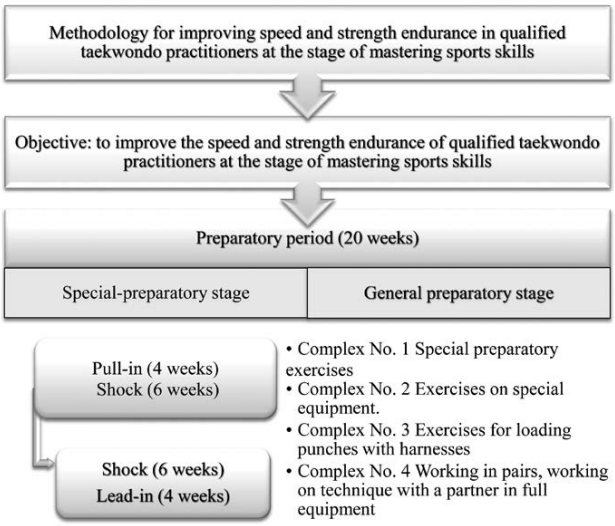
Results of the study and discussion. We have developed a technique for improving speed and strength endurance of qualified taekwondo athletes at the stage of improving their sports skills, which was introduced into special physical training for 6 months.



The method included 4 sets of exercises of different orientation, which were used 2 times in a weekly microcycle, in the main part of the lesson. An example of the selection of exercises for microcycles is presented in Table 1.

Our method included 2 stages of preparation: general- preparatory and special-preparatory, which consisted of 4 mesocycles, and those, in turn, of microcycles.

Retracting microcycle is aimed at bringing the athlete's body to intense training work and is characterized by a low total load. In this microcycle, we used the repeated method, repeatedly performing exercises at rest intervals, during which a fairly complete recovery of performance occurs.

The shock microcycle is characterized by high loads, a large total amount of work, the main task is to stimulate adaptive processes in the body of athletes, solving the main tasks of physical, special and integral training. In this microcycle, we used a variable method, characterized by a consistent variation of the load during continuous exercise, by directional changes in the speed of movement, tempo, duration of rhythm, amplitude of movements, the amount of effort, changing the technique of movements.

The lead-up microcycle was built according to the rules of direct lead - up to competitions and, in general, was characterized by a low level of volume and total intensity.

Table 2 shows sets of exercises with different directions: special-preparatory exercises, exercises on special equipment, work in pairs, work on equipment with a partner in full ammunition, competitive fights.

Table 1. Planning of mesocycles for the development of speed and strength endurance of qualified taekwondo athletes

Mesocycle	Microcycle week	Name of complexes	Intensity, %
General training stage			
Retractor (4 weeks)	Retractor	Complex No. 1 Special-preparatory exercises	60-70
		Complex No. 2 Exercises on special projectiles.	60-70
Basic development course (6 weeks)	Shock	Complex No. 3 Exercise of blows with harnesses	65-75
		Complex No. 4 Work in pairs work on equipment with a partner in full ammunition.	80-90
Special-preparatory stage			
Basic stabilizing (6 weeks)	Shock	Complex No. 3 Exercise of blows with harnesses	70-80
		Complex No. 4 Work in pairs work on equipment with a partner in full ammunition.	70-80
		Complex No. 1 Special-preparatory exercises	70-80
Pre-competition (4 weeks)	Shock	Complex No. 2 Exercises on special projectiles.	80-90
		Complex No. 4 Work in pairs work on equipment with a partner in full ammunition.	80-90
	Feeding	Complex No. 1 Special-preparatory exercises	80-90

Table 2. Sets of exercises with different directions

Group of exercises	Means	Intensity	Average heart rate in 1min	Intensity %	Durationof work	Rest time between repetitions
Special-preparatory	Simulated exercises With weights (2-3 kg)	Average pace	150-155 155	60	2 rounds of 2 min	2min
	Shadow fight (dumbbells 1 kg)	High tempo	160 -169 169	70	2rounds of 2 min	1.5min
	Skipping corope	High tempo	160 -169 169	70	2 rounds of 2min each	2 min 1.5min
	Shadow fight	High tempo	160 -169 169	75	2rounds of 2 min	2min
Exercises on Special projectile exercises	Hit «neryu-chaga» kick with the right foot in the middle and upper level of the bulk pear, the exercise is performed with maximum speed and accuracy of impact.	Medium even pace, with short-term ac-celerations	of 150-159 159	60	2 rounds of 4 min	2min
	Hit «neryu-chaga» with the right and left foot alternately on a loose pear, at an average level.	High tempowith accelerations	of 160 -169 169	70	2 rounds of 2.5 min	1.5min
	Jump over the barrier to the left with a «doli-chaga» right foot on a loose pear in the upper level, jump to the right with a «doli-chaga» left foot on a loose pear in the middle level	High tempowith accelerations	of 170-179 179	80	2 rounds of 2.5 min	1.5min
	Step forward with a «doli-cha-ga» kick with the far foot on a loose pear on the upper level, step back with a «doli-chaga» kick with the near foot on a loose pear on the middle level.	Medium pace withaccelera-tions	170 -179 179	80	2 rounds of 2.5 min	1.5min
	Doli-chaga punches on a loose pear at the middle level with the right and left feet alternately moving forward (to attack) 10 punches, without rest with mov-ing back (to counterattack)	High tempowith accelerations	180 -189 189	85	2 rounds of 2min	1min
Exercises in pairs on equipment in full gear	Work in pairs work on equip-ment with a partner in full gear	Medium tempo	160 -169	70	2 rounds of 3 min	1.5
	Work in pairs work on equip-ment with a partner in full gear	High tempo with accelerations(strong partner)	170 -179	80	2 rounds of 2.5 min	1.5min
	Training match	Medium pace, group method (weak partner)	170 -179	80	2 rounds of 2.5 min	1.5min
	Training match	High tempo, (strongpartner)	180-189	95	2 rounds of 2.5 min 2.5 min	1.5min
	Competitive fights	Medium and high tempo	180 -200	100	2 rounds of 2 min	1 min

Conclusions. Thus, in the developed methodology for the development of speed and strength endurance of taekwondo athletes, the main means were: simulation exercises with weights, special preparatory exercises, work on special equipment, competitive fights. When developing endurance, specific development methods were: circular, interval (when performing all training tasks, time for rest was necessarily planned), competitive.

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