



Efficiency of an Experimental Program for Young Volleyball Players under Field Conditions

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Abstract

The development of modern volleyball, the high levels of performance and the analysis of the game efficiency of the best volleyball players in the world requires constant improvement of motor skills, sports technique and all the factors associated with sports results.

An important place in the system that controls the effects of training in volleyball belongs to the means of special strength training of the players.

The variety of motor action in volleyball and a complex manifestation of physical qualities such as strength, speed, endurance, flexibility and agility are putting a question to the attention of the coaches: what training resources are to be used in the course of physical preparation?

The objective of this study was to verify the effectiveness of an experimental field program (volleyball court) to improve the level of speed-strength training of young female volleyball player in the age period of 17 to 19 years.

Under the influence of specialized training with the means proposed in the program developed by us on field conditions, during the study period there were significant positive changes in the level of development of almost all observed signs of the speed-strength preparedness in the volleyball players from the experimental group.

Keywords: volleyball, physical preparation, speed-force qualities, student;

1. Introduction

Physical training. This is the most important way to improve quality in the formation of young volleyball players, this is the base for training and perfecting the technique and tactics of the game. Therefore, increasing the level of physical training of young athletes is one of the main tasks which stand in front of the coaches.

An important place in the system which governs the influences in volleyball practice belongs to the special power preparation of players. On the first place they need to ensure the formation of such a structure of the physical preparedness of the athlete, which would fulfil the specificity of internal response of his organism, and secondly, they are required to make in their own way match the influences with the regime of action of the competitor through specialized exercises [1,7,11,14,16].

The process of strength training in the modern volleyball is geared towards developing different power characteristics, enhancing the activity of muscle mass, strengthening the connective and bone tissue, improving the figure [2,3,4, 5,6,9]. In parallel with power development, prerequisites are created for increasing the level of different speed qualities, jumping capacities, flexibility, coordination capabilities of competitors. An important part of strength training is the increasing of volleyball player capacities for realization of power quality in terms of training and racing activity, as well as the optimal interconnection of power with the technique of the game [10,12,13,15,17,18].

Reaching for high sport achievements are largely depending on improved methods of physical training.

The objective of this study was to verify the effectiveness of an experimental training program for the development of high speed - force characteristics of 17-19-years old female volleyball players in field conditions (on the volleyball court). An important point in its implementation is the development of special motor skills with specific means of the volleyball game.

2. Methodology

The object of the study is the high speed - force power preparation of the 17-19 -year-old female volleyball players.

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The contingent submitted to this study were 24 female volleyball players from the teams of University of national and world economy and Lokomotiv (Sf).

Aiming for the realization of stated purpose and the objectives of the research, the following methods have been applied: surveillance study and theoretical analysis of specialized literature, a sports – pedagogic testing, a sports - pedagogical experiment. The training program is developed under field conditions (on volleyball court) for the development of speed-strength qualities of the 17-19-year-old female volleyball players.

During sports-pedagogical testing, the competitors from the experimental group are submitted to the impact of specific training means for developing speed-strength qualities, included in the elaborated experimental training program.

In order to track the effect of the training program, a sports-pedagogical testing was carried out at the beginning and the end of the period, both for the volleyball players from the experimental, and those from the control groups based on 12 specific signs for work ability.

3. Analysis Results

The experimental program was developed on the basis of a comparative analysis, which allows to reveal the peculiarities of physical development and speed-strength preparedness of young volleyball players in the age period 17-19.

In order to demonstrate the effectiveness of the field program applied, a comparative analysis is carried out from the results of participants in the experiment groups (experimental and control). For this purpose, the reference was applied to the t-criterion of Student (for independent samples).

The results of the variation data processing of the test held at the beginning of this experimental programme for sport-pedagogical testing are presented on **table. 1**.

Table 1.

Average values and variation of signs of speed-force preparation in the beginning of the field-programme – experimental group

№	Indices / Parameters	X	S	V	min	max
1.	Dynamometry – strong hand	34,46	4,41	12,80	26	40
2.	Dynamometry – weak hand	31,47	4,17	13,26	25	38
3.	Solid ball catch – strong hand	5,59	0,52	9,38	4,3	6,1
4.	Solid ball catch – weak hand	5,04	0,39	7,82	4,1	5,7
5.	Solid ball catch – two hands	8,71	0,69	7,87	6,8	9,65
6.	Volleyball ball – striking hand	9,20	0,52	5,62	8,3	10,45
7.	Abdominal presses	27,00	3,59	13,31	21	34
8.	Standing position vertical jump	42,43	4,11	9,68	33	49
9.	Vertical jump after gaining strength	46,14	4,15	8,99	36	52
10.	Standing position long jump	1,97	0,16	8,06	1,6	2,21
11.	Long jump (triple)	5,92	0,34	5,76	5,2	6,55
12.	Squatting to give up	73,57	8,27	11,24	55	85

As a result of the training work realized in the limits of the second experimental program (conventionally called "field") some changes happen in the level of development of the signs of speed-strength preparedness. To check the effectiveness of this program at the end of the period, a sports-pedagogical testing was conducted, results of which are presented in the **table. 2**.



Table 2.

*Average values and variation of signs of **speed-force preparation** in the **end** of the field-programme – **experimental** group*

№	Indices / Parameters	X	S	V	min	max
1.	Dynamometry – strong hand	35,66	4,21	11,80	27,5	41
2.	Dynamometry – weak hand	32,51	4,66	14,33	26	40
3.	Solid ball catch – strong hand	5,88	0,43	7,30	5,05	6,4
4.	Solid ball catch – weak hand	5,42	0,33	6,05	4,9	5,9
5.	Solid ball catch – two hands	9,04	0,62	6,81	7,05	9,7
6.	Volleyball ball – striking hand	9,61	0,55	5,74	8,8	11
7.	Abdominal presses	29,64	3,88	13,07	24	37
8.	Standing position vertical jump	46,43	4,48	9,66	36	54
9.	Vertical jump after gaining strength	50,57	4,75	9,39	41	60
10.	Standing position long jump	2,05	0,13	6,32	1,75	2,26
11.	Long jump (triple)	6,11	0,31	5,05	5,45	6,68
12.	Squatting to give up	76,79	6,80	8,85	61	86

As one can see from the table, the achievements reported here also, at the end of the experimental period, are higher than at the beginning of the period. The existence of differences between the average values of the indicators, however, is no reason to make any serious conclusions on the effectiveness of the experimental methodology, prior to verify the authenticity of these differences.

For the purposes of the survey, at the end of the experimental period, a comparison was also made between the results of the experimental group and those of the control group (table 3).

Table 3.

*Average values and variation of signs of **speed-force preparation** in the **end** of the field-programme – **control** group*

№	Indices / Parameters	X	S	V	min	max
1.	Dynamometry – strong hand	35,09	4,34	12,37	32	46,2
2.	Dynamometry – weak hand	32,10	4,22	13,15	27,7	43
3.	Solid ball catch – strong hand	5,44	0,51	9,37	4,85	6,5
4.	Solid ball catch – weak hand	4,87	0,59	12,04	4	5,9
5.	Solid ball catch – two hands	8,62	0,92	10,62	7,15	10
6.	Volleyball ball – striking hand	9,26	0,69	7,42	7,95	10,5
7.	Abdominal presses	30,50	3,06	10,05	27	37
8.	Standing position vertical jump	38,60	5,44	14,09	29	47
9.	Vertical jump after gaining strength	42,30	4,83	11,42	33	49
10.	Standing position long jump	2,06	0,14	6,72	1,8	2,25
11.	Long jump (triple)	6,44	0,46	7,14	5,9	7,25
12.	Squatting to give up	53,80	6,53	12,13	43	65

The analysis shows that the experimental group that was subject to the impact of the experimental program for the development of specific speed-strength qualities, the athletes included in it, in comparison with those of the control group had reached significantly higher level of development on the following signs: speed-strength endurance of the lower limbs; a blast force of the lower limbs on vertical muscle effort; power of upper limbs (both strong and weak) in the muscular effort in the horizontal plane and optimal resistance



4. Conclusions

Under the influence of the training works with the means proposed in a field program prepared by us, during the period of the study some significant positive changes occur at the level of development of almost all observed signs of speed-power preparedness of the experimental group. The analysis made proves the necessity of adjustments in the experimental program towards an increase in the volume of training works, aimed at the development of those signs, in which at the end of the period one can note lagging behind or insignificant advantage of the experimental group, compared to control one.

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