

THE POSITIVE EFFECT OF BEACH VOLLEYBALL ON THE PHYSICAL DEVELOPMENT OF STUDENTS – VOLLEYBALL PLAYERS

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ABSTRACT. The changes in the levels of the basic physical qualities, following beach volleyball training, are studied. Nine specialized volleyball tests and two anthropometric tests were used – reaching high authenticity statistic results. It was proven that beach volleyball actively affects speed and speed-power qualities of the students, and the circuit training used is highly effective.

Keywords: students, beach volleyball, tests

ПОЛОЖИТЕЛНИЯТ ЕФЕКТ ОТ ПЛАЖНИЯ ВОЛЕЙБОЛ ВЪРХУ ФИЗИЧЕСКОТО РАЗВИТИЕ НА СТУДЕНТИТЕ - ВОЛЕЙБОЛИСТИ

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РЕЗЮМЕ. Изследвани са промените в нивото на основните физически качества, вследствие тренировка по плажен волейбол. Използвани са 9 специализирани волейболни теста и два антропометрични, при висока статистическа достоверност. Доказва се, че плажният волейбол въздейства особено активно на скоростните и скоростно-силовите качества на студентите, а използваната кръгова тренировка е с голяма ефективност.

Ключови думи: студенти, плажен волейбол, тестове

Introduction

Beach volleyball is a relatively new sport in the country, although Bulgaria can boast of some women participants in the Olympic Games.

The court surface to play on, sand, requires additional efforts on the part of the players, who have difficulty moving along the court; additional efforts in pushing back, net jumping or initial serving. High motor efficiency is possible due to the physical qualities being developed to a higher level as compared to indoor volleyball players [2, 3, 5, 4].

The game is played on a court which is 16/8 m. in size and the height of the net for men is 243 cm. The players are two in number, with no right to backups and substitutions during the game. It is played in two of three sets which end when the score reaches 21 points, with a difference of two points from the opposing team. In the third set the game is played up to 15 points, with two points difference too. Teams switch court ends and serving every seven points (every five points in the third set). Three touches of the ball are allowed, plus the first touch after the block [1, 6].

The first references to beach volleyball being played date back to the '20s of the past century and the first tournament in beach volleyball was held in 1947 in Santa Monica (USA). The sport was late to come to Europe (in 1960) and a professional

volleyball association (WPVA) was founded in 1986. In 1996 the sport was accepted in the family of the Olympic Games in Atlanta (USA). There is a Bulgarian National Commission for Beach Volleyball in the country and the first Balkan tournaments for youths and men were held in 2002 in the town of *Bansko*.

The new conditions (outdoor competitions and effect of the environment) as well as the demands on the physical qualities have led us to study the effect of beach volleyball on the level of the UMG students' physical performance.

The **OBJECTIVE** of the study is to identify the changes caused at the level of some physical qualities in case of systematic exercise of this sport.

The **SUBJECT** of the study are the changes at the level of the students' physical qualities while the **OBJECT** is the activity of the students – volleyball players.

Organization of the study

Two groups of beach volleyball competitors were formed by us in 2016 from among the students training in that sport at UMG, Sofia. The groups were made up of 4 players each, so we had in fact four teams available. The training sessions were held twice a week on the courts of the University. The experiment continued for three months, with a total of 24 training sessions conducted.

The training sessions of the experimental group (EG) were carried out according to a developed training program, which included circuit running workout – “snake”, hops, jumping hurdles, spiking and receiving the ball, overhead serve, digs, vertical hops, sprints at 10 m., lateral runs at 5 m to left and right, as well as shuttle runs at 64 g, two times “shuttle” of the playground from line to line, return etc. These exercises were arranged in the form of “stations” and they were repeated 2 – 3 times as decided by the coach. The control group (CG) was trained for separate development of physical and technical skills. One training was focused on speed, agility and technique, another one – on stamina, speed, strength and flexibility. The workouts alternated one after another.

Results and analysis

At the beginning and the end of the study we carried out tests of the eight players, using the control indicators shown on Table 1.

The results obtained were processed with the help of the variation analysis.

As expected, the two anthropometric indicators for height and weight did not change substantially. Weight in the EG even increased by 0,200 kg.

In both groups we found improvement in the three indicators for speed (No.3, 4 and 5). Most affected were the indicators of specific nature (No.4 and No. 5) where the changes were almost twice higher than in the CG.

Regarding the indicator for special stamina the result of the EG in the “figure of eight” between two cones placed 4 meters apart, in which eight laps are made of a total length of 32 m., was better by 0.4 sec. than in the CG, or the improvement in the first one was 8.04% and that in the second one – 3.37%.

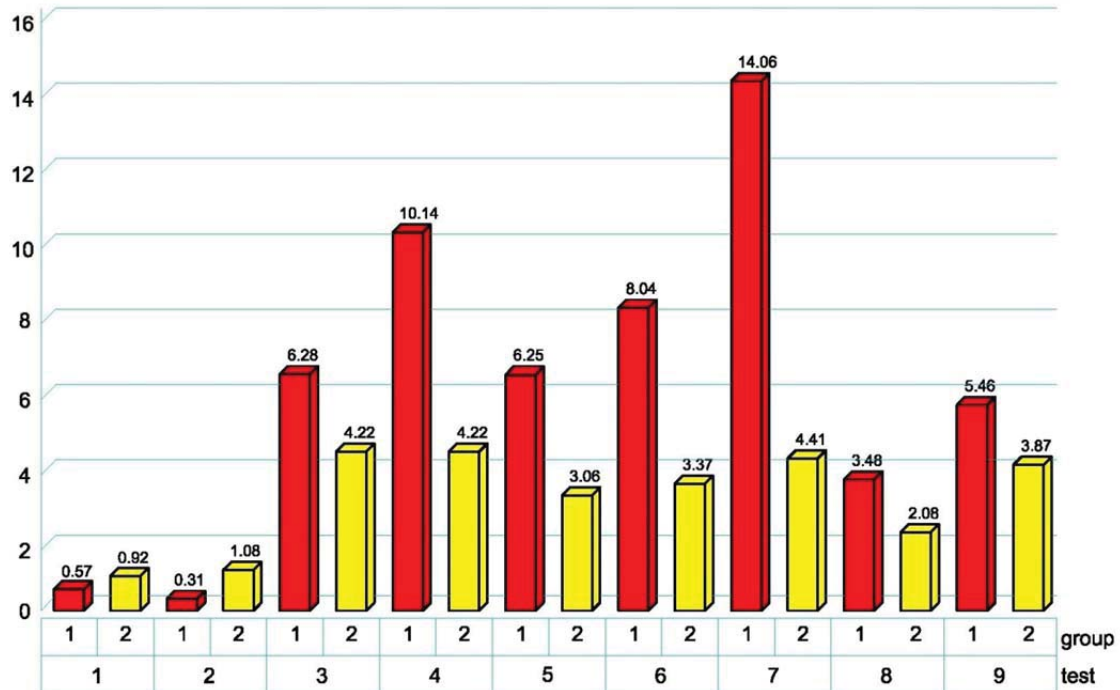
In the only test to measure the strength of forearm grip and muscles the “hand dynamometer” showed significant change in EG (by 3.5 kg), or 14.11%. Positive growth was also found in CG – by 1.1 kg, i.e. 4.1% in relative values. That was most probably the effect of the workouts for strength used in the EG with the help of weights for both arms and legs.

The bounce measured with the help of a standing long jump with arms swinging improved by 8.3 cm in EG and 1.1 in CG. That was definitely influenced by the different jump workouts included in the circuit plan of EG and their increased total volume.

Note: The test names are shown on Table 1

Table 1
Changes in the control indicators in the two groups of beach volleyball students

№	Control indicators	1 st group										2 nd group									
		Beginning					End					Beginning					End				
		Min	Max	X	s	v	Min	Max	X	s	v	Min	Max	X	s	v	Min	Max	X	s	v
1.	Height (cm)	158	179	173.1	3.2	1,84	158	180	174,1	3,5	2,01	159	180	173,6	3	1,72	159	180	160	180	175,2
2.	Weight (kg)	54,2	72,7	63,6	1,8	2,83	54,9	72,9	63,8	5,8	9,09	55	73,7	64,3	2	3,14	55	73,7	53,7	74,6	63,6
3.	20 m high start (sec.)	3,77	4,19	3,66	0,3	8,19	3,81	4,1	3,43	0,2	5,83	3,82	4,21	3,79	0,4	10,55	3,82	4,21	3,88	4,33	3,63
4.	Defensive basketball movement (sec.) - sideways	12	16,6	13,8	2,2	15,9	11,9	16,4	12,4	0,9	7,25	12,6	17,4	14,2	2,1	14,8	12,6	17,4	12,1	17,1	13,6
5.	Special volleyball test with sideways movement front-to-back (in sand)	8,8	10,2	9,6	0,9	9,37	8,3	9,6	9	1,2	13,3	9	10,1	9,8	0,8	8,16	9	10,1	8,7	9,7	9,5
6.	„8-figure“ movement in sand (sec.)	9,1	11,6	8,7	0,6	6,89	8,8	10,7	8	0,5	6,25	9	11,8	8,9	0,5	5,61	9	11,8	9,6	10,9	8,6
7.	Forearm strength (kg)	21,4	26,9	24,8	1,1	4,43	22,8	30,7	28,3	0,9	3,18	22,3	26,7	24,9	1,2	4,82	22,3	26,7	25,3	31,6	26
8.	Long jump, standing start (cm)	210	243	238,4	7,8	3,27	214	251	246,7	8,1	3,34	212	245	239,3	7,1	2,97	212	245	216	244,3	240,4
9.	Agility test (running, weaving, jumping, slalom, receiving and passing a ball) (sec.)	35,8	40,6	38,4	1,09	2,83	33,7	39,1	36,3	2,5	6,88	36,1	40,9	38,7	1,1	2,84	35	38,2	37,2	2,2	5,91



Note: Test names are shown in Table 1

Figure 1 - Relative growth of indicators in the two groups of volleyball players

The specialized test for agility (No.9) in which different exercises are done (See Table 1, p. 9) showed that the differences between the two groups were minimal (0.6 sec.).

The relative changes in the indicators (in %) in the two groups of students are presented on Fig.1. The advantage of EG, trained in accordance with a previously developed training program including complex development of the physical and technical qualities of the volleyball players, is clearly visible. The height test with a negative sign in EG due to reduced body weight in the second test, is an exception. The highest increase is that of forearm strength of the convenient hand (14.06%) and defensive/side "basketball" movement – 10.14%. In all other tests EG has a pronounced advantage in the indicators.

Conclusions

1. Practicing beach volleyball as a means to improve the students' physical condition proves to be sufficiently effective and it can be used successfully to develop the motor skills of the volleyball players.

2. The indicators standing for speed and strength qualities show highest increase in the EG. - to 10.14% and 14.11% respectively.
3. When carried out in accordance with the interval-repetition method, the efficiency of circuit workout including exercises for speed, strength and stamina proves to be significantly higher.

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