

THE PHYSICAL SKILLS OF BEACH VOLLEYBALL ATHLETES OF PRIMA PRATAMA DIY

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Abstract

This research aims at identifying the physical skills of beach volleyball athletes of Prima Pratama, Daerah Istimewa Yogyakarta. A survey was done as the method of this research while the data were collected through tests and measurements. The populations of the research were beach volleyball athletes of Prima Pratama Daerah Istimewa Yogyakarta which consisted of 10 people (5 male athletes and 5 female athletes). The test item used in this research was physical item test of Prima Pratama. The data of the research were analyzed by using description with percentage.

The result of the research shows that some physical components of Prima Pratama beach volleyball athletes are not sufficient and still need improvements. The physical components that still need to be improved are shown through WBR test or measurement (audio) for male and female athletes, agility test for male and female athletes, leg strength test for male athletes, expanding pull and push test for male and female athletes, sit up test for female athletes, push up test for male and female athletes, balance beam test for male and female athletes, and VO2 Max (MFT) test for male and female athletes.

Key word: physical skills

PREFACE

The attempts to develop sport performance are performed in a long period to reach the peak performance of the athletes. Some training programs are created and used to improve all components needed by athletes with high performance. They are physical, technical, tactical, and mental components. Physical skill is the foundation in the process of developing sport performance. A good and high quality physical fitness contributes to the success of developing sport performance technically, tactically, and mentally.

Sport coaching is developed along with the technology advancement. Exercise tools, measurement tools, sport laboratory, and other supporting tools are essential for developing the sport performance. In DIY, the attempts to develop sport performance get a great contribution from Faculty of Sport Sciences (FIK) UNY in terms of human and natural resources. The athletes of DIY have made encouraging achievements in some multi event championships. In the beach volleyball field, three athletes from DIY enhanced Indonesia's reputation in an international event, SEA GAMES 2011. One female athlete got a silver medal and one male athlete got silver and gold medals. Those three athletes got a sport coaching in a club in DIY since the beginning of their performance.

In building national sport performance, the guidelines in GBHN 1993 state that "in the attempts of developing the sport performance, it needs to perform sport coaching as early as possible through talent searching and coaching, education and sport performance training which are based on science and technology effectively and efficiently and to improve the quality of central and regional sport organizations" (Ditjen Dikti Depdikbud, 1994: 144).

Beach volleyball athletes of Prima Pratama DIY are expected to be able to reach the achievement in national and international arena. The importance of a good physical ability of each athlete should be well understood by the coach. The physical ability of beach volleyball athletes

of Prima Pratama DIY should be prepared at an early age to achieve best in their golden period. A well-prepared program and evaluation should always be performed regularly during the exercise period.

According to Gabbard (1987: 132) an evaluation process is the first step to determine or observe the changes. An evaluation is a process of exercise series which aims to determine the level of progress that has been achieved as a result of the exercise. An evaluation can be done by providing various forms of tests in accordance with their needs, for example, to determine the level of technical skill of an athlete, an engineering skills test can be used, while to determine the level of the physical condition of an athlete, a physical test can be used.

A good physical ability determines the quality and the technical ability of an athlete. Therefore, the preparation of this physical element needs well-planned program and time. A good physical ability influences in the reaching of the maximum achievement. Volleyball is regarded as a quick game, which need maximum performance. It is also regarded as a high-power game; therefore an athlete should have a good physical ability.

The beach volleyball athletes of Prima Pratama DIY are expected to become the young and prominent national athletes. The physical ability needed in volleyball games varies and should have quality to achieve a high performance in volleyball games. Athletes' physical ability have to be perfectly prepared so that after they reach their principal level, they can reach their peak performances.

That description is clear enough and it is needed to attempt to describe the condition of the beach volleyball athletes of Prima Pratama DIY this time. This research attempts to describe the athletes' condition and the steps that should be done. It is also functioned as the evaluation material related to the physical development which has been done up to level of pratama athletes. The lack of physical quality of prima volleyball athletes of Prima Pratama DIY is expected to be found out and refined in order to enter the Prima Utama national athletes.

The definition of physical condition

The physical condition of athletes is portrayed through the quality of all components contributing to the human body so that the body can perform an activity. Volleyball athletes must have good physical condition because of the demands in the volleyball game. A maximum level of the anatomical, physiological and, psychological quality should be reached by athletes in order to achieve maximum performance. Bompá (1994: 49) explains that the physical preparation should be regarded as one of the aspects that must be considered in the exercise to achieve maximum performance. The main purpose of the exercise is to develop the biomotor ability toward the highest levels. It is in line with what Giriwijoyo (1992:17) describes that all forms of human activity always require physical or body support. It means that physical ability is a factor behind every human activity.

The physical condition is one of the important requirements to improve a person's performance as an athlete. It is also functioned as a basic need for getting sport achievement. An athlete cannot reach his pinnacle of achievement if he is not supported by a good physical condition (Suhendro, 1999: 41).

The importance of good physical condition

Sport performance demands the ownership of good physical condition. The needs for good physical conditions among sports are different from each other. In other words, they are specific. Volleyball requires some physical components such as power, reaction speed, agility, flexibility, coordination, and durability.

Pate (1994: 306) mentions some fitness components for volleyball, strength and power, as the most important biomotors. Endurance, cardio respiration, and flexibility are the important biomotors. Biomotor ability is related to the athletes' performance in showing motion techniques. Strength and speed are also needed in volleyball games. The smash

technique requires those two biomotor components which are assembled into one that produces power. If the athlete's strength is great and his speed is high, he can produce big power. A great power is needed when performing the jump smash and when beating the ball. To sustain this work for a long period, it should be supported by good durability. Flexibility and coordination are needed to support the execution of all techniques in volleyball.

These components should be maximized to support the performance and appearance when participating in a volleyball game. Beach volleyball matches are held in sand base out door fields and exposed to the sun. There are two people in one team. The field mastery for a beach volleyball court measuring 8 feet x 8 feet should be owned by those two people. It requires the contribution of good physical condition. Movements performed in the sand require good physical condition. Smashing, blocking, and catching the ball which are performed repeatedly during the game need much energy.

Harsono (1988: 153) explains the benefits of good physical condition. They are listed as follows.

1. There will be an increase in the performance of heart and circulatory system.
2. There will be an increase in strength, flexibility, stamina, speed and other physical components.
3. There will be a better economy of movement during an exercise.
4. There will be a faster recovery of body organs after an exercise.
5. There will be a quick response from the body organs at any time if a response is required.

Prima Pratama test items

This research uses some complex tests and measurements to identify the athletes' condition. They are performed by using Prima Pratama's test form. It is a test which refers to the Ministry of Youth and

Sports to prepare the candidates of main national athletes. Some of the test and measurement items are:

1. Height and weight

Volleyball athletes desperately need ideal height and weight, because they have to be able to reach the ball over the net. The tool used to measure the height is a stadiometer, while weight can be measured by the weight scales.

2. Skinfold caliper

The measurement of under-skin fat is performed to find out the athlete's fat status. The measurement is done through biceps skinfold, triceps skinfold, abdominal and subscapular. The tool used for measuring the fat in those four points is a skinfold caliper.

3. WBR (visual)

The reaction speed is how fast someone responds to the coming stimuli. WBR (visual) uses a stimulus in the form of light from a light bulb, thus, how fast someone responds to the light is identified. The athletes should respond by jumping out of a stepping rubber box when noticing the light stimulus from the light bulb. The reaction speed is measured in 'seconds' unit.

4. WBR (audio)

The speed of reaction is how fast someone responds to the coming stimuli. WBR (audio) uses stimulus in the form of sound, thus, how fast someone responds to the sound is identified. The athletes should respond by jumping out of a stepping rubber box when hearing the sound stimulus. The speed reaction is measured in 'seconds' unit.

5. Agility (site step)

Agility is measured by using a site step test. The measurement unit of this test is in seconds.

6. Flexibility

A flexibility test is performed to identify the torso flexibility. The tool used is a sit and reach flexibility. The result is measured in centimeters (cm).

7. Vertical jump

The vertical jump test is performed to identify the leg power. The tests are conducted by using a tool named jump DF .The measurement unit is in centimeters (cm).

8. Back strength

The measurement of back muscles strength is performed by using a back strength dynamometer. The measurement unit of this tool is in kg.

9. Leg strength

The measurement of leg muscles strength is performed by using a leg strength dynamometer. The measurement unit of this tool is in kg.

10. Grip strength

A grip strength test is performed to measure the strength of kneading fingers. The measurement unit of this tool is in kg.

11. Expanding (pull dan push)

The measurement through an expanding test aims to identify the strength of the extremitas superior muscles. The measurement unit of this tool is in kg.

12. Sit up (60 seconds)

A sit-up test is performed to identify the maximum strength of the abdominal muscles. This test is measured by counting the number of sit- ups that an athlete can perform in 60 seconds.

13. Push up (60 seconds)

A sit-up test is performed to identify the maximum strength of the shoulder and arm muscles. This test is measured by counting the number of push- ups that an athlete can perform in 60 seconds.

14. Balance beam

The measurement of body balance is performed by a balance beam test.

15. VO 2 Max (MFT)

The measurement of aerobic ability is performed through a Multi Stage Fitness Test (MFT).

Research Methods

This research is a descriptive research that solely aims to determine the state of an object or event without any intention to draw the general conclusions (Sutrisno Hadi, 1978: 3). The data are collected through tests and measurements. The data analysis technique uses description with percentage. The data obtained are described by using tables with frequency and percentage distribution.

$$P = \frac{f}{N} \times 100\%$$

P : Percentage

f : Frequency of the data

N : The number of research subjects

The research populations are beach volleyball athletes of Prima Pratama DIY, which consist of 5 male and 5 female athletes.

FINDINGS AND DISCUSSIONS

The data obtained through tests and measurements were tabulated and analyzed to determine the ability of the beach volleyball athletes of Prima Pratama DIY.

The physical components are divided into some test items. The result of the tests and measurements are as follows:

The discussion about the physical ability of the beach volleyball athletes of Prima Pratama DIY is grouped into two namely male group and female group.

1. Height and Weight

No.	Sex	Category	Frequency	Percentage
1.	Male	Underweight	4	80%
		Obesity	1	20%
2.	Female	Ideal	3	60%
		Underweight	1	20%
		Overweight	1	20%

The male beach volleyball athletes of Prima Pratama do not have ideal weight yet because 80% of them are included into 'underweight' category and 20% into 'obesity' category.

2. Skinfold Caliper

No.	Sex	Category	Frequency	Percentage
1.	Male	Excessive	5	100%
2.	Female	Lacking	5	100%

From the results of the measurements, it can be seen that the condition of the male and female athletes is opposite to each other. 100% of male volleyball athletes have the excessive amount of fat deposit under the skin, while 100% of female athletes have the lacking amount of it. For the male athletes, some fat burning exercises are necessary to decrease the amount of fat under their skin into 'normal' category.

3. WBR (Visual)

No.	Sex	Category	Frequency	Percentage
1.	Male	Good	4	80%
		Poor	1	20%
2.	Female	Good	2	40%

		Enough	3	60%
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Based on the results of the tests to measure the reaction speed after seeing visual stimuli (flashes of light), 80% of the male athletes have good reaction speed and 20% of them have the poor one. 40% of the female athletes are included in 'good' category and 60% of them are included in 'enough' category.

4. WBR (Audio)

No.	Sex	Category	Frequency	Percentage
1.	Male	Enough	2	40%
		Very poor	3	60%
2.	Female	Poor	2	40%
		Very poor	3	60%

Based on the results of the tests to measure the reaction speed after hearing audio stimuli (sounds), 60% of the male athletes have very poor reaction speed and 20% of them have the enough one. 40% of the female athletes are included in 'poor' category and 60% of them are included in 'very poor' category.

5. Agility

No.	Sex	Category	Frequency	Percentage
1.	Male	Very poor	5	100%
2.	Female	Poor	5	100%

Based on the results of the tests to measure agility, 100% of the male athletes have very poor agility while the female athletes have poor agility.

6. Flexibility

No.	Sex	Category	Frequency	Percentage
1.	Male	Very good	5	100%
2.	Female	Very good	5	100%

Based on the results of the tests to measure flexibility, 100% of the male and female athletes have very good flexibility level.

7. Vertical Jump

No.	Sex	Category	Frequency	Percentage
1.	Male	Very good	3	60%
		Good	1	20%
		Enough	1	20%
2.	Female	Very good	3	60%
		Good	1	20%
		Enough	1	20%

Based on the results of the tests to measure vertical jump, 60% of the male and female athletes are in 'very good' category, 20% are in 'good' category, and 20% are in 'enough' category.

8. Back Strength

No.	Sex	Category	Frequency	Percentage
1.	Male	Very poor	1	20%
		Perfect	3	60%
		Enough	1	20%
2.	Female	Very good	3	60%
		Very poor	2	40%

Based on the results of the tests to measure back strength, 60% of the male athletes have 'perfect' category, 20% have 'very poor' category, and 20% have 'enough' category. 60% of the female athletes have 'very good' category and 40% have 'very poor' category.

9. Leg Strength

No.	Sex	Category	Frequency	Percentage
1.	Male	Very good	1	20%
		Good	2	40%
		Enough	2	40%
2.	Female	Perfect	3	60%
		Good	1	20%
		Enough	1	20%

Based on the results of the tests to measure leg strength, 20% of the male athletes have 'very good' category, 40% have 'good' category, and 40% have 'enough' category. 60% of the female athletes have 'perfect' category, 20% have 'good' category, and 20% have 'enough' category.

10. Grip Strength (right hand)

No.	Sex	Category	Frequency	Percentage
1.	Male	Very good	1	20%
		Good	3	60%
		Enough	1	20%
2.	Female	Good	4	80%
		Enough	1	20%

Based on the results of the tests to measure right hand's grip strength, 60% of male athletes have 'good' category, 20% have 'very good' category, and 20% have 'enough' category. 80% of the female athletes have 'good' category and 20% have 'enough' category.

11. Grip strength (left hand)

No.	Sex	Category	Frequency	Percentage
1.	Male	Good	3	60%
		Enough	1	20%
		Poor	1	20%
2.	Female	Good	4	80%
		Enough	1	20%

Based on the results of the tests to measure left hand's grip strength, 60% of male athletes have 'good' category, 20% have 'enough' category, and 20% have 'poor' category. 80% of the female athletes have 'good' category and 20% have 'enough' category.

12. Expanding (Pull)

No.	Sex	Category	Frequency	Percentage
1.	Male	Poor	3	60%
		Very poor	2	40%
2.	Female	Enough	4	80%
		Poor	1	20%

Based on the results of the tests to measure expanding (pull), 60% of the male athletes have 'poor' category and 40% have 'very poor' category. 80% of the female athletes have 'enough' category and 20% have 'poor' category.

13. Expanding (Push)

No.	Sex	Category	Frequency	Percentage
1.	Male	Enough	1	20%
		Poor	1	20%
		Very poor	3	60%
2.	Female	Enough	5	100%

Based on the results of the tests to measure expanding (push), 60% of male athletes have 'very poor' category, 20% have 'poor' category, and 20% have 'enough' category. 100% of the female athletes have 'enough' category.

14. Sit Up

No.	Sex	Category	Frequency	Percentage
1.	Male	Good	4	80%
		Enough	1	20%
2.	Female	Good	1	20%
		Enough	2	40%
		Poor	2	40%

Based on the results of the sit up test, 80% of the male athletes have 'good' category and 20% have 'enough' category. 20% of the female athletes have 'good' category, 40% have 'enough' category, and 40% have 'poor' category.

15. Push Up

No.	Sex	Category	Frequency	Percentage
1.	Male	Enough	1	20%
		Very poor	4	80%
2.	Female	Poor	3	60%
		Very poor	2	40%

Based on the results of the push up test 20% of the male athletes have 'enough' category and 80% have 'very poor' category. 60% of the female athletes have 'poor' category 40% have 'very poor' category.

16. Balance Beam

No.	Sex	Category	Frequency	Percentage
1.	Male	Good	1	20%
		Enough	2	40%
		Poor	2	40%
2.	Female	Poor	1	20%
		Very poor	4	80%

Based on the results of the balance beam test, 20% of the male athletes have 'good' category, 40% have 'enough' category, and 40% have 'poor' category. 80% of the female athletes have 'very poor' category and 20% have 'poor' category.

17. VO 2 Max (MFT)

No.	Sex	Category	Frequency	Percentage
1.	Male	Very poor	5	100%
2.	Female	Enough	1	20%
		Very poor	4	80%

CONCLUSIONS

Based on the research conducted to identify the physical abilities of Prima Pratama DIY beach volleyball athletes, some conclusions can be drawn. Some physical components still need to

be improved. They are shown through the results of measurements and tests, which are included into 'poor' and 'very poor' categories. The low physical condition can be seen from the results which are listed as follows.

1. Height and weight test; male athletes do not have ideal weight yet.
2. WBR (Audio) test for male and female athletes
3. Agility test for male and female athletes
4. Leg strength test for male athletes.
5. Expanding pull and push test for male and female athletes
6. Sit up test for female athletes
7. Push up test for male and female athletes
8. Balance beam test for male and female athletes
9. VO 2 Max (MFT) test for male and female athletes

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