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**Amri Ikhsanul Amal**  
Postgraduate Program,  
Department of Sport Science,  
Universitas Negeri  
Yogyakarta, Jalan Colombo  
No. 1, Karangmalang,  
Yogyakarta, 55281,  
Indonesia

**Pangung Sutapa**  
Postgraduate Program,  
Department of Sport Science,  
Universitas Negeri  
Yogyakarta, Jalan Colombo  
No. 1, Karangmalang,  
Yogyakarta, 55281,  
Indonesia

**Tegar Karunia Ramadhan**  
Department of Physical  
Health and Recreation,  
Universitas Negeri Jendral  
Soedirman Purwokerto Jl.  
Profesor DR. HR Boenjamin  
No.708, Dukuhbandong,  
Grendeng, Kec. Purwokerto  
Utara, Kabupaten Banyumas,  
Jawa Tengah 53122, Indonesia

**Corresponding Author:**  
**Amri Ikhsanul Amal**  
Postgraduate Program,  
Department of Sport Science,  
Universitas Negeri  
Yogyakarta, Jalan Colombo  
No. 1, Karangmalang,  
Yogyakarta, 55281,  
Indonesia

## The relevance of physical conditions to team performance: A case study of PORPROV women's volleyball athletes in Banyumas regency

**Amri Ikhsanul Amal, Pangung Sutapa and Tegar Karunia Ramadhan**

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### Abstract

This descriptive research aims to reveal the physical condition of volleyball female athletes in Banyumas Regency and to examine the physical conditions of athletes such as, components of endurance, explosive power, agility, strength, flexibility, speed, and coordination as well as knowing the relevance of the results of those physical conditions with team performance. 6 athletes were involved in this research as the sample. Data include the results are as follows: 1.) The speed test which got an average result of 30 meters sprint run: 5.37 in perfect category, 2.) The flexibility test which got an average sit and reach: 15.26 in the poor category, 3.) The coordination test which scored the average results of throwing and catching tennis balls: 20.16 in the poor category, 4.) The abdominal strength test (abdominal muscles) which scored the average sit up results: 34.33 in good category, 5.) The upper determinant strength test (arm muscles) got an average push up result: 20.83 in a good category, 6.) The explosive power test which scored an average vertical jump: 37.33 in the poor category, 7.) The agility test which scored an average shuttle run result: 13.71 in very good category, 8.) The endurance test which scored an average run result of 1600 M: 11.15 in the very good category. According to the test results, the physical condition of the women's volleyball PORPROV athletes in Banyumas Regency is quite proficient, but there are still some components of physical condition that resulted poorly such as flexibility, coordination, explosive power and endurance. Four components possessed significant relevance to team performance and techniques in volleyball such as serve, smash, block, and dig, so that they can affect the team's performance in a match.

**Keywords:** Physical condition, female athlete, volleyball. PORPROV, team performance

### Introduction

Sport is one of the fields of national development that is seen to be able to escalate the reputation of the country and the quality of its people. Its quality can be seen on how successful Indonesian athletes can get achievement from various competitions that are competed both on the national and international levels. It is obvious that those achievement cannot be obtained without carefully planned and continuous coaching. Maizan & Umar (2020:12) <sup>[8]</sup> stated that according to RI Law No. 3 of 2005 concerning the National Sports System, in article 4, explains the basis, functions and objectives of sports. Sport aims to maintain and improve health and fitness, achievement, human quality, instill moral values and noble character, sportsmanship, discipline, strengthen and foster national unity and integrity, strengthen national resilience and elevate the dignity and honor of the nation.

According to the quote above, the goals of national sports is clearly explained. In addition to strive for achievements in a sport, it is necessary to carry out collaboration with specific target and to pay attention to all aspects in successfully aiming the goals. Among the sports activities carried out must be extensively programmed, directed and sustainable. As well as applying the application of self-discipline in pursuing a sport.

Sport is a useful daily human activity to form a healthy body and spirit. The development of sports up to now has made a positive and real contribution to improve public health (Fakhi & Barlian, 2019:138) <sup>[5]</sup>. Sport can also function as a medium to become national pride (Lesmana & Broto, 2019:44) <sup>[7]</sup>. Performance sports are sports that foster in developing athletes in a directed, tiered and sustainable manner through tournaments to achieve performance and also support from science and technology. (Setiawan, Sodikoen, & Syahara, 2018:15) <sup>[16]</sup>. Talking about performance in sports, it is not easy to create synergic cooperation between the community, government and sports practitioners (Saputra & Aziz, 2020:47) <sup>[14]</sup>. Performance can also be achieved at various levels, starting from regional, national and international (Mardela & Syukri, 2016:29) <sup>[9]</sup>.

As time goes by, sports also undergoes its development. One of the sports that has developed is volleyball. Of the many sporting achievements that are favored and often organized by the community, and their development from the regional to the national level. Volleyball is a team sport that demands teamwork, and upholds moral values, sportsmanship, and discipline. Volleyball is one of the most popular sports among children, teenagers to parents, both male and female.

nowadays, volleyball is not only a recreational sport but is also included in a sport that is expected by many people to be able to strive achievements like other sports that have excelled both in the national and international arenas. Through structured coaching from regional to national level, it is hoped that it can generate young athletes who are ready to continue the baton for their seniors who have started to retire, so that the regeneration of athletes in volleyball will not end. In carrying out the process of coaching and developing sports to achieve achievements as described in the RI Law no. 3 of 2005 concerning the National Sports System article 27 paragraph 4 which reads "The guidance and development of sports achievements is carried out by empowering sports associations, developing national and regional sports development centers, and organizing competitions in stages and sustainably" (Maizan & Umar, 2020:13) <sup>[8]</sup>.

A coach is a person who manages an exercise program and is responsible to develop an exercise program that can improve the technical quality, tactics, mental and physical condition of the athletes. A volleyball player or athlete can stand high if he has good technique, tactics, mental and physical condition. Good physical condition functions as the main root of an athlete to achieve the highest performance (Dona Merlin Susanto, Suwirman, & Heru Syarli Lesmana, 2020:694) <sup>[4]</sup>. Anggara & Firdaus, 2020:8) <sup>[2]</sup> argues that physical condition can be interpreted as an initial state or physical ability, which means that the initial ability of physical condition is a measure or guideline for planning exercise. Physical condition is also the main prerequisite that must be possessed by an athlete in improving and developing optimal sports performance, and the needs of each sport. (Prima & Kartiko, 2021:162) <sup>[10]</sup>.

In volleyball, a volleyball athlete must have good physical condition because it will support him in improving and developing tactics, technique and mentality. In improving physical condition, the coach must also know some of the basic components of the physical condition, such as: "Power, Strength, Endurance, Flexibility, Agility and Coordination Syafruddin (1999) in (Maizan & Umar, 2020:13) <sup>[8]</sup>. Increasing achievement in volleyball is a fairly complicated and complex thing when compared to other sports, because many factors influence to achieve maximum performance, one of which is the physical condition factor and basic techniques in good volleyball. All physical components in volleyball are the needs of an athlete to achieve maximum performance. Without having a good physical condition, it is impossible for volleyball athletes to be able to achieve maximum performance (Yenes & Leowanda, 2019:112) <sup>[20]</sup>.

Volleyball game itself is a game activity in which the implementation of movement patterns has a high complexity, such as the movement of bouncing the ball by the fingers or the base of the hand, hitting the ball that floats

in the air, and holding the ball that was hit by the opponent when carrying out an attack, Yudiana (2015) in (Yenes & Leowanda, 2019:112) <sup>[20]</sup>. Volleyball is also a sport that is widely developed in society, especially in Indonesia. The characteristics of volleyball in the 21st century or at this time is a sport that is recreational, not only as a tool to improve physical fitness, but has become a prestigious event. This is often encountered with several competitions organized by several agencies, both from the government or other private institutions, from regional, national to international levels.

At the regional level, there is an official competition which is held every 4 years, namely the Provincial Sports Week or often known as PORPROV by the public. This Provincial Sports Week (PORPROV) is an event or championship at the provincial level in Indonesia, the participants are from every district included in the province. There are so many sports that are competed, one of which is volleyball, which has now become a sport that is much favored by the wider community in Indonesia. Volleyball sport in the current era is different from the past, where in the current era there are many developments that are increasing and expanding, so that it can attract people's attention to just watch or do the sport as a sport that can improve physical fitness and body fitness.

Based on observations on the women's volleyball team PORPROV Banyumas Regency, there is a possibility that the low achievement of athletes in volleyball is caused by various factors, both internal and external factors, including: infrastructure, quality of trainers, ineffective training programs, techniques, tactics and mentality of athletes, and many other factors. Based on the description above, it can be concluded that physical condition is a very influential factor in increasing athlete achievement, especially in volleyball. The physical condition profile of an athlete must be known so that the physical condition of the athlete can be improved in order to improve his performance and team performance when competing. Therefore, researchers are interested in conducting this research.

### Research Methodology

This is a descriptive research which aims to reveal something as it is. This is in accordance with Arikunto's opinion (2010: 3) that descriptive research is "a research that is intended to investigate circumstances, conditions or other things that have been mentioned, the results of which are presented in the form of a research report. Based on this context, the objectives to be achieved in this research are to describe the physical condition of the female volleyball athletes in Banyumas Regency, how the influence of the athlete's physical condition on team performance and the relevance of the results of the athlete's physical condition to the existing research.

The subjects of this study were the female volleyball athletes from Banyumas Regency which consisted of 6 athletes and all of them were taken as research samples. In this study, there were 6 variables measured with standardized instruments. This research was assisted by 3 people as officers or data loggers and 3 lecturers as supervisors. To maintain the quality of the retrieved data, the officers or data loggers are given direction and instruction regarding how the procedures or data collection processes were carried out.

**Table 1:** Table of physical condition test variable and the instrument

No	Variable	Instrument	PIC
1.	Endurance	1.600 meters run	1 officer,
2.	Power	Vertical jump	1 recorder
3.	Agility	Shuttle run	1 officer,
4.	Coordination	Throw and catch the ball	1 recorder
5.	Speed	30 meters sprint	1 officer,
6.	Strength	Sit up and push up	1 recorder
7.	Flexibility	Sit and reach	

Data collection was carried out at the Soesilo Sudarman Sports Center, General Soedirman University, Purwokerto.

The research team prepared the relevant equipment used in data collection. The data collected were analyzed descriptively, using the mean, standard deviation and percentage. The analytical technique used is descriptive statistical analysis. Where according to Arikunto (2002:56) in (Maizan & Umar, 2020:14) <sup>[8]</sup> says that "if a study aims to get a picture or find something as it is about an object being studied, then the analytical technique needed is enough to calculate the percentage".

## Result and Discussion

### Result

**Table 2:** The results of the physical condition test for female volleyball athletes in Banyumas Regency individually

Individual	Individual Test Result							
	Sprint 30 meters	Sit and Reach	LTBT	Sit Up	Push Up	V. Jump	S. Run	Run 1,6 km
Novreza	4,60	15	19	25	27	37	12,95	11,39
Raikhan P	5,55	15,3	25	35	22	27	13,54	12,15
Kintan	5,67	15	19	39	18	35	14,44	10,52
Desti A	5,76	4,5	25	33	20	41	13,65	12,27
Regiana M	5,12	20	20	38	13	43	13,84	10,17
Bella N	5,57	21,8	13	36	25	41	13,86	10,43

### 1. Speed (30 Meters Sprint)

Based on the results of the speed test for female volleyball athletes in Banyumas Regency using the 30 meter sprint running speed test, the minimum score of 4.60 was in the low category and the maximum score of 5.76 was in the

high category. Based on the results of the analysis of the speed data for female volleyball athletes in Banyumas Regency, the frequency distribution data obtained are as follows:

**Table 3:** Frequency Distribution of Speed of Women's Volleyball Athletes in Banyumas Regency

Norm	Frequency		Category
	Absolute	Relative (%)	
< 5,4"	2	33,33%	Very Good
5,4" - 6,6"	4	66,66%	Good
6,6" - 7,2"	0	0	Fair
7,2" - 9,0"	0	0	Poor
>9,0"	0	0	Very Poor
Total	6	100%	
Mean	5,37		Very good
Standard Deviation	5,04		

### 2. Flexibility (Sit and Reach)

Based on the results of the flexibility test for female volleyball athletes in Banyumas Regency using the sit and reach test, a minimum score of 4.50 was obtained in the low category and a maximum score of 21.80 in the high

category. Based on the results of data analysis on the flexibility of female volleyball athletes in Banyumas Regency, the frequency distribution data obtained are as follows:

**Table 4:** Frequency Distribution of Flexibility of Women's Volleyball Athletes in Banyumas Regency

Norm	Frekuensi		Category
	Absolute	Relative (%)	
> 40	0	0	Good
24 - 39	0	0	Fair
< 23	6	100%	Poor
Total	6		
Mean	15,26		Poor
Standard Deviation	6,01		

### 3. Coordination (Tennis Ball Fetch and Catch)

Based on the results of the coordination test for female volleyball athletes in Banyumas Regency using the tennis ball throwing and catching test (LTBT), a minimum score of 13 was obtained in the low category and a maximum score

of 25 in the high category. Based on the results of the data analysis of the coordination of female volleyball athletes in Banyumas Regency, the frequency distribution data obtained are as follows:

**Table 5:** Frequency Distribution of Coordination of Women's Volleyball Athletes in Banyumas Regency

Norm	Frequency		Category
	Absolute	Relative (%)	
>30	0	0	Very Good
25 – 30	2	33,33%	Good
20 - 24	1	16,66%	Fair
15 - 19	3	50%	Poor
< 15	0	0	Very Poor
Total	6		
Mean	20,16		Fair
Standard Deviation	4,49		

#### 4. Abdominal Strength (Sit Up)

Based on the results of the abdominal strength test for female volleyball athletes in Banyumas Regency using the sit-up test, a minimum score of 25 was obtained in the low category and a maximum score of 39 in the high category. Based on the results of data analysis on the abdominal strength of female volleyball athletes in Banyumas Regency, the frequency distribution data obtained are as follows:

**Table 6:** Frequency Distribution of Abdominal Strength Female Volleyball Athletes Banyumas

Norm	Frequency		Category
	Absolute	Relative (%)	
>36	3	50%	Very good
31 – 35	2	33,33%	Good
25 – 30	1	16,66%	Fair
21 – 24	0	0	Poor
< 20	0	0	Very Poor
Total	6		
Mean	34,33		Good
Standard Deviation	5,03		

#### 5. Upper Determinant Strength (Push Up)

Based on the results of the determinant strength test for female volleyball athletes in Banyumas Regency using the push up test, a minimum score of 13 was obtained in the low category and a maximum score of 27 in the high category. Based on the results of data analysis on the abdominal strength of female volleyball athletes in Banyumas Regency, the frequency distribution data obtained are as follows:

**Table 7:** Frequency Distribution of Upper Determinant Strength of Women's Volleyball Athletes Banyumas

Norm	Frequency		Category
	Absolute	Relative (%)	
>30	0	0	Very Good
21 – 29	3	50%	Good
15 – 20	2	33,33%	Fair
10 – 14	1	16,66	Poor
< 9	0	0	Very Poor
Total	6		
Mean	20,83		Good
Standard Deviation	5,04		

#### 6. Explosive Power (Vertical Jump)

Based on the results of the explosive power test of female volleyball athletes in Banyumas Regency using the vertical jump test, the minimum score of 27 was in the low category and the maximum score of 43 was in the high category. Based on the results of data analysis on the explosive power

of female volleyball athletes in Banyumas Regency, the frequency distribution data obtained are as follows:

**Table 8:** Explosive Power Frequency Distribution of Women Volleyball Athletes in Banyumas Regency

Norma	Frequency		Category
	Absolute	Relative (%)	
>58	0	0	Good
50 – 57	0	0	Fair
< 43	6	100%	Poor
Total	6		
Mean	37,33		Poor
Standard Deviation	5,85		

#### 7. Agility (Shuttle Run)

Based on the results of the agility test for female volleyball athletes in Banyumas Regency using the shuttle run test, a minimum score of 12.95 was obtained in the low category and a maximum score of 14.44 in the high category. Based on the results of the agility data analysis of female volleyball athletes in Banyumas Regency, the frequency distribution data obtained are as follows:

**Table 9:** Frequency Distribution of Agility of Women's Volleyball Athletes in Banyumas Regency

Norm	Frequency		Category
	Absolute	Relative (%)	
< 16,7	6	100%	Excellent
17,4 – 16,8	0	0	Very Good
18,2 – 17,5	0	0	Good
18,9 – 18,3	0	0	Fair
19,6 – 19,0	0	0	Poor
Total	6		
Mean	13,71		Excellent
Standard Deviation	0,48		

#### 8. Endurance (1600 Meters Run)

Based on the results of the endurance test of female volleyball athletes in Banyumas Regency using the 1600 meter running test, the minimum score of 10.17 was in the low category and the maximum score of 12.17 was in the high category. Based on the results of the analysis of endurance data for female volleyball athletes in Banyumas Regency, the frequency distribution data obtained are as follows:

**Table 10:** Distribution of the Endurance Frequency of Women's Volleyball Athletes in Banyumas Regency

Norm	Frekuensi		Category
	Absolute	Relative (%)	
< 8:22	0	0	Very good
8:23 – 9:31	0	0	Good
9:32 – 10:51	2	33,33	Fair
10:52 – 12:14	2	33,33	Poor
>12:15	2	33,33	Very Poor
Total	6		
Mean	11,15		Poor
Standard Deviation	0,91		

#### Discussion

Based on the analysis and processing of data regarding the physical condition of female PORPROV volleyball athletes in Banyumas Regency, this chapter will answer the research objectives above, namely how to describe the physical



condition of female PORPROV volleyball athletes in Banyumas Regency, which relates to: Agility, flexibility, coordination, abdominal strength, upper determinant strength, explosive power, agility, and endurance. As well as knowing the relevance of the results of the physical condition test with the team's performance. For more details, the answers to the research objectives above will be described as follows:

### 1. Agility

In sports, agility has various meanings as proposed by (Hribernik *et al.*, 2021: 441) <sup>[6]</sup>. The most popular and dominant definition that agility is the ability to change positions quickly and efficiently. Agility is also associated with physical characteristics such as endurance, strength and technique. Another perspective of agility is the cognitive component, which includes visual scanning and anticipation techniques. Physical characteristics can be trained, therefore agility can be improved through systematic training.

Among 6 athletes who took the 30 meter sprint test in this research, 2 athletes were categorized as very good and 4 athletes were categorized as good with a minimum score of 4.60 and a maximum score of 5.76 and an average score of 5.37. The average agility possessed by female PORPROV athletes in Banyumas Regency is 5.37 in the very good category. These results show that the agility of the athletes is very good and needs to be maintained, because in a volleyball game the agility factor is needed by every athlete to be able to move quickly anticipating the ball staying in court.

One of the abilities that uses agility in volleyball is dig. Dig is a way to keep the ball from falling or hitting the surface of the field by sliding so that the ball stays active and can be played. The digging ability of each player is strongly influenced by agility, as revealed by (Wardani *et al.*, 2020: 29) <sup>[18]</sup> in his research entitled "The Relationship of Hand, Foot and Agility Coordination to Dig Ability in Fortius Volleyball Athletes" with the results that there is a significant relationship positive relationship between agility and digital ability. The agility variable contributed to the dig ability of 43.96% from the correlation coefficient of 0,663 where the value of  $t_{count} = 4,687$  is more than  $t_{table} = 2,048$ , then the result of dig ability is influenced by agility.

### 2. Flexibility

The flexibility greatly contributes to the sport of volleyball, so it is necessary to know that training is given so that the flexibility of the joint can increase, because the flexibility factor is one of the most important factors in volleyball. Flexibility itself is one of the components of physical fitness, as stated by Sukirno (2012: 156) <sup>[17]</sup> flexibility is the maximum range of motion in the joints and muscles without being influenced by coercion or pressure, obstacles from outside the body. Meanwhile, according to Bompa quoted by Iyakrus (2012: 110) flexibility is a person's ability to perform movements with a wide amplitude. In addition, Widiastuti (2011: 15) also said that flexibility is the ability of joints to perform movements in their own space to the maximum, deep (Sahril & Sukirno, 2019: 180) <sup>[12]</sup>.

Of 6 athletes who took the sit and reach test in this research, all of the athletes falling into poor category with a minimum score of 4.50, a maximum score of 21.80 and an average score of 5.37. The average flexibility possessed by female PORPROV athletes in Banyumas Regency is 15.26 with a

poor category. These results indicate that the flexibility ability of the athletes is still very far from the good category and still needs to be improved with an adequate training program, because in a volleyball game the flexibility factor is needed by every athlete so that each athlete's technique can be maximized, such as the smash technique Which requires flexibility factor in order to produce a good smash. One technique that uses the flexibility factor is the smash technique. The smash technique is a technique of hitting or attacking a volleyball to the opponent in order to get a point. The ability of smash in attacking the opponent is influenced by the level of flexibility of an athlete. For athletes who are assigned as spikers, they must have good flexibility. As stated by (Sahril & Sukirno, 2019: 187) <sup>[12]</sup> in the results of his research entitled "Arm Muscle Strength and Flexibility With Semi Smash Results in Volleyball Game in Male Students of Class X High School", There is a relationship between flexibility and smash spring in volleyball games of male students in class X SMA Negeri 1 Indralaya, as evidenced by the correlation coefficient of the sample 70 students of 0.45 falling into moderate correlation level. So it can be concluded that the better the flexibility of a volleyball athlete, the better the semi-smash results.

### 3. Coordination

Coordination is defined as the harmonious work of various factors in a movement. According to Zarwan (2012: 125) in (Sukirno, 2011: 43) <sup>[17]</sup> that coordination is a person's ability to combine several movements into one complete movement. Coordination is a biomotor component that is needed in almost every sport, because the basic elements of movement techniques in sports involve synchronization of several abilities (Syarifuddin, 2014: 115). In volleyball sport eye-hand coordination is often found in the movement of passing down and up, serve and smash, where these movements require high level of eye-hand coordination to position the desired ball. Almost all human movements, both in daily movements and in sports movements, rely highly in coordination movements. For instance, in one of the long jump athletics, creating a series of long jump movements to transform into one jump movement by producing a maximum jump requires various elements of motion to possess good movement coordination (Sukirno, 2011:42-43) <sup>[17]</sup>.

Among 6 athletes who took the tennis ball throw and catch test (LTBT), 2 athletes were categorized as good, 1 athlete was categorized as fair, and 3 athletes were categorized as poor, with a minimum score of 13, a maximum score of 25 and an average score of 20.16. The average coordination possessed by female PORPROV athletes in Banyumas Regency is 20.16 fall in fair category. These results indicate that the coordination ability of the athletes is quite good but it still needs to be improved with an adequate training program, because in a volleyball game the coordination factor is needed by every athlete so that the technical ability of each athlete increases and improves, such as coordination in eye-hand on service movements, lower and upper passes and smashes so as to produce good movements.

One technique that uses the coordination factor is passing down and over, serve and smash. In this case there are 2 coordination relationships, namely the eyes and hands. There are research results that reveal the relationship between the results of eye-hand coordination with the results of passing over in a volleyball game carried out by

(Sukirno, 2011:45) <sup>[17]</sup> from the results of research and data analysis, it is stated as follows;  $r_{\text{count}}$  scored 0, while  $r_{\text{table}}$  scored 0,21. Which shows the value of  $r_{\text{count}}$  is more than  $r_{\text{table}}$   $0,44 > 0,21$ , maka koordinasi mata-tangan memiliki kontribusi yang kuat on the ability to pass over with the largest contribution of 44% to the results of passing over in volleyball games. Another study conducted by (Sari & Guntur, 2017: 9) revealed the effect of high eye-hand coordination and low eye-hand coordination on the results of volleyball service skills, namely from the results of the top serve. It can be seen that the coached child who has high eye-hand coordination have an average of 41.18 and children who have low eye-hand coordination have an average value of 16.45. It can be concluded that training children who have high eye-hand coordination are better than trainees who have low eye-hand coordination on service skills in volleyball.

#### 4. Abdominal and Upper-Body Strength

Abdominal muscle strength and arm muscle power function when a volleyball athlete hits the smash, with strong abdominal muscle strength and arm muscle power it is possible for an athlete to hit hard and directed at the opponent's target area. So that it will produce the desired points. To make a good shot, flexibility is also needed when reaching the ball to be hit, and it is hoped that through flexibility it can produce a good shot when hitting the ball in the air (Wima Atmaja *et al.*, 2018: 5) <sup>[19]</sup>.

Based on the results of the study of 6 athletes who took the sit up test on abdominal muscle strength, there were 3 athletes categorized as very good, 2 athletes categorized as good and 1 athlete categorized as fair, with a minimum score of 25, a maximum score of 39 and an average score an average of 34.33. The average abdominal muscle strength (abdominal) owned by female PORPROV athletes in Banyumas Regency is 34.33 with good category. These results indicate that the strength of the abdominal muscles (abdominal) of the athletes is good, but it is better to always improve it with an adequate training program. In addition, based on the results of the study of 6 athletes who took the push-up test on arm muscle strength, there were 3 athletes categorized as good, 2 athletes categorized as fair and 1 athlete categorized as poor, with a minimum score of 13, a maximum score of 27 and an average score -average of 20.83. The average arm muscle strength (upper determinant) possessed by female PORPROV athletes in Banyumas Regency is 20.83 with good category. These results indicate that the strength of the arm muscles (upper determinant) of the athletes is quite good but must be improved again with an adequate training program to increase the strength of the arm muscles.

In a study conducted by (Wima Atmaja *et al.*, 2018: 5) <sup>[19]</sup> revealed that based on the results of the correlation test of abdominal muscle strength (abdominal) with smash accuracy, a significant value of 0.000, 0.05 was obtained or  $r_{\text{count}}$  0,810  $>$   $r_{\text{table}}$  0,404. This means that there is a relationship between abdominal muscle strength and smash accuracy in volleyball. In addition to the strength of the arm muscles (upper determinant) the results of the correlation test of arm muscle power with the accuracy of the smash obtained a significant value of 0.000  $>$  0.05 or  $r_{\text{count}}$  0,718  $>$   $r_{\text{table}}$  0,404. This means that there is a relationship between arm muscle power and smash accuracy in volleyball.

#### 5. Explosive Power

Explosive power of leg muscles is one of the components of physical condition that must be possessed by a volleyball athlete. Muscle power can be defined as the ability of a group of muscles to work simultaneously in a very quick time. Juvier in (Qhausar, 2019:78) <sup>[11]</sup> argues that leg muscle explosive power is the ability to perform quickly or one of the elements of material ability that is much needed in sports, especially in sports that have jumps, throws, pushes, and sprints. Leg explosive power is the ability of muscles to overcome loads or resistance with a very high rate of contraction.

Based on the results of the study of 6 athletes who took the vertical jump test, namely 6 athletes categorized as less, with a minimum score of 27, a maximum score of 43 and an average score of 37.33. The average explosive power (power) possessed by the women's volleyball PORPROV athletes in Banyumas Regency is 37.33 with a low category. These results indicate that the explosive power of the leg muscles of the athletes is still very lacking and needs to be improved again with various adequate programs to increase the explosive power of the leg muscles. In volleyball, the explosive power of the leg muscles has a large enough role to support the smash technique when attacking, where the smash technique in volleyball is one of the weapons or attacks that pulverize the opponent so that the team can get points.

The importance of muscle explosive power in volleyball has been revealed by (Chandra & Mariati, 2020: 104-105) <sup>[3]</sup> in the results of his research which said that based on the results of the correlation analysis on limb muscle explosive power with volleyball smash ability, the coefficient  $r = 0.745$  so that the contribution was obtained by 57%. Thus, there is a significant contribution between explosive leg muscles and smash ability in male volleyball athletes from Padang Adios.

#### 6. Agility

Agility itself means the skill to change the direction of movement or body part suddenly. Agility involves a greater emphasis on deceleration and once in a while with reactive acceleration, changes in direction and speed according the Ministry of Youth and Sports (2007:38), In addition Greg Gatz (2009:114) in (Wardani *et al.*, 2020:28) <sup>[18]</sup> also defines agility as a skill to react to situations quickly and initiate coordination quickly and stop to keep the game under control.

Based on the results of the research of 6 athletes who took the shuttle run test, namely 6 athletes who were categorized as perfect, where the test results of each athlete were above the predetermined average. The minimum score is 12.95, the maximum score is 13.71 and the average score is 13.71. From the results, the average agility of the women's volleyball PORPROV athletes in Banyumas Regency is 13.71 with a perfect category. These results indicate that the coordination ability of the athletes is very good, it can be seen from the test results of each athlete who is in the perfect category. With the test results that have been obtained, the coach must be able to maintain it even if it can be improved again, then it is increased again with a supportive and adequate training program.

The agility component has a relationship with one of the techniques in volleyball, namely "Dig". Dig itself has the

meaning of defensive skills in overcoming attacks from opponents by using hands in an effort to save the ball so it doesn't fall on the ground and it's not easy for opponents to get points. This relationship has been suggested by (Wardani *et al.*, 2020:29) <sup>[18]</sup> in the results of her research which discusses the relationship between agility and the results of dig ability in female athletes of the Fortius volleyball club. These results are from the correlation coefficient test. It can be seen that the value of  $t_{count} = 4,687$  is more than  $t_{table} = 2,048$  which means  $ry_2 = 0,663$  significant. So it can be concluded that there is a positive relationship between agility and dig ability results which are supported by research data. The coefficient of determination of eye, hand and foot coordination with the results of the dig ability = 0.663, this means that 43.96% of the dig ability results are influenced by agility.

## 7. Endurance

Endurance is the state or condition of the body being able to work for a long time, without experiencing excessive fatigue after completing the work. Lumintuarso (2007:65) in (Alpra Tamara & Nurrochmah, 2017:265) states that endurance is the ability to carry out activities for a long time without significant fatigue. Meanwhile, another opinion also states that endurance is the ability of an athlete to carry out long activities with high intensity in the body's muscle groups. Irianto, *et al* (2009:58) in (Alpra Tamara & Nurrochmah, 2017:265) <sup>[11]</sup>.

Based on the results of the study of 6 athletes who took the 1600 meter running test, 2 athletes are under fair category, 2 athletes are categorized as poor and 2 athletes are categorized as very poor. The minimum score is 10.17, the maximum score is 12.17 and the average score is 11.15. From the results, the average agility possessed by the women's volleyball PORPROV athletes in Banyumas Regency was 11.15 with a poor category. These results show that the endurance abilities of the athletes are still far from good, it can be seen from the test results of each athlete who is the highest in the sufficient category and none is in the good or very good category. With the test results that have been obtained, the coach must be able to increase the athlete's endurance again with an adequate training program.

Salunta & Yendrizal (2019:260-261) <sup>[13]</sup> stated that with the endurance conditions as obtained in the test results, of course, athletes do not have the ability to overcome fatigue caused by physical workload for a relatively long time. Athletes who have low endurance abilities certainly affect the work of heart, lung and blood circulation throughout the body to be disturbed. Therefore, athletes train even harder so that this endurance ability can increase. Athletes can perform exercises such as long-distance running (marathon), long-distance swimming and cycling, and jogging for longer periods of time.

## Relevance of physical condition towards team performance

Based on the results and discussion of the physical conditions, each component of the physical condition is closely related to each other, where each component of the physical condition that has been described has an influence on the team's performance during matches. The better the overall physical condition of the team members the more satisfactory the team could retrieve on every performance

during matches, but on the contrary, if the physical condition gets worse, it will have an impact on the team's performance during matches resulting in unsatisfactory conclusion. Of the 7 components of physical condition studied by researchers related to agility, flexibility, coordination, abdominal strength and upper determinant strength, leg muscle explosive power, speed and endurance. There are still some components that are far from good and this will greatly affect the team's performance during the match.

In the flexibility component, the average results obtained fall into the poor category. This will greatly affect the team's performance during matches where the flexibility component has a significant contribution to the smash technique which is one of the attack techniques against the opponent in order to get points. In addition, the coordination component also got an average result in the fair category. This also affects the team's performance during matches, where the coordination factor in team performance affects the up and down passing technique, serve and smash which are the basic techniques in volleyball. Apart from the technical aspect, coordination in a volleyball team is also very necessary between in order to build team work during the match.

The other component that is still far from the good category is leg muscle explosive power, where the average results obtained fall into the poor category. Even though the explosive power of the leg muscles on the performance of athletes and teams is very influential, especially on the smash technique when carrying out an opponent's attack. If the explosive power of the leg muscles produced by the athlete who has the role of smashing is low, then the results of the smash performed will also be less optimal. And finally on the endurance component, where in this endurance component the average results obtained fall into the poor category. Whereas the components of the physical condition of endurance also have a big influence on the performance of a volleyball team. Endurance is the ability to overcome fatigue caused by physical workload in a relatively long time. If the endurance is still below the predetermined average, then the team's performance will also be much worse and not as expected.

## Conclusion

Based on the results of the research and discussion above, it can be concluded that each component of the physical condition of the women's volleyball PORPROV athletes in Banyumas Regency is as follows:

1. The average speed of 6 athletes is 5.37 and is in the perfect category.
2. The result of the average flexibility of 6 athletes is 15.26 and is in the poor category.
3. The result of the average coordination of 6 athletes 20.16 and is in the fair category.
4. The average result of abdominal strength (abdominal muscles) from 6 athletes is 34.33 which is in the good category. And the average upper determinant strength (arm muscles) of 6 athletes is 20.83 which is in the good category.
5. The average explosive power of 6 athletes is 37.33 and it is in poor category.
6. The average agility result of 6 athletes is 13.71 which is in the perfect category.

7. The average endurance result of 6 athletes is 11.15 which is included in the poor category.

From the average results above, there are several components that fall into the category of insufficient and sufficient so that it will affect the techniques in volleyball games such as smash, serve, dig techniques which will be very helpful in team performance during matches. As a suggestion from the researcher, it would be better if the results of this study became one of the evaluation materials and improving the physical condition of the athletes for the next stage. So that the physical condition of the athletes will always be maintained and have a positive impact on team performance when competing.

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