

Nutritional Status, Physical Condition and Player Position of The Sumedang Volleyball Athlete

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ABSTRACTS

This study aims to see nutritional status, physical condition and the position of Sumedang volleyball athletes, information related to anthropometry and the physical condition of volleyball athletes based on each playing position is very useful for identifying athletes' performance when playing. In addition, for a coach this information can be used as a reference to seeing someone's faith in playing volleyball. This research method uses analysis with a descriptive approach. Data collection is done to get data related to the existing phenomenon related to the variable studied and not intended for hypothesis testing. Middle Blockers, Opposite, and Outside Hitter have more dominant playing characteristics to block opponent attacks and attacks have a higher, lower BMI, higher reach, and setter and libero have characteristics that might be more suitable for passing, receiving service opponents, and accepting the opponent's attack has shorter posture, has a heavier body, and a shorter leap coverage. There are differences in characteristics related to the needs of the position of this player related to the main task they do.

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1. Introduction

Volleyball games are attractive, pleasant, fun, and does not cost a great cost to play it. Volleyball sports One of the most popular and popular sports in Indonesian society, this sport can be played ranging from children to adults, both men or women. Volleyball sports In addition to playing for the purpose of recreational sports are also played to become an achievement container. Over time the time of volleyball sports continued to grow rapidly, so the rules of the game and matches also changed following the rules issued by FIVB (Federation Internationale de Volleyball) and PBVSI (the entire Indonesian volleyball union). In addition to the more coaching - coaching volleyball sports in each region, both in institutions - educational institutions, intansi, companies and also clubs - Club Professional. Volleyball sports coaching aims to facilitate someone's interests and talents in playing volleyball.

Physical conditions are the most important part of all sports, especially to support other aspects such as techniques, tactics, mental and anthropometry (José M. Palao et al., 2014). Physical conditions are very decisive in supporting training tasks and matches for athletes, therefore expected with good physical conditions can maximize their performance. The main objective of physical exercise is to improve the quality of physical fitness and muscle health (Fuchs et al., 2019). Physical is an achievement foundation for an athlete, because if you have a good physical condition, his skills, tactics, and mentality can develop well. Physical condition is very helpful for the coaching and preparation of the match, so that athletes do not feel exhausted and avoided injuries that will affect their performance (Croitoru, 2014). Therefore, volleyball athletes need good physical condition.

Athletes with good physical conditions will improve the circulatory system, heart function, strength, flexibility, durability, speed, agility, strength, coordination and components of other physical conditions will increase and will have good effectiveness and have a quick recovery ability Play an important role in all sports (Sheppard et al., 2011). The elements of physical condition in the exercise include: (1) Strength, (2) Durability, (3) Power, the following components are important things that must be possessed by a volleyball sports athlete. The ability of muscle explosive power or what is often referred to as power is one of the physical elements that play an important role in sports activities, not only as an element of supporting certain sports, but also the main element in achieving good techniques in a sport.

In volleyball sports, the nutritional status of players is an important aspect of peak performance because of the obstacles that must be overcome by players: net as high as 2.43 m for men and 2.24 m high for women (Congress Fivb, 2017). Nutritional and technical status The ability to determine 83% distance in the leap of the player, and the physical capacity determines 17% (Adashevskiy et al., 2015). The jump range is very underlying in spikes and blocks. In a volleyball, the importance of anthropometric, physical and technical aspects is able to conceive athletes' performance when playing, both for men and women, and the most correlated with the victory rate of a victory team (Eom & Schutz, 1992).

The spike portion and block players vary with respect to the role of players, because players have different activities and responsibilities related to their playing position (José M. Palao et al., 2014). For example, the Middle Blocker is the player running the most block, so, in theory, they must have anthropometri and adequate physical conditions to fulfill that role. In Sisilain, Libero does not need a strong or physical body that is strong, but they need more experience to read the game correctly and for decision making and agility.

Information related to nutritional status and physical condition of volleyball athletes based on each playing position is very useful for identifying athletes' performance when

playing. In addition, for a coach this information can be used as a reference to seeing someone's faith in playing volleyball. The purpose of this study is to see how nutritional status consisting of height, body weight and body index and physical conditions consisting of the ability of spike jumps, block jumps, and aerobic capacity of Sumedang volleyball athletes.

2. Materials and Methods

This study uses quantitative descriptive research methods (José M. Palao et al., 2014). The variables studied in this study consisted of anthropometry consisting of height (cm), weight (kg), and body index (kg / m²), play position (middle blocker, outside hitter, opposite, setter, and libero), then physical ability consists of spike jump (cm), block jump (cm), and aerobic capacity (VO₂MAX). This research method uses analysis with a descriptive approach. Data collection is done to get data related to the existing phenomenon related to the variable studied and not intended for hypothesis testing. The data collection technique on these studies is as follows:

- a. Measurement of height using statometer
- b. Loss measurement using digital scales
- c. Calculate the body's body index (IMT)
- d. Measurement of Spike Jump Ability
- e. Block Jump Measurement
- f. Measurement of aerobic capacity capacity with Lion Test (6 minutes run).
- g. Charging the position of playing by athletes

Furthermore, the results of the research results are then drawn by a conclusion by researchers to answer the formulation of research problems. Analysis of a sample of 148 athletes consisting of 111 male athletes and 37 female athletes participating in the Porda District Athletes test, Sumedang consisting of 22 setters, 19 Libero, 53 outside Hitter, 39 Middle Blockers, 15 Opposite.

4. Results and Discussion

The results of the study were described in the results of research and discussion. The purpose of this writing is to provide references, data information related to height, weight, spike jump, block jump and aerobic resistance volleyball players based on the position of the player. The data provided in this writing provides a general description of the characteristics of the players in connection with their position. Every position of the male or daughter volleyball player basically has a nutritional status and different physical condition. This is in accordance with the data obtained that the value or score obtained for height, weight, and BMI showed different characteristics in each athlete as the position of the player.

The researchers divided into two groups of players simply, the first Middle Blocker, Outside-Hitter, and Opposite, namely the player who was on duty blocking and spiking. Based on the results of measurements and assessment of players who play in Middle Blocker, Outside-Hitter, and Opposite has a higher posture, and has a lower BMI, and has a higher leap coverage.

The researchers divided into two groups of players simply, the first Middle Blocker, Outside-Hitter, and Opposite, namely the player who was on duty blocking and spiking. Based on the results of measurements and assessment of players who play in Middle Blocker, Outside-Hitter, and Opposite has a higher posture, and has a lower BMI, and has a higher leap coverage. The two setters are in charge of dividing the ball, regulating team attacks, while Libero is in charge of keeping the defense on the team. Both libero or setter less a role

or even not play a role in blocking and spiking. In anthropologically physical libero and setters are shorter and have a higher BMI. These results are in line with previous studies related to the position of players and physical capacity (Malousaris et al., 2008; Marquez & Van Den Tillaar, 2008; Sheppard, Gabbett, & Stanganelli, 2009; Fattahi, Ameli, Sadeghi, & Mahmoodi, 2012). The team works like a system that has their respective roles and affects its characteristics. Outside Hitter and Opposite have an important role in spiking, while Middle Blockers have a role in blocking. Therefore, their height is very important considering that 83% of players' reaching capabilities are conditioned by nutritional status, the prefix in jumping and reach (Viviani & Baldin, 1993). Therefore the player in the position of Middle Blocker, Outside-Hitter, and Opposite has the highest range of spikes and blocks. In addition, more involving physical in the game (for example the number of leaps), maybe this is the reason these players have good physical conditions.

Based on the six position players in volleyball, Libero is the shortest, perhaps because this player has an important role in receiving the service of opponents, which requires wider field mobility. Setter and Libero, who play in Central in the game and receipt and defense, have different characteristics. The average setter and libero have lower height and block jump with an average of 50 cm leap results for setters and for Libero 48 cm. The results of previous studies have shown differences in physical characteristics of players related to their level of performance (Malousaris et al., 2008).

Likewise in female athletes, middle blockers, outside-hitters and opposite are higher, and have a higher leap coverage than the setter and libero. This is in accordance with the results of previous studies related to playing positions in female players (Malousaris et al., 2008; Zhang, 2010; Carbajal et al., 2012; Martin-Matillas et al., 2013). Basically explanation for male athletes applies to women. However, there are several aspects that must be emphasized different for female athletes. Due to the fact that the role of the position of players is different for the women's team (for example in some teams they take part in taking the first ball), players who play as opposite have characters similar to outside hitter in a female volleyball. The data provided in this study is general, because the main objective of this study is to provide references to choosing or directing athletes as well as physical conditions and nutritional status.

Players who position as Middle-Blockers, Outside Hitter, and Oposite should have a higher body, and have a better leap coverage. As explained that the main task and the role of Middle-Blocker, Outside Hitter, and Opposite is blocking and spiking. This is because Spike and Block are the most correlated actions with victory in the volleyball (J.M. Palao, Santos, & Ureña, 2004; J.M. Palao, Manzanares, & Ortega, 2009). The higher the team level, the higher the physical capacity of athletes, because physical characteristics are important keys in the success of the team in the volleyball.

This study provides reference values to guide the selection of players, understand the dynamics of the game, and understand the role of various players in the male and female volleyball. The characteristics of players are the result of the selection process (natural and intentional) and special exercises carried out in training and competition by athletes. Information about players who have reached the level of this competition can be used as a criterion in the multifactorial process in selection of volleyball players. Examples of the application of this data can be used as parameters in physical tests such as Spike Jump, Block Jump and Aerobic Durability. Data can provide information about the importance of seeing the differences in the characteristics of the player with the position of the many. At this level, the data found shows a higher average value in the JUMP spike compared to the block jump (data see in table 2.1 and table 2.2). This difference can be one of the reasons for the superiority of Spike Over the Block in the Volleyball (Eom & Schutz, 1992; JM Palao,

Santos, & Ureña, 2007), and which becomes different in range (in spiking reach by one hand, and inside Block is done with two hands) (Viviani & Baladin, 1993).

Anthropometry data consists of high body data, weight, and body indexes that are described as follows:

Table 1.1 Average Data Athletes High Based on gender and playing position

Height					
Gender	Setter	Libero	Outside Hitter	Middle Blocker	Opposite
Male	171±7.9	163±6.7	172±5.1	173±5.6	176±4.3
Female	157±5.6	152±4.2	164±4.8	163±4.4	157±3.0

The results of the measurement of the height of Sumedang volleyball athletes with units (cm), namely there are differences in the average age of athletes based on the position of the athletes, data can be seen on (Table 1.1). Data shows the opposite position has the highest posture with an average value of 176 cm in the men's athlete. Whereas in the Princess Outside Hitter athletes have the highest posture with an average value of 164 cm compared to other positions, the difference graph can be seen on (Figure 1.1).

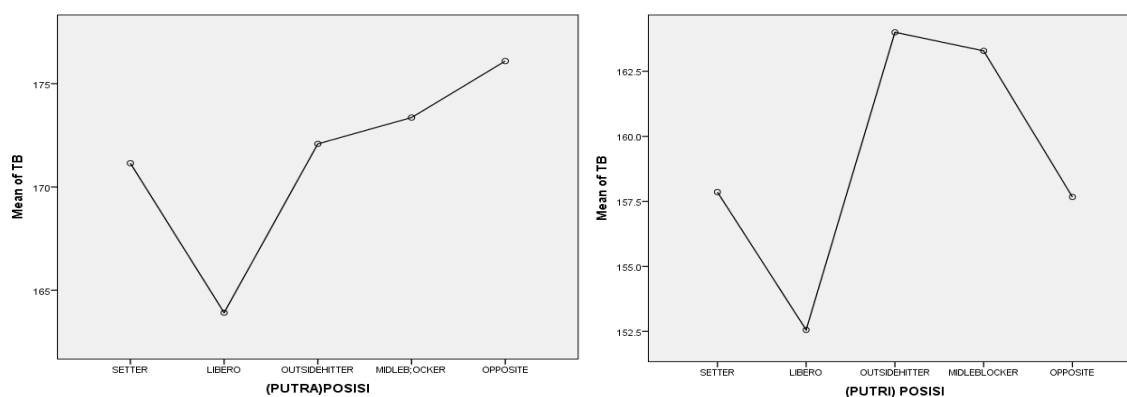


Figure 1.1 Graph of the high age athletes based on gender and playing position

Table 1.2. Data on average weight with gender weight athletes and play positions

Weight					
Gender	Setter	Libero	Ouside Hitter	Middle Blocker	Opposite
Male	68±6.7	60±12.1	63±7.8	62±7.5	65±1.4
Female	56±5.7	53±7.6	57±6.5	59±5.9	49±5.5

The results of the measurement of the weight of Sumedang volleyball athletes with units (kg) using digital scales, there is a difference in the average weight of athletes based on the position of the athletes, data can be seen on (Table 1.2). In the data in the table shows that in male athletes the setter has the highest average value of 68 kg, whereas in the middle

blocker female athletes have the highest average Nirai which is 59 kg the difference graph can be seen on (Figure 1.2).

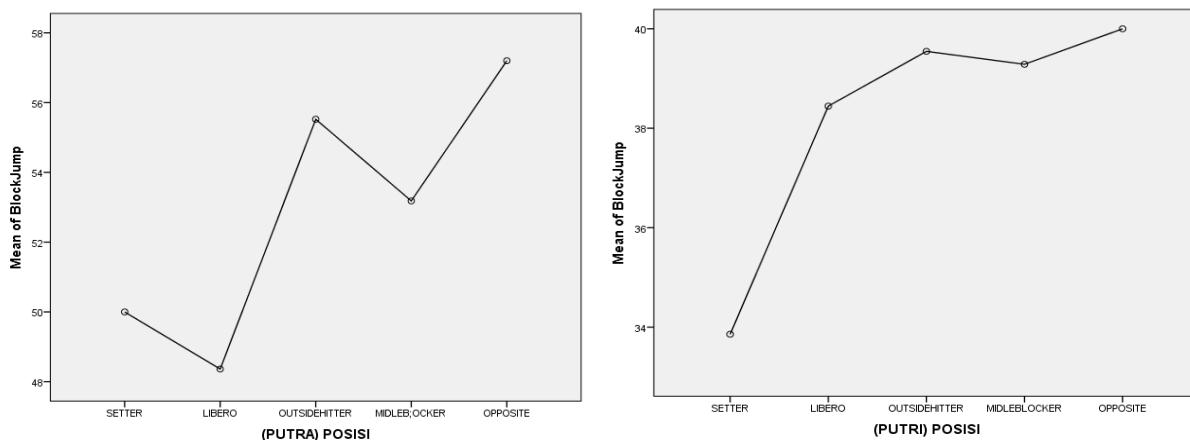


Figure 2.1 Chart Differences Block Jump Athlete's Block Ability Based on Gender and Play Position

Table 1.3 Data Average Body Mass Index Athletes by Gender and Play Position

Body Mass Index					
Gender	Setter	Libero	Outside Hitter	Middle Blocker	Opposite
Male	23.4±3.0	22.3±3.2	21.5±2.1	20.6±1.9	20.9±1.3
Female	22.7±3.2	22.7±2.7	21.4±2.8	22.4±2.0	19.7±2.0

The results of calculating the body mass index of the Sumedang volleyball athlete with a unit (kg / m²) of the results of the high division of squared body weight. There is a difference in the average indexes of the body of the body of Sumedang volleyball athletes, data can be seen on (Table 1.3). In the data show that the athlete with a playing position as a setter on the Putra Volleyball athlete has an average value of 23.4 kg / m², while in female volleyball athletes two playing positions namely Setter and Libero have the same average value of 22.7 kg / M² Chart differences can be seen on (Figure 1.3).

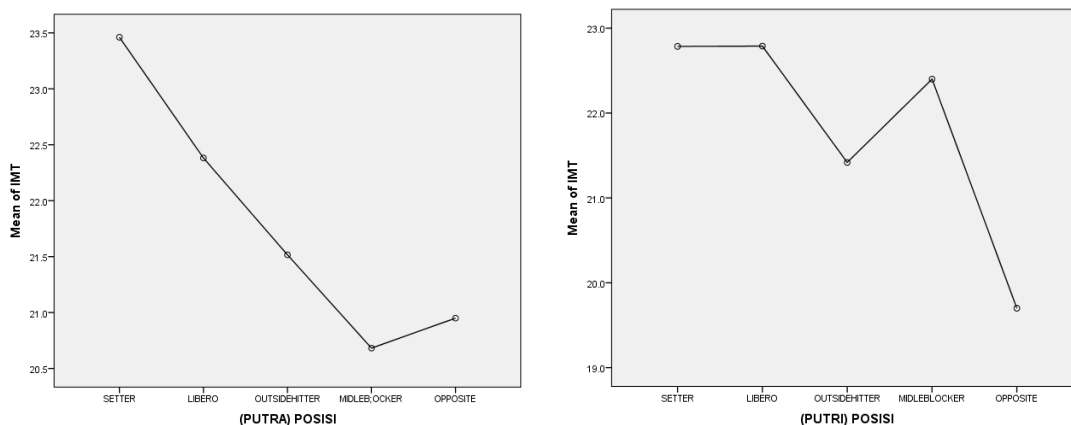


Figure 1.3 Graph of the Body Mass Index Athletes by Gender and Play Position

Table 2.2. Average Data Spike Jump Athlete's Ability Based on gender and playing position

Spike Jump					
Gender	Setter	Libero	Ouside Hitter	Middle Blocker	Opposite
Male	60±7.7	59±3.6	66±6.4	64±6.4	67±5.2
Female	43±6.8	45±6.5	46±7.5	45±5.8	44±7.0

The results of the measurement of the spike jump athletes of Sumedang volleyball with units (cm) use a meter. The results of the data show the average difference in the ability of spike jump athletes based on the position data can be seen on (Table 2.2). In the data in the table shows that in Male Opposite athletes have the highest average value of 67 cm, while in female athletes Ouside Hitter has the highest average value of 46 cm the difference graph can be seen on (Figure 2.2).

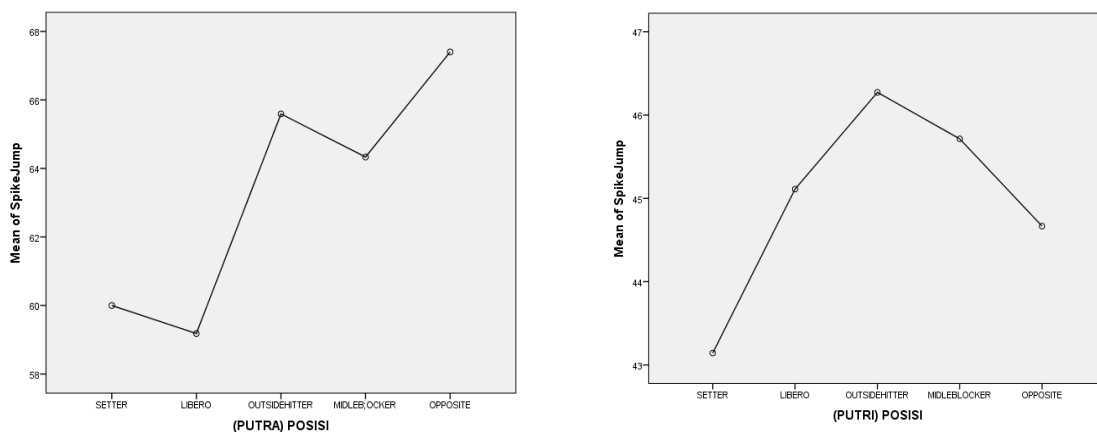


Figure 2.2. Chart Differences in Spike Jump Athlet Ability Based on gender and playing position

Table 2.5. Average Data Capacity of VO2Max Athletes Based on gender and playing position

VO2Max					
Gender	Setter	Libero	Ouside Hitter	Middle Blocker	Opposite
Male	37.2±4.3	37.6±3.2	38.7±3.6	38.7±2.9	41.2±8.5
Female	33±8.0	35±3.0	32±4.0	35±3.4	33±1.0

The results of the measurement of the spike jump athletes of Sumedang volleyball with units (cm) use a meter. The results of the data show that the average difference in VO2MAX athletes is based on the position of the formation, the data can be seen in (Table 2.3). In the data in the table shows that in male athletes Opposite has the highest average value of 41.2 cm, while in Libero female athletes and middle blockers have the highest average value of 35 cm the difference graph can be seen on (Figure 2.3).

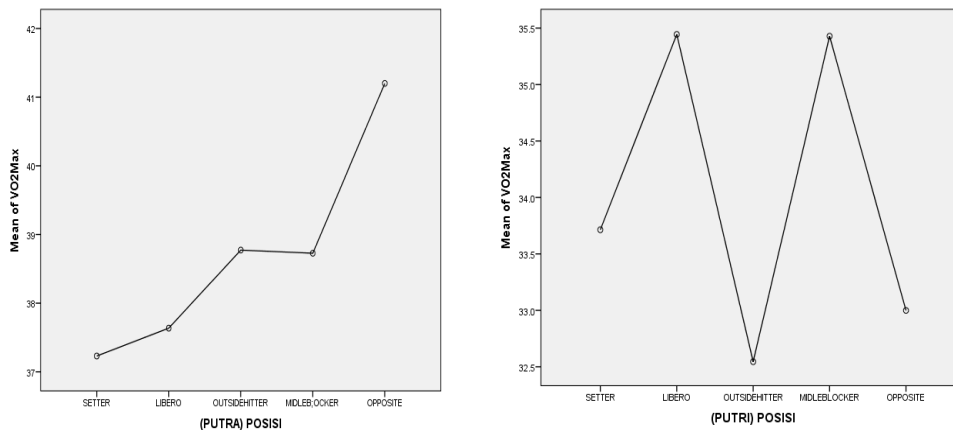


Figure 2.5. Graph of differences in the capacity of VO2Max athletes Based on gender and playing position

5. Conclusions

Conclusion can be a generalization of findings according to the research problem, the results show differences between height, weight, BMI, Spike Jump and Block Jump based on their position. This difference is related to the needs of different positions related to the main task they do. Middle Blockers, Opposite, and Outside Hitter have more dominant play characteristics to block opponent attacks and attack (higher, lower BMI, higher range), and setters and libero have characteristics that might be more suitable for feeding, receiving service opponents, and receive opponent attacks (shorter, and have a heavier body).

The results of the study provide references from nutritional status, physical capacity, and play positions to be used as references in the selection and training process. In addition, data provides information that can help to understand the dynamics of the game and the role of various players in the male and female volleyball ball. The next study must evaluate the performance in playing on the position of the player to provide a better reference value to use in the exercise process.

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