

Vo2 Max Level For Female Futsal Athletes Wkb Pekanbaru

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Abstract

The aim of this research was to see the VO2Max level of WKB Pekanbaru Female Athletes. Based on the results of observations made on women's futsal athletes at WKB Pekanbaru, several problems were found, including when shooting, the players were not hard enough to do it, they were less agile and when passing the ball to a friend they were less precise, and the athlete's discipline was still lacking in following the training process. ongoing so that it becomes an inhibiting factor. The test used in this research was the bleep test . The sample in this study was 15 female futsal athletes from WKB Pekanbaru. From the results of tests carried out on WKB Pekanbaru female futsal athletes, results were obtained in the " Poor " category.

Keywords : Vo2Max level of WKB Pekanbaru female futsal athletes

INTRODUCTION

Futsal is a sport that is currently popular with all levels of society, including children, teenagers and even adults. This sports game can be played indoors and outdoors and requires a field size that is not too large and can be played by anyone. The development of the game of futsal is very rapid, with many tournaments between students and between futsal clubs making this sport increasingly popular. The game of futsal is played by two teams and is very similar to the sport of football in terms of the technical rules of the game. Within 2x20 minutes, futsal players must have good physical condition and a high level of fitness. The positive benefits of playing futsal, namely from a social, entertainment, mental and emotional perspective. Each futsal team consists of five people and the field used is smaller than in conventional football.

The development of futsal in Indonesia futsal became known in Indonesia in 1998-1999, and only starting in the 2000s, futsal began to become known to the wider public. It was at that time that futsal began to develop rapidly and there was a proliferation of opening futsal fields, either by using sports halls or building special buildings that were designed for futsal fields. Then in 2002, the AFC appointed Indonesia to hold the Asian champion futsal championship (Setyawan, 2011) . Futsal sport is often people's choice to maintain body fitness because it is very easy to do, but there are still many people who have limited knowledge about futsal sport, so many people do not do futsal sport well, as stated, even though it has been planned well, the possibility of injury is still possible. in sports players due to limited knowledge regarding the sports they do (Kurniadi & Mohamad, 2023) .

Futsal is a ball game played by two teams, each team consisting of five people with the aim of putting the ball into the opponent's goal, by manipulating the ball and feet. Apart from the five main players, each team also has reserve players. Basic Futsal Techniques are basic techniques for passing , basic techniques for holding the ball (*control*), basic techniques for passing the ball (*chipping*), basic techniques for dribbling the ball (Interval Training), basic techniques for shooting the ball (Iskandar, 2019). Because the number of players is small, a smaller field is needed. Apart from the good fitness of the players, futsal tends to be more dynamic. Compared to other sports, the physical condition components of futsal are different. Requiring endurance, strength and agility over a relatively long period of time are the characteristics of futsal. Apart from that, in futsal you also have to understand basic techniques

such as passing, control, dribbling and shooting. In order to be able to play futsal without experiencing excessive fatigue, having good fitness is the main factor in playing futsal.

VO₂max is a person's ability to inhale and use oxygen optimally when carrying out activities or sporting activities, especially futsal, resulting in fatigue. The serious performance of female futsal players is a little unstable when they play with maximum performance and also play in less than optimal conditions. This could happen because the player is doing a lot of activities so that fatigue occurs. So *futsal players* need to have a good VO₂max to supply oxygen to support their activities during the match. Vo₂Max is a person's ability to take in and present oxygen optimally. Vo₂Max is a fitness factor that humans need, both for athletes and non-athletes. The needs of non-athletes are useful for health welfare, while for athletes apart from health matters, namely to support brilliant achievements, it is necessary to increase Vo₂Max intensively. Cardiovascular endurance is the ability of the heart, lungs and blood vessels to take in, distribute and use oxygen to the tissues which is influenced by individual factors such as BMI, age, physical activity and exercise habits (Candra, 2020) .

This significant increase in VO₂max occurred due to circuit training, where *circuit* training has an effect on cardiovascular endurance, and can strengthen respiratory muscles. This provides great benefits to the heart rate (*heart rate*) where the heart rate will decrease, so that The heart has a higher heart rate reserve (*HRR*). This occurs because of changes caused by continuous and programmed exercise which results in a well-integrated adaptation process in the body. The cardiovascular system undergoes special adaptations for endurance training and maximizing the efficiency of the body's systems. This adaptation includes an increase in maximum oxygen uptake with a minimum of four weeks of exercise (Dea & Arif, 2018) .

Based on the explanation above, VO₂max plays a very important role in determining the success and achievement of futsal players, because futsal has mental, physical elements, as well as a good VO₂max level, maximum futsal play and achievement can be created. Several factors influence VO₂max as follows. The heart, lungs and blood vessels must function properly so that the oxygen inhaled into the lungs then reaches the blood. The process of delivering oxygen to the tissues of red blood cells must be normal, namely heart function must be normal, hemoglobin concentration must be normal, cell number Red blood must be normal and blood vessels must be able to drain blood from inactive tissues to active muscles which require more oxygen. Tissues (especially muscles) must have normal capacity to use the oxygen delivered to them. In other words, you must have a normal metabolism.

An important factor in achieving a person's futsal achievements is the player's mastery of basic futsal game skills. Form futsal playing skills such as; basic techniques for *passing* , basic techniques for holding the ball , basic techniques for *chipping* , basic techniques for *dribbling and* basic techniques for *shooting the ball* . To be able to master the basic skills of playing futsal well requires regular and disciplined practice. Exercise can be done anywhere and at any time. Basic skills and good physical condition will play an important role in supporting game performance. Every player can master good basic skills through a well-programmed routine training process (Ardiansyah et al., 2019) . Aerobic ability (Vo₂Max) is the greatest aerobic power ability a person has. This is determined by the maximum amount of oxygen that can be supplied by the heart, respiration and hemo-hydro-lymphatics or the transport of O₂, CO₂ and nutrients every minute. What is meant by Vo₂Max is the maximum degree of aerobic metabolism in dynamic physical activity that a person can achieve (Gumantan & Fahrizqi, 2020) .

VO₂max is the maximum aerobic capacity that describes the maximum amount of oxygen consumed per unit time by a person during exercise or testing, with increasingly heavy exercise until fatigue, the measurement is called Vomax. This O₂max volume is a level of body capacity expressed in liters per minute or milliliters/minute/kg body weight. Every cell in the human body needs oxygen to convert food into ATP (*adenosine triphosphate*) which is ready to be used for

work. Each cell that consumes the least oxygen is muscle in a resting state. Contracting muscle cells require a lot of ATP. As a result, the muscles used in training require more oxygen and produce CO₂ (Astuti, 2019) . Aerobic ability (Vo₂Max) is the greatest aerobic power ability a person has. This is determined by the maximum amount of oxygen that can be supplied by the heart, respiration and hemo-hydro-lymphatics or the transport of O₂, CO₂ and nutrients every minute. What is meant by Vo₂Max is the maximum degree of aerobic metabolism in dynamic physical activity that a person can achieve (Gumantan & Fahrizqi, 2020) .

The WKB Pekanbaru futsal team is a team that has cooperation between one team so that the WKB Pekanbaru futsal team is played by women, this team trains twice a week which is coached by the coach and also in this team there is also less effectiveness in terms of training. This team often also takes part in tournaments, therefore the WKB New Week futsal team is a team that is usually said to have worked hard to develop and become better, even though there are a few problems such as not having the right training hours and the strength and stamina and power of the players is not yet effective, so The problems listed above can be evaluated quickly. Futsal must be an important concern for coaches. In young futsal players, an increase in BMI (*Body Mass Index*) can have an effect related to a decrease in physical condition in fitness parameters such as running, jumping and anaerobic strength. Thus, optimizing BMI (*Body Mass Index*) should be considered as a training and nutrition goal to improve a player's abilities. Thus, physical training for players is very important in order to maintain the level of physical fitness in each match and it is necessary to find and implement more efficient training methods.

The game of futsal is one of the games that is dominantly played among the community. In futsal, problems often occur when matches are played, for example the lack of maximum power in shooting, so in this title we discuss problems that often occur on the field, so that the problem of player discipline is also a problem that must be solved. really pay attention, and the problem of agility in passing the ball to a friend is less effective, causing a match to be less good or causing problems that have a big impact on the field. The results of the observations above should be given an explanation or training so that the basic VO₂max technique is better and the results are maximized, because VO₂max is a sport that regulates breathing, so researchers are interested in conducting a study with the title " VO₂max Levels of Women's Futsal Athletes at WKB Pekanbaru"

RESEARCH METHODS

Research with this aim seeks to be descriptive and provide a comprehensive, accurate, detailed and systematic picture of the various phenomena studied. The data obtained from this research can be used for various purposes (Winarno, 2018) . Population is the entire research object that functions as a data source. According to population, it is the entire research object (Sugiyono, 2017) The population in this study was 12 futsal players. The tests used in the research are the beeptes technique along with the measurement tests below (Faozi & Desi, 2019).

In connection with this research problem, to find out the VO₂max level of Futdal WKB Pekanbaru, data analysis is carried out by connecting it from the tests carried out (Irawan, 2021). Then the results contained in the normal category of WKB Pekanbaru women's futsal VO₂max levels were carried out descriptive analysis through percentages.

RESULT AND DISCUSSION

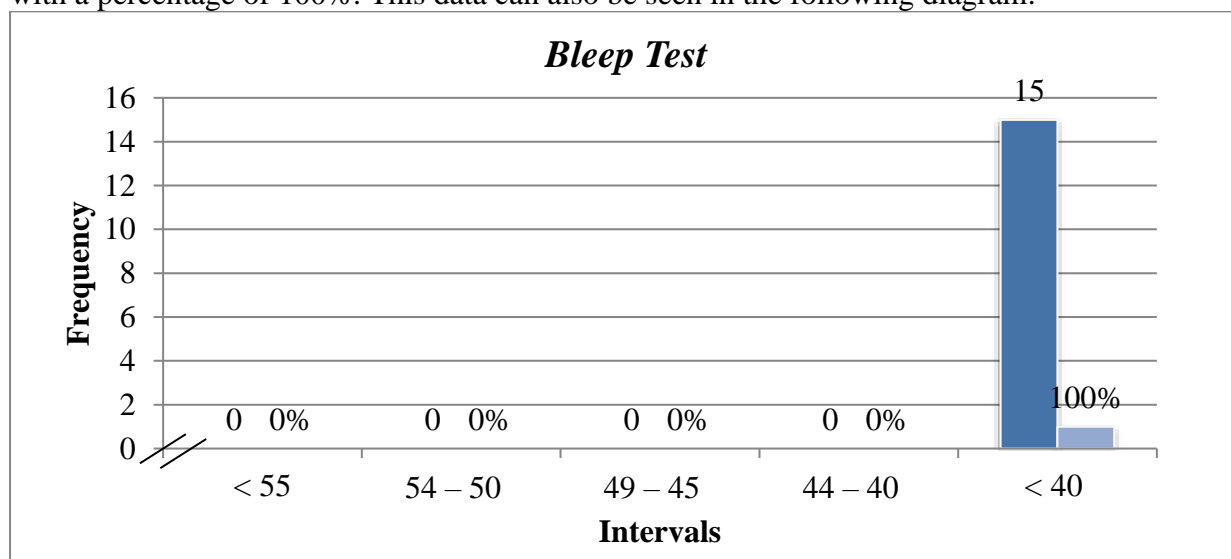
This research will discuss the Vo2max level of WKB Pekanbaru female futsal athletes. The benchmark in this test is the endurance of WKB Pekanbaru futsal athletes. The test is carried out to measure the athlete's endurance level so that it can be a reference for coaches in training futsal athletes. The test was carried out to determine the VO2Max level using *the bleep test* on WKB Pekanbaru female futsal athletes and after processing the data using *product moment* on VO2Max using *the bleep test* on WKB Pekanbaru female futsal athletes, the highest value was 31.4, and the lowest value was 21. 2, the *standard deviation value* is 2.442247209 while *the average value* is 22.92. Apart from these values, the frequency distribution values for obtaining VO2 Max level results using *the bleep test* are also explained which can be seen in the following table:

Table 1. VO2Max Test Data Using *the Bleep Test* on WKB Pekanbaru Female Futsal Athletes

| Category | Interval Class | Absolute Frequency | Relative Frequency |
|---------------|----------------|--------------------|--------------------|
| Very well | < 55 | 0 | 0% |
| Good | 54 – 50 | 0 | 0% |
| Currently | 49 – 45 | 0 | 0% |
| Not enough | 44 – 40 | 0 | 0% |
| Very less | < 40 | 15 | 100% |
| Amount | | 15 | 100% |

Source: Processed Data 2024

The table above can explain the *VO2Max capabilities* using *the bleep test* . In the table it can also be seen that in the first class with an interval < 55 the results were 0 people with a percentage of 0%, in the second class with an interval of 54 - 50 the results were 0 people with a percentage of 0%, in the third class with an interval of 49 - 45 the results were obtained. 0 people with a percentage of 0%, in the fourth class with an interval of 44 – 40 the results were 0 people with a percentage of 0% and in the fifth class with an interval < 40 there were 15 people with a percentage of 100%. This data can also be seen in the following diagram:



Graph 4.1 Diagram of the VO2Max Test Using *the Bleep Test* for WKB Pekanbaru Female Futsal Athletes

Discussion

Sport is a physical exercise which of course uses physicality in carrying it out. One sport that is very popular among people today is futsal (Fernando & Mahfud, 2022) . Futsal is a sport that is almost the same as soccer which is played five-on-five which has been formalized by FIFA as a sport that is almost the same as soccer (Spyrou et al., 2020) .

Futsal has now become a popular sport throughout the world so that children, teenagers and adults always dream of becoming great futsal players (Mendes et al., 2022) , thus everyone must practice hard in order to achieve their dreams. the. One way is by practicing continuously and trying to play matches to find out the extent of the team's abilities (Muhaqiqin & Rikendry, 2021) . Before going to a match, a team needs to know the technical, tactical and physical abilities of its athletes so that before playing against another team, a coach has the initial abilities of his athletes. The hope is that from the matches the coach can evaluate the weaknesses in the team.

Futsal is a team sport where each team consists of five people whose aim is to put as many balls into the opponent's goal as possible and prevent the opposing players from doing the same. In principle, the game of futsal is almost the same as the game of soccer which requires technical, tactical and physical components in playing it (Aprilianto & Fahrizqi, 2020) . Futsal is played in a short time and at a fast tempo, so playing futsal requires each player to have excellent physical condition (Suryadi & Rubiyatno, 2022) . Excellent physical condition really supports a player's performance (Yusuf & Zainuddin, 2020) and one of the physical components used in futsal is aerobic endurance (Supriady, 2021) . Aerobic endurance is the ability by which a person can maintain himself for a long duration at a certain time (Kharisma & Mubarok, 2020) .

Endurance is the most important factor in maximizing an athlete's abilities. To have high aerobic endurance capabilities, a high VO₂max level is also required. The level of a person's VO₂max is influenced by several supporting components such as the ability of the heart, lungs, blood quality, blood vessels and the ability of skeletal muscles to consume oxygen (Ashfahani, 2020) . VO₂Max is the maximum volume of O₂ processed by the human body when carrying out intensive activities. This maximum O₂ volume is a level of body capability expressed in liters per minute, milliliters, minutes, kg or body weight. Therefore, every futsal player must have good aerobic endurance (Allsabab & Sugito, 2021) .

After conducting research on WKB Pekanbaru futsal athletes, of the 15 athletes studied, not a single person was able to obtain a good VO₂Max level using the bleep test. This is an important note for administrators and coaches to be able to evaluate all lines so that the team can recover from the current weak abilities of its athletes. Good technical and tactical abilities will be hampered by weak physical factors, this will result in the game not running well because many athletes will experience fatigue before the match ends. Physicality is the main promoter for the success of the tactics taught by the coach, so physicality must be a priority in the training held.

For the WKB Pekanbaru women's futsal team, this is a real weakness that could prevent the team from achieving brighter achievements in the future. A complete team must of course be supported by mastering good basic techniques, providing adequate tactical training material and having excellent physical condition, because these three components form one unit that cannot be separated from one another. This research can certainly be a reference for administrators and coaches to be able to provide the correct training composition to maximize athletes' abilities well. This research is also of course a good start for coaches to be able to re-mix training components that are priorities for the team so that the components become successful. in the futsal team can be achieved well and optimally.

Before the researcher carries out this research, of course the researcher has a basis and reference as a basis for the researcher to write. One of the previous studies conducted by (Ulandari et al., 2021) in his research he discussed a survey of VO₂Max levels of futsal athletes

in Bengkulu City and the results obtained were in the poor category. Apart from that, previous research with the same context was also carried out by (Titania & Zulrafla, 2022) in this study discussing the VO2Max level of acacia futsal athletes in Pekanbaru City and again the results obtained were included in the poor category.

On the other hand, the author also makes it a reference for previous researchers in international circles. The author took this from previous research conducted by (Barbero-Alvarez et al., 2015). In his research he discussed the VO2Max level of elite female athletes and the results found in this study were obtained in the medium category. Finally, this research was conducted by (Silvia et al., 2022) at the Islamic University of Riau which discussed the VO2Max levels of female futsal athletes. The results obtained in this study are very relevant to the research that the author has conducted, namely being classified in the very poor category. This makes it clearer that the physical abilities, especially in VO2Max, of female futsal athletes in the Pekanbaru City area are still below average, so special training is needed so that negative things like this can be changed. Of course, this is the responsibility of all parties so that what is our homework together can be completed well. On the other hand, the author also makes it a reference for previous researchers in international circles. The author took this from previous research conducted by (Barbero-Alvarez et al., 2015). In his research he discussed the VO2Max level of elite female athletes and the results found in this study were obtained in the medium category. Finally, this research was conducted by (Silvia et al., 2022) at the Islamic University of Riau which discussed the VO2Max levels of female futsal athletes. The results obtained in this study are very relevant to the research that the author has conducted, namely being classified in the very poor category. This makes it clearer that the physical abilities, especially in VO2Max, of female futsal athletes in the Pekanbaru City area are still below average, so special training is needed so that negative things like this can be changed. Of course, this is the responsibility of all parties so that what is our homework together can be completed well.

CONCLUSION

Based on the results of research and data analysis that have been presented, the results obtained are that the VO2Max level of WKB Pekanbaru female futsal athletes is in the **"Very Less" category**. Based on the conclusions obtained by researchers from the results of this research, several suggestions were put forward, including. Athletes are advised to continue to train and improve their excellent physical abilities, especially increasing VO2Max to support achievement. Coaches are advised to provide training compositions that can increase athletes' VO2Max so that their VO2Max ability can increase in order to support the achievements of WKB Pekanbaru athletes. To the next researcher as a reference and comparison material to continue research with the same study or other similar aspects in the future.

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