

The Nutritional Status Level, VO2 Max, and Basic Futsal Techniques At Geral FC Makassar

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A. Conception and design of the study; **B.** Acquisition of data; **C.** Analysis and interpretation of data; **D.** Manuscript preparation; **E.** Obtaining funding

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ABSTRACT

This study aims to determine the nutritional status, endurance, and cardiovascular of basic futsal techniques in Geral FC Makassar players. This study is descriptive of nutritional status, endurance, and basic futsal techniques. The population in this study is Geral Fc Futsal Club players with a sample of 20 players and sampling using total sampling or sampling techniques with certain considerations. The data analysis technique used is descriptive Percentage. Based on the results of data analysis, show that nutritional status data with cardiovascular endurance against basic futsal techniques at Club Geral FC Makassar. Based on BMI classification: Low 7 people = 30%, Standard 11 people = 60%, Overweight 2 people = 10%, Obesity 0 people = 0%, Nutritional status obtained total average value (mean) 21.51, minimum data 17.91, maximum data 26.79, with a range of 87.88 and standard deviation 2.42 while clarification of cardiovascular endurance: VO2 Max ability category Very low 1 person, less 6 people, good 12 people and very good 1 person, The total mean value was 45.37, the minimum data was 39.55, the maximum data was 57.10 with a range of 17.55 and the standard deviation was 4.25. Then the results of futsal playing data analysis can be found that the skill level of 0 people (0%) is declared very good, 3 people (15%) are declared Good, 10 people (50%) are declared Sufficient, 5 people (25%) are declared Less and 2 people (10%) are declared Less once, obtained the lowest total average value (minimum) 60, the highest score (maximum) 101, the average (mean) 65.50, standard deviation (SD) 9.76

Keywords: Nutritional Status; VO2 Max; Basic Techniques; Futsal.

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INTRODUCTION

Sport as a compound word comes from two words: sport and body. Sport means effort to change, mature, or effort to perfect while body means body/physical (Irawan &



Muhtarom, 2021). Etymologically brief, sport means refinement or physical activity (Novitasari & Darmawan, 2019). Exercise is part of planned, structured, repetitive physical activities to improve body fitness (Novitasari & Darmawan, 2019). Sport is one of the physical activities that is useful for maintaining and improving the quality of one's health (Bernhardin & Fauzi, 2022). Therefore, it is highly recommended for someone to exercise diligently. In doing sports, muscle endurance is needed so that someone can exercise optimally. Muscular endurance is the ability of muscle energy to work continuously without pause (Sudirman, 2022). If exercising a person's muscle endurance does not work well, it means that his muscle endurance is not good. Many affect muscle endurance before carrying out a sports activity during training and competition (Imron & Wismanadi, 2022). Futsal is one of the many games favored by residents of parts of the world (Dharmawan, 2022). There is a special excitement felt by those who play this type of big ball type sport. In addition to being able to create an atmosphere of togetherness between individuals in one team, this sport can create an atmosphere of competition between competing teams (Nugraha et al., 2021). Futsal is a game played with all aspects that are simpler than football (Prasetyo Widiyono & Mudiono, 2021). Futsal can be played on a field that is smaller than a football field, futsal sports have fewer players than football (Fasha et al., 2021). Futsal developed into a game favored by the public (Festiawan, 2020). The game that was created by an Argentine national received a big response from the football-loving community (Wahyudi et al., 2020). Futsal grew into a kind of profitable business because the majority of the game was played in closed rooms (Hasan et al., 2020) so entrepreneurs who are in the field rental field also feel the benefits of this game (Solihin, 2020).

The most important thing is how the achievements of futsal sports in Indonesia are that the Indonesian futsal national team will plunge in its 12th year held AFF futsal Championship 2017. Indonesia only missed the inaugural edition in 2001 and in the 2015 edition when Indonesia was sanctioned by FIFA. Of the 11 times the previous futsal national team participated, Indonesia's best achievement was becoming the champion in 2010. Indonesia is the only country that won the champion title besides Thailand. Understandably, Thailand has always dominated with 12 championship titles throughout the 13 times this tournament was held. Here are the achievements of the Indonesian futsal national team throughout the AFF Cup, 2001 absence, 2003 third place, 2005 third place, 2006 runner-u, 2007 group stage, 2008 runner-up, 2009 third place, 2010 champion, 2012 third place, 2013 fourth place, 2014 fourth place, 2015 absence. But at that time Thailand did not participate when Indonesia won in 2010 cross. In the 2017 FFI Futsal National Championship at Jatinangor ITB Bandung, the South Sulawesi futsal team managed to qualify from Group C. This achievement must be full of support to be able to become the pride of the people of South Sulawesi in the field of futsal sports. Front of the head of the group who is also the Vice Chairman of the South Sulawesi Futsal Association, Ahmad Susanto and the manager of the South Sulawesi Futsal team, Nurhaldin, said that they would give bonuses if the futsal team brought home the FFI Championship 2017 South Sulawesi futsal championship trophy. This is Nurhaldin's seriousness to advance sports achievements in South Sulawesi. Because the achievements of South Sulawesi athletes will also be a pride for the people of South Sulawesi. Because the achievements of athletes must be appreciated.

Survey, division, examination or research comprehensively. Surveys conducted in conducting research are usually carried out by distributing questionnaires or interviews, to know: who they are, and what they piker, feel, or tend to an action. Surveys are commonly conducted in quantitative and qualitative research. In quantitative research, surveys are more of closed statements, while qualitative are in-depth interviews with open statements. Surveys are a method of primary data collection by asking questions to individual



respondents. So it can be concluded that surveys are a method of collecting information from groups that represent a population. (Taufik, 2019) In a branch of sport, of course, there is a portion of the components of each physical condition in a certain branch of sport to produce brilliant results or prestige (Habibul Rasyd, Ahmad Atiq, 2019). Especially anaerobic sports, namely futsal where in this sport an athlete certainly must have cardiovascular endurance, muscular endurance and a good physical component (Setiowati, 2014). Being an athlete must also be a regular portion of exercise and also a portion of good food intake, nutritional sources have an important role in producing energy during training (Tisna, 2015). Nutrition is the intake of food needed by the body to produce energy (Mubarani et al., 2017). These nutrients are very important in the human body to produce energy when doing daily activities and sports activities (Prasetio et al., 2017). Nutrition is a process by which organisms use normally consumed food through the processes of digestion, absorption, transportation, storage, metabolism and excretion of substances that are not used to maintain life, growth and normal function of organs, and produce energy (Alfiyan, 2018).

The energy needed to do futsal sports activities is found in many foods that certainly contain balanced nutrition (Arifin, 2019). Balanced nutrition is very necessary for the body, especially in the food eaten every day (Joseph et al., 2022). Foods that contain many nutrients can produce energy for the body, as in nutrients that have a classification of six groups, namely carbohydrates, fats, proteins, vitamins, minerals and water (Prasetyo et al., 2019). Therefore, the role of food is very important in daily life for futsal athletes who often do relatively heavy sports activities such as during training and matches (Bangkit Gala Persada, 2019). Understanding the endurance of an athlete who can overcome fatigue in the body organism during these activities (Josef Nossek. 1982) can be adapted through exercise activities, both for anaerobic and aerobic endurance (Maulina, 2015). Cardiovascular endurance is the ability of the lungs, heart, and blood vessels to deliver a certain amount of oxygen and nutrients to the cells to meet the needs of physical activity that lasts for a long time (Jessicasari & Hartati, 2014). Cardiovascular endurance is the ability of a person's organism to fight fatigue that arises when carrying out activities for a long time (Baihaqi & Hariyanto, 2022). According to some studies and the fact that the energy needed to do futsal sports activities is found in many foods that certainly contain balanced nutrition (Subakti, 2019). Balanced nutrition is very necessary for the body, especially in the food eaten every day. Foods that contain many nutrients can produce energy for the body, as in nutrients that have a classification of six groups, namely carbohydrates, fats, proteins, vitamins, minerals and water. Therefore, the role of food is very important in daily life for futsal athletes who often do relatively heavy sports activities such as during training and matches (Kuncoro, 2016). Based on observations from observations at Club Futsal GERAL FC, the players seem to experience a problem, because, during training and matches, it seems that their physical condition is not fit and not good as seen from the way they play and not quality. It is proven that the club's achievements decline every year.

METHODS

Methods are sciences used to obtain the truth using tracing with certain procedures in finding the truth, depending on the reality being studied. Research is an investigative process carried out actively, diligently, and systematically, which aims to find, interpret, and revise facts. The variable of this study used a single variable, namely nutritional status (BMI) by measuring height and weight, then taking VO2 Max and taking basic futsal techniques.

This research is a survey method with a quantitative descriptive research approach because the data produced in the form of quantitative data is obtained after making observations (observations) and measurements. The population in this study was all futsal athletes, and Geral FC players, totalling 20 people. The sampling technique is *Total sampling*. *Total sampling* is a sampling technique where the number of samples is equal to the population (Sugiyono, 2016). The sampling technique used totalled 20 athletes. In the data collection technique, carried out by observation (observation), a planned procedure includes looking at and recording the amount obtained in surveying the nutritional status and VO2 Max in Geral FC players and seeing their skills playing futsal in sports activities. With the problem under study (Soekidjo, 1993).

This study is a qualitative descriptive test research that aims to provide an overview of the existing reality about the level of nutritional status and cardiovascular endurance of basic futsal techniques at the Geral FC Makassar club. The data analysis technique used is a percentage based on a specified formula. and statistically analyzed using computer facilities through the SPSS 22 program. Aiming to collect data, it will be known to present data and determine value. Then the frequency of each category will be presented in the form of a Percentage. To obtain the Percentage number use the formula:

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

RESULTS AND DISCUSSION

Result

To answer the problem to achieve the objectives and to test the hypothesis of this study, all data is processed using the SPSS 22 statistical test with *descriptive* analysis and percentage descriptive *statistical analysis*.

Based on the processing of single variable data consisting of data (1) nutritional status and (2) VO2 Max data, (3) basic futsal technique data. The data is analyzed descriptively to find out the general picture of the research data. The presentation of the results of data analysis is a summary of the results of the analysis.

Table 1.

Results of descriptive analysis of Nutritional Status Survey data, VO2 Max and Basic futsal techniques

Statistics	IMT	VO2 Max	Basic Futsal Techniques
N	20	20	20
Mean	21,51	45.37	65.50
Standard Deviation	2.24	4.25	9.76
Minimum	17.91	39.55	60
Maximum	26.79	57.10	101

Based on the table above is an overview of nutritional status, VO2 MAX and basic futsal techniques can be stated as follows:

1. Nutritional status, obtained a total average value (mean) of 21.51, minimum data 17.91, maximum data 26.79, with a range of 87.88 and standard deviation of 2.42.
2. VO2 Max, obtained a total mean value (mean) of 45.37, minimum data 39.55, maximum data 57.10, with a range of 17.55, the standard deviation of 4.25
3. Basic futsal techniques, obtained a total average value (mean) of 65.50, minimum data, 60, maximum data 101, with a standard deviation of 9.76.

The analysis of the state of the Ideal Body Mass Index in Geral Fc Makasaar players. The complete calculation results can be seen as follows:

The calculation of BMI is body weight in kilograms (kg) divided by the square of height in meters (m), or written as $BB (kg) / (TB(m))^2$. The results of the study have been analyzed with some data has been obtained so that the results of BMI data on Geral FC players can be deciphered.

BMI Percentage of Geral FC Players

Table 2.

Percentage of Body Mass Index in Geral Fc Makassar players

Interval	Frequency	Percentage %	Criterion
< 19.50	7	30%	Low
19,50 – 25,45	11	60%	standard
25,50 – 29,45	2	10%	Obesity
> 29.45	0	0,0%	Obesity
Sum	20	100%	

Based on the recapitulation of the table above, through the specified Percentage formula, it will be known the Ideal body mass index in Geral fc Makassar players based on the level as follows:

a. Low

$$\% = \frac{7}{10} \times 100$$

$$\% = \mathbf{30 \%}$$

b. Standard

$$\% = \frac{11}{10} \times 100$$

$$\% = \mathbf{60 \%}$$

c. Obesity

$$\% = \frac{2}{10} \times 100$$

$$\% = \mathbf{10 \%}$$

d. Obesity

$$\% = \frac{0}{10} \times 100$$

$$\% = \mathbf{0 \%}$$

Based on **Table 3** of the percentage of Ideal Body Mass Index in Geral Fc Makassar players from 20 samples, low criteria were obtained for as many as 7 people or 30%. The standard criteria are 11 people or 60%. The obesity criteria were 2 samples or 10% and the obesity criteria were 0 samples or 0%.

VO2 Max Percentage

Table 3.

VO2 Max percentage in Geral Fc Makassar players.

Very less	Less	Good	Very good
>20.72	>34.7 >34.3 >37.5 >35.7>38.9 >38.2	>52.8 >45.5 >40.8 >42.6 >51.6 >47.4 >44.9 >45.2 >51.4 >44.9 >48.4 >41.1	>57.6
1	6	12	1

Based on the percentage recapitulation of Table 3 above, it is known the level of Vo2Max ability in Geral FC players. The percentage of Vo2Max levels in FC Makassar Title



players from 20 samples obtained low criteria for as many as 7 people. The standard Criteria are 12 people. Very good or high criteria of at least 1 sample person

Percentage of Futsal Play

Table 4.

Frequency Distribution Level Basic futsal techniques of Geral FC Makassar players.

No	Internal	Category	Frequency	Percentage (%)
1	$51 \leq X$	Very good	0	0 %
2	$51 < X \leq 60$	Good	2	10%
3	$61 < X \leq 70$	Enough	10	50%
4	$71 < X \leq 80$	Less	6	30%
5	$81 < X$	Very less	2	10%
Sum			20	100%

From the table and diagram above, it can be seen that the skill level (1). 0 people (0%) were declared very good, (2). 2 people (10%) declared Good, (3). 10 people (50%) declared Sufficient, (4). 6 people (30%) were declared Less and (5). 2 people (10%) stated Less once.

Discussion

Based on the results of the research categories that have been presented, the following describes the discussion of research which is also the answer to the formulation of the problem in the research. The discussion of the ideal body mass index survey varies based on the level of nutritional status between Ideal, Overweight, and Obesity. Based on the results of the Ideal Body Mass Index level in Geral Fc Makassar players from 20 samples, low criteria were obtained for 7 people or 30%. The standard criteria are 11 people or 60%. The criteria for obesity were 2 samples or 10% and the criteria for obesity were 0 samples or 0%. However, the most dominant in Geral Fc Makassar players is the standard, for the results of the nutritional status of Geral Fc players. Thus, it can be concluded that the state of nutritional status (BMI) in Geral FC players is dominant in the standard / Ideal category with a percentage value in players of 95%.

This is based on the calculation of Body Mass Index (Ihsan Nur, 2011) using direct measurements, namely by anthropometric examination by measuring height and weight. Using anthropometric measurements aims to determine the ideal body mass index in the player or sample. As for fat measurement can be done using a formula or body fat monitor tool. Body mass index is the easiest way to estimate obesity and correlates with body fat mass, but it is also important to identify obese patients who are at risk for medical complications. BMI has the main advantage of describing excessive body fat, simple and can be used in large-scale population studies. Having good nutrition can be able to give a special feature to nutritional conditions in the body, nutrition is a change that affects the process of changing all types of food that enter the body, which can sustain life. (Bogert 1973) and (Djoko Pekik 2007) define nutrition science as the science that studies how to feed the body properly or appropriately. Nutrition is an element contained in food, where these elements can provide benefits for the body that consumes it so that it becomes healthy. Nutritional status is a measure of success in fulfilling nutrition for children indicated by body weight and height. Nutritional status is also defined as the health status produced by the balance between nutrient needs and inputs. Nutritional status research is a measurement based on anthropometric and biochemical data.

Based on the results of the study, Vo2Max levels in FC Makassar Title players from 20 samples obtained low criteria for as many as 7 people. The standard Criteria are 12 people. Very good or high criteria of at least 1 person sample. Thus, it can be concluded

that the state of cardiovascular endurance in Geral FC players is dominant in the standard/sufficient category with a percentage value in players of 95%.

Various ways can be done to increase the VO2 Max value. VO2 Max or what is called maximal oxygen consumption, maximal oxygen uptake, *peak oxygen uptake* or *maximal aerobic* capacity is the maximum capacity of a person's body to deliver and use oxygen during high-intensity exercise. Endurance is a state or condition of the body that can be practised for a long time. Without experiencing excessive fatigue after completing the exercise. Therefore, exercises to develop endurance components must be within these limits. So, the exercises we choose must last for a long time, such as long-distance running, long-distance swimming, cross-country or cross-country running, fartlek, interval training, or any other form that forces our bodies to work for a long time. Endurance training is an exercise at the aerobic level, meaning that the supply of O₂ is still sufficient to serve the intensity of the exercise performed.

This is based on direct measurements and calculations, namely with the bleep test method by measuring the ability of cardiovascular resistance data aims to determine Vo2Max levels in Geral FC Makassar players, The Bleep test is a method of measuring Vo2Max levels to determine a person's level of ability in terms of cardiovascular ability. It is recommended that athletes if they want to improve cardiovascular endurance, must pay attention to nutritional status as a good cardiovascular endurance supporting actor so that they can contribute to sports activities.

The basic futsal technique is the level of a person's ability to achieve effective and efficient goals which are determined by speed, accuracy of form and ability to adjust. According to Singer (1975: 34) skill leads to the degree of success in achieving goals effectively and efficiently which is determined by speed, accuracy, shape and adaptability. Based on the results of research on the basic futsal technique category of Geral Fc players, it can be seen that the skill level of 0 people (0%) is declared very good, 2 people (10%) are declared Good, 10 people (50%) are declared Enough, 6 people (30%) are declared Less and 2 people (10) are declared Less once.

Thus, it can be concluded that the skill ability of Geral FC players is dominant in the good category with a percentage value in players of 95%. In basic futsal techniques, several abilities can be needed to master basic futsal playing techniques, such as (1) basic passing techniques, (2) basic techniques of holding the ball (control), (3) basic techniques of passing the ball (chipping), (4) basic dribbling techniques, (5) basic techniques of shooting the ball (shooting), and (6) basic heading techniques. The ability to master basic futsal techniques is very necessary in modern futsal. Futsal is a game that has the technical ability to play the ball and also has a maximum physical condition so that it can influence the game you have. Futsal is a core player played five against five people on indoor and outdoor courts, this game rolls faster from foot to foot with a small, flat and hard court surface in a certain time and a team's victory is determined by the number of balls entered into the opponent's goal.

CONCLUSION

Based on the results of the data and discussion of this study, it can be concluded that the survey of nutritional status, cardiovascular endurance and basic futsal techniques at Club Gerel Fc Makassar.

1. The results of the percentage of Ideal Body Mass Index in Geral Fc Makassar players from 20 samples obtained low criteria of 7 people or 30%. The standard criteria are 11 people or 60%. The criteria for obesity were 2 samples or 10% and the criteria for obesity were 0 samples or 0%.

2. The percentage of Vo2Max levels in FC Makassar Title players from 20 samples obtained low criteria for as many as 7 people. The standard Criteria are 12 people. Very good or high criteria of at least 1 person sample.
3. Based on the results of the percentage of basic futsal techniques, it can be seen that the skill level of 0 people (0%) is declared very good, 2 people (10%) are declared Good, 10 people (50%) are declared Enough, 6 people (30%) are declared Less and 2 people (10) are declared Less once.

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