

**ANALYSIS OF NUTRITIONAL STATUS OF ADOLESCENT MALE
FUTSAL PLAYERS IN THE U-16 CATEGORY
ON THE FUTSAL ROOT TEAM**

Hasan Basri¹, Rayhan Rasyid Zuhdy², Tatang Iskandar³, Azi Faiz Ridlo⁴
Universitas Islam 45 ^{1,2,3,4}
Hasanbasri1984@mail.com

Abstract

Nutrition status is a measure of success in fulfilling nutrition for a person as indicated by body weight and height. Nutritional status is also defined as a health status resulting from a balance between nutritional needs and inputs. The purpose of this study was to determine the adequacy level of nutritional status in a person. The method used in this analysis process is cross sectional, with a total sample of 18 futsal players aged 14-15 years. The sampling process in this study was active players on the Akar Futsal Academy team, and were ready to participate in the research until it was finished. The results of this research data show that the average status is normal by calculating the Body Mass Index, the normal status is in the adequacy of fat and carbohydrates, and the status is deficient in the adequacy of protein and daily calorie consumption. At this conclusion it can be concluded to start paying more attention to the needs of the body's own nutrition as a form of fulfillment of nutrients.

Keywords: *Nutritional; Futsal; U-16*

Submitted : 28th of May 2023
Accepted : 24th of July 2023
Published : 25th of July 2023

Correspondence author: Hasan Basri, Universitas Islam 45, Indonesia.
E-Mail: Hasanbasri1984@mail.com

DOI <http://dx.doi.org/10.31851/hon.v6i2.12680>



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INTRODUCTION

Coaching on futsal sports in Indonesia continues to increase every year, this can be seen by the rise of futsal academies in various categories from each region (Mashud et al., 2019). On March 10, 2013, a parent was formed to oversee each futsal academy called the Indonesian Futsal Academy Association (AAFI). Every player from the academy or non-academy certainly wants to provide the best futsal achievements for Indonesia, but there are many factors that affect the performance of each futsal player on the field, ranging from human resources, player mentality, to facilities (Munandar et al., 2020).

One factor that needs to be considered in this case is an effort to meet the nutritional adequacy of futsal players to be able to improve performance (Mardiyanto, 2017; Ramdhani & Basri, 2023). Nutritional status is an expression of the state of the body caused by food consumed, absorption of food substances, and energy use, which can be expressed in the form of certain variables (Hakim et al., 2020; Lestari & Amen, 2019). Nutritional status can be seen from a person's physical state such as height, weight, and percent fat. The importance of paying attention and striving for food intake and nutritional status should be realized by athletes (Muharam, 2019; Vania et al., 2018).

Energy needs for athletes vary greatly according to the duration, type and intensity of the exercise performed. (Rismayanthi, 2015) Food intake needs and nutritional status that must be met are types of macronutrients such as carbohydrates, proteins, and fats, as well as micronutrients, namely vitamins and minerals (Desiplia et al., 2018). Energy fulfillment intake in the body as a differentiator of nutritional status will eventually be divided into several statuses (poor nutrition, less, and more). The measure of success in fulfilling nutrition for athletes will be very visible by the physical condition and performance of the athlete on the field (Iskandar et al., 2023). In futsal (including big ball games) athletes use their feet and head and other limbs (except hands that can only be used by goalkeepers) when competing. Futsal athletes (anaerobic sports) must have muscle strength, cardiovascular endurance, and good concentration on the field (Ninzar, 2018). Futsal athletes are advised to consume foods that contain sufficient carbohydrates (rice, cereals, bananas, etc.) before training or matches that will affect concentration and endurance (Andriyani & Budiono, 2021; Puspitasari et al., 2020). For athletes, consuming foods that contain a lot of carbohydrates is needed in the span of one to four hours before training and competing. This is so that the body can digest food optimally so that athletes are able to perform activities optimally (Gunawan, 2018). Food intake and nutritional status are fundamental things that must be considered in supporting the achievements of athletes in the world of sports.

Food intake and nutritional status for athletes are often overlooked, athletes' problems regarding food intake and nutritional status are generally related to the lack of healthy food available (Harvianto & Sakti, 2021; Kuswari et al., 2021). The importance of nutritional status awareness in the world of sports must begin at the developmental stage of every child to achieve a good physical component at a mature age (Suryana, 2021). Vulnerable age gap of 13-16 years is a significant phase of growth and development as well as the transition process towards adolescence or in the pre-adolescent stage (Bompa & Buzzichelli, 2019). From several categories in the futsal academy, ranging from U-10 to U-20, this study takes the U-16 category number. This category is the stages of the athlete's process in physical development, technique and experience. On the basis of the calculation theory "Golden Age" the peak performance of athletes in various sports, is between the ages of 19-25 years. Therefore, coaching athletes to achieve their best achievements requires a process of about 6-10 years, so the orientation of coaching and sports training must begin in children aged around 11-15 years (Jamalong, 2014).

Seeing the high enthusiasm for futsal sports in Indonesia at a young age, and with awareness of the importance of nutritional status in the development of futsal athletes. Finally selected one of the futsal academies with pre-adolescent age coaching as the object of this research, Akar Futsal Akademi is one of the futsal clubs located in East Jakarta and is associated with the Indonesian Futsal Academy Association Jakarta 2 region. The academy trains at Tifosi Sport Centre, East Jakarta. Akar Futsal Akademi U-16 category has a core of 28 players coached by Kresno Rilo Fradhana.

METHOD

This research is a quantitative research that is descriptive with an approach Cross sectional (Hamzah, 2021) The method used in collecting this study data used a survey form of food consumption in a day (24 hours food recall), and anthropometry (weight, height, and percent body fat) (Mandey et al., 2020). The population in this study is futsal players who are still active in the Akar Futsal

Academy with the U-16 age category with a total of 28 players with a sample of 18 futsal players in the U-16 category from the entire population in the Akar Futsal Academy. The selection of the final category of players to be studied will be determined according to the measurement standards of each variable that will be recorded by interviews, food consumption surveys, and anthropometric measurements (body weight and height)

Data analysis in research is a descriptive analysis, which aims to explain or describe the characteristics of each research variable (Anggito & Setiawan, 2018; Sugiyono, 2018). The data obtained are searched for quantities and averages, then grouped by variable (BMI, percent fat, adequate level of carbohydrates, fat, and protein) then presented in Table frequency distribution.

RESULT AND DISCUSSION

The results of research on the nutritional status of Akar Futsal Akademi players based on the calculation of data obtained through a food consumption survey form which is then processed with a Diet Analysis sheet will be presented according to each variable (fat, carbohydrates, protein) and the number of daily calorie needs of each player.

Table 1. Percentage of Fat Adequacy of Academy Futsal Root Players

No	Name	Amount of Body Fat	Status
1	Muhammad Dirga	4,65%	Less
2	Raffi Rahma Deny	18,93%	Excess
3	Ahmad Fadhilah El Azizi	6,45%	Less
4	Sangsaka Mulia Kartawijaya	8,38%	Usual
5	Marcelino Raul Salampessy	9,57%	Usual
6	Wildan Fida Revaliza	7,89%	Less
7	Kevin Akbar Adiguna	11,49%	Usual
8	Nathaniel Maxwell Diputra	13,54%	Usual
9	Muhammad Rifat Syauqi	15,69%	Usual
10	Muhammad Tomi Wahid	9,45%	Usual
11	Muhammad Ravi Al-Hisham	13,54%	Usual
12	Habib Raka Pratama	9,34%	Usual
13	Haikal Ali Bazra	12,21%	Usual
14	Ayraldi Banadio Ramadan	13,42%	Usual

15	Dewa Artha Kusumah	27,57%	Excess
16	Solehudin Syarif	14,97%	Usual
17	Visal Ady Yanuar	19,06%	Excess
18	Angga Wijaya Prakoso	15,69%	Usual
	Average	12,84%	Usual

Fat adequacy data is obtained from the results of calculating the total amount of body fat analyzed with diet plan analysis sheets, then these results are recalculated by adding up the total results of each food consumption survey sheet as many as eight sheets (from eight meetings). The result of each player's calculation will be averaged and divided by the player's weight. The average value of fat adequacy is carried out by a calculation method summing the daily fat adequacy of players divided by the sum of all players sampled. Based on table 1 shows that the average fat adequacy of Akar Futsal Akademi players is at a value of 12.84%, which means that the fat adequacy is in the normal category.

Table 2. Carbohydrate Adequacy Percentage of Academy Futsal Root Players

No	Name	Daily Carbs	Carbohydrate Weight	Status
1	Muhammad Dirga	112g	3.3g/kggb per day	Less
2	Raffi Rahma Deny	622g	8.3g/kggb per day	Usual
3	Ahmad Fadhilah El Azizi	281g	6.7g/kggb per day	Usual
4	Sangsaka Mulia Kartawijaya	417g	8.4g/kggb per day	Usual
5	Marcelino Raul Salampessy	294g	5.5g/kggb per day	Less
6	Wildan Fida Revaliza	255g	5.3g/kggb per day	Less
7	Kevin Akbar Adiguna	512g	8.2g/kggb per day	Usual
8	Nathaniel Maxwell Diputra	471g	8.9g/kggb per day	Usual
9	Muhammad Rifat Syauqi	438g	5.8g/kggb per day	Less
10	Muhammad Tomi Wahid	534g	9.7g/kggb per day	Usual
11	Muhammad Ravi Al-Hisham	460g	7.1g/kggb per day	Usual
12	Habib Raka Pratama	305g	5.8g/kggb per day	Less
13	Haikal Ali Bazra	350g	7g/kggb per day	Usual
14	Ayraldi Banadio Ramadan	415g	6.7g/kggb per day	Usual
15	Dewa Artha Kusumah	885g	9.2g/kggb per day	Excess
16	Solehudin Syarif	240g	4g/kggb per day	Less
17	Visal Ady Yanuar	282g	5.1g/kggb per day	Less
18	Angga Wijaya Prakoso	654g	10.9g/kggb per day	Excess
	Average			

418.2g 7.2g/kggb per day Usual

Based on table 2 shows that the percentage of carbohydrate adequacy of Akar Futsal Akademi players in 18 players is in the normal category with a daily carbohydrate value of 418.2 grams and a total carbohydrate weight of 7.2 grams / kgbb per day. Carbohydrate data is obtained from the results of calculating the total amount of food weight analyzed with diet plan analysis sheets, then these results are recalculated by adding up the total results of each food consumption survey sheet as many as eight sheets (from eight meetings). The result of each player's calculation will be averaged and divided by the player's weight. The average value of carbohydrates is carried out by a calculation method that sums the daily carbohydrate total of players divided by the sum of all players sampled. The results of the calculation will be divided by the average weight value of the player in the anthropometric data that has been obtained. The final carbohydrate value shows normal status even though some players have excessive or deficient amounts of consumption

Table 3. Protein Adequacy Percentage of Academy Futsal Root Players

No	Name	Daily Protein	Total Weight of Protein	Status
1	Muhammad Dirga	55 g	1.6g/kgbb per day	Usual
2	Raffi Rahma Deny	66 g	0.9g/kgBB per day	Less
3	Ahmad Fadhilah El Azizi	48 g	1.1g/kgbb per day	Less
4	Sangsaka Mulia Kartawijaya	53 g	1.06g/kgBB per day	Less
5	Marcelino Raul Salamessy	62 g	1.1g/kgbb per day	Less
6	Wildan Fida Revaliza	59 g	1.2g/kgbb per day	Usual
7	Kevin Akbar Adiguna	81 g	1.3g/kgbb per day	Usual
8	Nathaniel Maxwell Diputra	64 g	1.2g/kgbb per day	Usual
9	Muhammad Rifat Syauqi	98 g	1.3g/kgbb per day	Usual
10	Muhammad Tomi Wahid	71 g	1.3g/kgbb per day	Usual
11	Muhammad Ravi Al-Hisham	59 g	0.9g/kgBB per day	Less
12	Habib Raka Pratama	61 g	1.1g/kgbb per day	Less
13	Haikal Ali Bazra	57 g	1.1g/kgbb per day	Less
14	Ayraldi Banadio Ramadan	80 g	1.3g/kgbb per day	Usual
15	Dewa Artha Kusumah	127 g	1.3g/kgbb per day	Usual
16	Solehudin Syarif	66 g	1.1g/kgbb per day	Less
17	Visal Ady Yanuar	53 g	0.9g/kgBB per day	Less

18	Angga Wijaya Prakoso	82 g	1.4g/kgbb per day	Usual
	Average	69 g	1.1g/kgbb per day	Less

Based on table 3 shows that the percentage of protein adequacy of Akar Futsal Akademi players in 18 players is in the normal category with a daily protein value of 69 grams and a total protein weight of 1.1 grams / kgbb per day.

Table 4. Percentage of Caloric Adequacy of Academy Futsal Root Players

No	Name	Calorie Needs	Number of Calories	Status
1	Muhammad Dirga	1,707 kcal	1,288 kcal	Less
2	Raffi Rahma Deny	2,416 kcal	2,612 kcal	Fulfilled
3	Ahmad Fadhilah El Azizi	1,850 kcal	1,373 kcal	Less
4	Sangsaka Mulia Kartawijaya	1,991 kcal	2,128 kcal	Fulfilled
5	Marcelino Raul Salampessy	2,088 kcal	1,978 kcal	Less
6	Wildan Fida Revaliza	1,999 kcal	1,680 kcal	Less
7	Kevin Akbar Adiguna	2,260 kcal	2,110 kcal	Less
8	Nathaniel Maxwell Diputra	1,962 kcal	1,970 kcal	Fulfilled
9	Muhammad Rifat Syauqi	2,465 kcal	2,510 kcal	Fulfilled
10	Muhammad Tomi Wahid	2,147 kcal	2,210 kcal	Fulfilled
11	Muhammad Ravi Al-Hisham	2,245 kcal	1,882 kcal	Less
12	Habib Raka Pratama	2,196 kcal	1,998 kcal	Less
13	Haikal Ali Bazra	1,923 kcal	1,828 kcal	Less
14	Ayraldi Banadio Ramadan	2,200 kcal	2,315 kcal	Fulfilled
15	Dewa Artha Kusumah	2,676 kcal	3,071 kcal	Fulfilled
16	Solehudin Syarif	2,112 kcal	1,782 kcal	Less
17	Visal Ady Yanuar	2,001 kcal	1,864 kcal	Less
18	Angga Wijaya Prakoso	2,095 kcal	2,005 kcal	Less
	Average	2,129 Kcal	2,033 Kcal	Less

Based on table 4 shows that the percentage of calorie adequacy of Akar Futsal Akademi players in 18 players is in the less category with a daily caloric requirement value of 2,129 Kcal and a total calorie of 2,033 Kcal. Thus, that there are many differences in the fulfillment of macronutrients and calorie adequacy in each Akar Futsal Academy player.

Discussion

Based on the formulation of the problem in this study, the data above shows the condition of nutritional status based on calculations from anthropometry of each player and the assessment of nutritional status of Akar Futsal Akademi players

based on each indicator of macronutrients. This study also shows that the consumption pattern of each individual is very influential on nutritional status and meeting the needs of the body. In the process of conducting this study, the author can see directly the performance condition of each player is different on the field, players who have indications of normal nutritional status on each indicator of nutritional status assessment have a more stable performance during the research and training process. The results of each calculation of macronutrient levels of each player that have been processed from the results of collecting daily food consumption surveys will always be reported to these players during the next study.

The results of a total of eighteen samples were also given to the head coach of the Akar Futsal Academy U-16 category, with the results of which the coach also had limits and targets adjusted on each player who participated in the training session. The data collected is also an example of the picture of each player in managing their diet in one day, the results of the food recall form and diet analysis sheet can be openly seen by the general party. The description of the results of the study obtained by the author can be concluded that by conducting an analysis of nutritional status is very important for someone whether they carry out structured physical activities or not. With the form of this study, the author strongly recommends that each individual begin to recognize the components and physical needs in themselves, as an effort to meet the needs of the body.

CONCLUSION

Based on the results of research and discussions related to the analysis of the nutritional status of futsal players in the pre-adolescent age category of 16 years in the East Jakarta Akar Futsal Akademi team, it can be concluded that the average nutritional status of Akar Futsal Akademi players based on the body mass index is in the normal category. The average level of macronutrient adequacy in Akar Futsal Akademi players for fat is in the normal category, carbohydrates in the normal category, while protein in the less category. The average level of calorie adequacy in Akar Futsal Akademi players is in the less category.

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