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PROTEIN ENERGY ADEQUACY LEVELS ON PHYSICAL FITNESS IN BADMINTON PLAYERS AT IKBIS SURABAYA

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ABSTRACT

Badminton is a sport that uses a combination of strength and endurance. Badminton athletes need to have good physical fitness to produce oxygen for energy formation. Factors that influence physical fitness are age, gender, genetics, nutritional status, nutritional intake, and physical activity. The research aims to determine the level of protein intake of badminton players on the physical fitness of students at Ikbis Surabaya. The research was carried out at the IKBiS Surabaya Badminton Court using descriptive analytical methods. The research sample was 11 respondents who were badminton players at the Surabaya Health and Business Institute who were registered with the Surabaya Health and Business Institute UKM. Research data includes the level of nutritional adequacy and physical fitness of badminton players at the Surabaya Institute of Health and Business. The research results showed that the majority of respondents had a good level of protein adequacy of 54.5%. At the level of physical fitness, male and female athletes have a very poor category of 60.0% and 83.35%. It was concluded that there was a relationship between Protein Energy Adequacy Level and Physical Fitness among students at IKBIS Surabaya

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1. INTRODUCTION

Badminton is part of a sport that uses a tool called a racket as a tool to hit the shuttlecock. This game is played by two opposing people, or two opposite pairs on a square-shaped court (Wardana, 2017). Badminton is a sport that is popular with many people, therefore badminton can be an option for maintaining physical fitness (Harianja, 2021). The sport of badminton includes aerobic and anaerobic sports activities which are a combination of strength and endurance. The body's ability to use oxygen optimally (VO2Max) is an efficient way to provide energy for every athlete to achieve achievements. Therefore, badminton athletes need to have good physical fitness to provide oxygen for energy formation (Irianto, 2007).

Badminton players must consume the right nutrients to provide optimal action and play. The right nutrients can provide increased performance obtained from the results of energy being broken down in the body (Zahra and Muhlisin, 2020). Nutrients are substances contained in food that are needed by the body to produce energy to be able to carry out daily activities. Syafrizar and Wilda (2009) stated that the nutrients needed by athletes consist of macronutrients (carbohydrates, protein and fat) and micronutrients (iron). Carbohydrates are a type of nutrient that is very important for athletes, because carbohydrates are the main energy supplier (Syampurna, 2018). Food is a source of energy to support all human activities, one of which is playing badminton. Specifically regarding nutrition, providing the right food intake will provide all the nutrients needed for normal body function, nutrients function to provide energy, growth and maintenance of body tissue, and regulate body processes (Cahyaputra, 2016). Insufficient nutritional intake can result in stunted growth and other nutritional problems (Harjatmo et al, 2017).

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Physical fitness is an individual's ability to carry out physical activities easily without experiencing excessive fatigue, this influences the conditions of the physical activities to be carried out. Good physical fitness can provide the benefit of being fresher and not getting tired quickly when doing activities (Sinuraya and Barus, 2020). Physical fitness will support athletes' abilities, but an intake that contains sufficient and balanced nutritional content is required (Salamah et al, 2019). One way to achieve an excellent level of physical fitness is by carrying out a series of tests, such as a 60 meter sprint, a straight jump test, a 60 second sitting lying test, and a running test with a distance of 1200 meters (Sinuraya and Barus, 2020). Someone who has good physical fitness will be able to carry out daily activities for a longer time than someone who has low physical fitness. Physical fitness will support the ability to be able to carry out daily activities (Suharjana, 2013)

In the scope of sports coaching, nutritional adequacy and other aspects support achievement, because athlete performance is determined by the quality of training obtained from the athlete's health status and nutritional status. Ways to achieve maximum performance include athlete education and physical training, mental development, appropriate coaching methods, adequate training facilities, and optimal nutritional management (Arsani et al, 2014). Physical condition is one of the conditions needed in every effort to improve athlete performance, and can even be used as a starting point for starting an achievement (Bryantara, 2016).

The quality of physical exercise and sports activities is influenced by various factors such as nutritional status and nutrient intake in achieving physical fitness and sports performance (Bafirman and Wahyuri, 2018). Therefore, researchers are interested in conducting research on the nutritional intake of badminton players on physical fitness among students at IKBIS Surabaya. Researchers chose badminton athletes because badminton is one of the most popular sports in the world, playing badminton requires strong physical endurance, speed and continuous energy expenditure.

2. RESEARCH METHOD

The research was conducted using descriptive analytical methods with a cross-sectional study design, namely research that observes population or sample data only once at the same time because the approach, observation or data collection simultaneously at one time means that each research subject is only observed once. and measurements are made on the subject's character status or variables at the time of the examination. The physical fitness test is carried out by means of a balke test, namely a 20 minute running test on a 200 meter track.

Nutrient intake is the average number of calories from food consumed by athletes during the last 24 hours. This is done using the food consumption recall method (24 hour food recall). The Food Recall method is carried out 1x24 hours, namely during badminton practice. Data analysis was carried out using computer software, namely SPSS version 22.00 and also modified nutrisurvey to calculate nutrient intake. Results of descriptive analysis using SPSS version 22.00. Next, a hypothesis test was carried out using the chi-square test

3. RESULTS AND ANALYSIS

The frequency distribution of respondents based on the level of protein energy adequacy on physical fitness in badminton players at IKBIS Surabaya is as shown in Table 1 is as shown in Table 1

Table 1 Frequency Distribution of Respondents based on nutritional intake of badminton players on physical fitness among students at IKBIS Surabaya

	N	Minimum	Maximum	Mean	Std. Deviation
Tingkat Kecukupan Protein	11	77%	103%	88,81%	9,08
Tingkat Kebugaran Jasman1	11	28,77 ml/kg/min	43,67 ml/kg/min	36,53 ml/kg/min	4,75

Based on the table above, it shows that the standard deviation for the Protein Adequacy Level is 9.08 with a mean of 88.81% and the standard deviation for the Physical Fitness Level is 4.75 with a mean of 36.53 ml/kg/min.

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In relation to research on Protein Energy Adequacy Levels on Physical Fitness in badminton players at IKBIS Surabaya, it can be seen in Table 2.

Table 2 Level of Protein Energy Adequacy on Physical Fitness among students at IKBIS Surabaya

Energy Protein	Kebugaran Jasmani		Total	*P Value*
	Kurang	Kurang Sekali		
Baik	3	6	9	.011
	2.5	6.5	9.0	
Kurang	1	1	2	
	5	1.5	2.0	
Total	3	8	11	
	3.0	8.0	11.0	

Based on Table 2, it shows that of the 11 respondents (100%) the Energy level was good with less physical fitness, namely 3 respondents, less Energy with less physical fitness, namely 5 respondents, Good Energy level with very less physical fitness, namely 6 respondents and Energy lacking with very poor physical fitness, namely 1 respondent.

Based on the results of statistical tests, there is a significant relationship between the energy level of badminton players and the physical fitness of students at IKBIS Surabaya with p value = $0.011 \leq \alpha$ (0.05).

Nutrition is an important factor to support sports. Complete nutritional intake and the right portions will make the exercise you do better and your body function will be optimal. Athletes who receive nutritional intake according to their needs will improve their performance in achieving their best performance. The nutritional needs of athletes are different from the nutritional needs of non-athletes, this is due to differences in physical activities or activities and psychological conditions. Each athlete's nutritional intake also differs depending on the sport, badminton is a sport that uses muscle strength and endurance. The nutrients needed by athletes consist of macronutrients and micronutrients (Ministry of Health of the Republic of Indonesia, 2021). Carbohydrates are a type of nutrient that is very important for athletes. Carbohydrates are the main energy supplier so that athletes' energy reserves meet their needs. The body needs energy as a source of energy for all activities. A person's energy needs are the energy consumption from food that is needed to cover a person's energy expenditure if he or she has a body size and composition with activities that are compatible with long-term health and that enable the maintenance of physical activity that is socially and economically required (Cahyaputra, 2016)

Protein plays an important role in muscle repair and growth. Protein intake immediately after training or competition can increase protein synthesis throughout the body, this can support muscle formation in the athlete's body and optimize the athlete's recovery period (Indonesian Ministry of Health, 2021). Good sources of protein include lean meats, poultry, fish, eggs, dairy products, and nuts. One gram of protein provides four kilocalories of energy (Zahra and Muhlisin, 2020). An athlete's protein needs are slightly different from those of a non-athlete. An athlete who does heavy training, competitions and is still a teenager growing will need more protein.

Protein is a substance that builds body tissue, but this does not mean that the higher the protein consumption, the greater the muscle formation. The formation of muscle mass and strength is determined by well-programmed exercise and supported by adequate food. Athletes are not recommended to consume excessive protein sources. Excessive protein consumption causes the liver and kidneys to work harder, because they have to break down and excrete excess protein. This is because protein, unlike carbohydrates and fat, cannot be stored in large enough quantities in the body and the excess must be excreted from the body through urine and feces (Fitriani and Purwaningtyas, 2021).

4. CONCLUSION

Protein plays an important role in energy metabolism and overall health. Although protein is primarily known for being involved in building and repairing tissue, it also contributes to energy production, especially in situations where the availability of carbohydrates and fats is limited. Body fitness has a vital role in playing badminton, especially when facing matches. The need for a player's protein source is very important in maintaining body fitness.

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