The Relationship Between the Level of Adequate Nutrition and Endurance in Physical Education Students

Agung Nugroho[1], Mawardinur[2], Andy Prayogy[3], Syuhadi[4], Dicka Ardanta[5]

{agung_nugroho@student.uns.ac.id[1], nurmawardi818@gmail.com[2], andyprayoga@gmail.com[3], syuhadi111@gmail.com[4], dickaardanta@gmail.com[5]}

Sekolah Tinggi Olahraga dan Kesehatan Bina Guan, Jl. Alumunium Raya No.77, Tj. Mulia Hilir, Kec. Medan Deli, Kota Medan, Sumatera Utara 2024[1], Sekolah Tinggi Olahraga dan Kesehatan Bina Guan, Jl. Alumunium Raya No.77, Tj. Mulia Hilir, Kec. Medan Deli, Kota Medan, Sumatera Utara 2024[2], Sekolah Tinggi Olahraga dan Kesehatan Bina Guan, Jl. Alumunium Raya No.77, Tj. Mulia Hilir, Kec. Medan Deli, Kota Medan, Sumatera Utara 2024[3], Sekolah Tinggi Olahraga dan Kesehatan Bina Guan, Jl. Alumunium Raya No.77, Tj. Mulia Hilir, Kec. Medan Deli, Kota Medan, Sumatera Utara 2024[4], Sekolah Tinggi Olahraga dan Kesehatan Bina Guan, Jl. Alumunium Raya No.77, Tj. Mulia Hilir, Kec. Medan Deli, Kota Medan, Sumatera Utara 2024[5]

Abstract. The aim of this research is to find out whether there is a relationship between the level of nutritional adequacy and endurance in physical education students. In this research the method used is descriptive research with a correlational research type and a quantitative approach. The sample in this study was 37 physical education students. The data in this study was obtained from a 24-hour food recall questionnaire, and endurance data was taken using a 1,600 meter running test to measure endurance in physical education students. Data analysis in this study was assisted using the SPSS 26 application to determine the relationship between variables. From the analysis carried out, the following results were obtained for variable Durability).

Keywords: Nutritional Adequacy, Endurance

1 Introduction

Students are agents of change, providing solutions to national communities in various parts of the world who are experiencing problems. For a student, physical fitness is very necessary to support a lecture. Especially for physical education students themselves. Apart from having talent and interest in the world of sports, a physical education student is also required to have adequate physical fitness and excellent health. However, the reality in the field is that many students, especially in the sports sector, consume fast food such as instant noodles, sausages, nuggets and other snacks.

(Sumarni & Andriani (2019) expressed the opinion that a correct and healthy eating pattern is a regular eating pattern every day, consuming food not excessively and eating on time

at the same time every day and reducing foods that contain preservatives. (Muhayati & Ratnawati , (2019) argue that eating patterns can be influenced by several factors, namely habit factors, frequency of eating and the type of food consumed. It can be concluded that eating patterns can be influenced by habit factors, frequency of eating and the type of food to be consumed.

The body needs an adequate supply of all nutrients to grow well. Therefore, teenagers need food that is both quality and quantity. According to (Azrimaidaliza & Purnakarya, (2011), "The more varied or diverse the food consumed by teenagers will ensure that adequate nutrition is met." By fulfilling nutrition in the body, the body will also be ready to carry out daily activities, including doing sports or physical activity. Nutrition is a process by which organisms use food that is consumed normally through 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 (Wiwik Kusumawati , 2019 : 2). Adequate nutrition obtained from the food consumed can affect the body's immune system.

Endurance itself is the ability to work or train for a long time without experiencing significant fatigue (Kurnia & Kushartanti, 2013: 137). Endurance is influenced by food intake, age, gender, nutritional status, body composition, genetics, physical activity and exercise. Therefore, one of the factors to support a person's endurance is the intake of nutrients from food, both in quality and quantity. Endurance is divided into 2, namely general endurance (cardiovascular endurance or general endurance) and muscle endurance (muscle endurance).

According to Nurhasan and Choiril Hasanudin (2014: 125) that cardiovascular endurance is one of the main elements of physical fitness. Cardiovascular endurance is the ability of the circulatory and respiratory systems to function optimally when carrying out daily activities for a long time without experiencing fatigue, which means Widiastuti, (2017) Measurement of cardiovascular endurance can be done by carrying out various tests such as: 1,600 running test M, Harvard test and Multistage Fitness Test (Bleep Test). People who have good physical condition have more efficient circulatory and respiratory systems than untrained people. Doing systematic and regular exercise can affect the efficiency of heart and respiratory function.

The aim of this research is to determine whether there is a relationship between nutritional adequacy and endurance in physical education students

2 Method

In this study, the sample consisted of 22 samples, data collection techniques used primary sources and secondary sources. The technique for collecting this data uses test and measurement data collection techniques. Tests and measurements are tools used to collect data or information about what Widiastuti (2018) wants to achieve. Tests and measurements were carried out by researchers by going directly to campus for physical education students class of 2021. 24 hour food recall for nutritional adequacy and 1,600 meter running to measure endurance. In data analysis researchers used prerequisite tests and correlation tests.

3 Result

The aim of this research was to determine whether or not there was a relationship between the level of nutritional adequacy and endurance in physical education students. It is known that there were 37 students who were still active, but the total number of respondents in this study was 22 people, consisting of 6 women (27, 3%) and 16 men (72.7%). It can be seen in the following table:

Table 1. Description of Physical Education Students

Jenis Kelamin	Jumlah	Persentase
Laki- laki	16	72,7 %
Perempuan	6	23,3 %
Total	22	100%

Based on nutritional adequacy, there are 13 students with a percentage of 59% who are included in the above adequate category, 1 student with a percentage of 4.5% who is included in the Normal category, 1 student with a percentage of 4.5% who is included in the Mild Level Deficit category, and there are 7 students with a percentage of 32% who fall into the Severe Level Deficit category, and in the Moderate Level Deficit category there are no students who fall into that category or with a percentage of 0%. The following is a table regarding nutritional adequacy for physical education students.

Table 2. Nutritional Adequacy Levels

Diatas Kecukupan	13	59%
Normal	1	4,5%
Defisit Tingkat Ringan	1	4,5 %
Defisit Tingkat Sedang	0	0%
Defisit Tingkat Berat	7	32%
Total	22	100%

In endurance, results were obtained where there were 3 students with a percentage of 13.6% in the very good category, in the good category there were 4 students with a percentage of 18.2%, in the medium category there were 9 students with a percentage of 40.9%, and there were 6 students with the percentage was 27.3% in the poor category, while in the very poor category no students were found or the percentage was 0.0%. It can be seen in the following table:

Table 3. Endurance of physical education students

Baik Sekali	3	13,6%
Baik	4	18,2%
Sedang	9	40,9%
Kurang	6	27,3%
Kurang Sekali	0	0%

Data analysis in this research was carried out through normality tests and correlation tests where the results can be seen as follows

Table 4. Normality Test

Variabel	Test Statistic	Asymp.Sig
Kecukupan Gizi	.193	.056
Daya Tahan	.134	.200

Based on the results of the normality test that has been carried out, it can be concluded that in nutritional intake the Kolmogorov Smirnov calculated result was 0.193 with a probability of 0.056. Because the probability of 0.056 > 0.05% means that the distribution of the nutritional intake variable is normal. In endurance, the Kolmogorov Smirnov calculated result was 0.134 with a probability of 0.200. Because 0.200 > 0.05% means the distribution of variables on endurance is normal.

Table 5. Pearson product correlation test.

		Kecukupan Gizi	DayaTahan
Kecukupan Gizi	Pearson Correlation	1	.293
	Sig. (2-tailed)		.186
DayaTahan	Pearson Correlation	.293	1
	Sig. (2-tailed)	.186	

Based on the results of research data analysis, it shows that there is no significant relationship between nutritional adequacy and endurance with a significance value of 0.186 > 0.05%. This is because this result could be caused by the food intake data obtained showing that the average respondent's food intake was not sufficient for their needs and apart from that, endurance was also determined by other factors besides food intake, and this could also possibly be caused by the number of subjects being too small. and the subject's level of food adequacy tends to be homogeneous. This is because the body's ability to use oxygen optimally is determined by many factors apart from food intake, including physical activity, genetics, age, gender and nutritional status, exercise factors and body organ function factors.

5 Conclusion

Based on the results of the analysis and discussion above, it can be concluded that the relationship between the level of nutritional adequacy and endurance in physical education students class of 2021 based on the results of calculations carried out on variable 05%, it can be concluded that there is no significant relationship between variable X (Nutrition Adequacy) and variable Y (endurance). This is because this result could be caused by the food intake data

obtained showing that the average respondent's food intake was not sufficient for their needs and apart from that, endurance was also determined by other factors besides food intake, and this could also possibly be caused by the number of subjects being too small. and the subject's level of food adequacy tends to be homogeneous. This is because the body's ability to use oxygen optimally is determined by many factors apart from food intake, including physical activity, genetics, age, gender and nutritional status, exercise factors and body organ function factors.

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