



Macronutrient Intake at Student Breakfast at SD Negeri 76 Manado, Indonesia

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ABSTRACT

Breakfast is food eaten before or near the start of daily activities, no less than two hours after waking up, usually no later than 10.00 and increases calorie intake by around 20-35% of the body's daily needs. Macronutrients are chemical bonds designed for the body to carry out its functions, namely producing energy, building and maintaining tissue, and regulating life processes. Macronutrients include carbohydrates or energy, fat, and protein. This type of research is quantitative descriptive, which was carried out using a cross-sectional method. The sample in this study was class 4 and class 5, totaling 60 people. Data collection was obtained from the results of breakfast recall interviews using a recall form. The results of the study showed that the majority of school children's protein intake category was 43 people (71.7%) poor and 17 people (28.3%) good. For the fat intake category, school children were grouped at less than 56 people (93.3%) and good at 4 people (6.7%), and the dominant carbohydrate intake category is less than 60 people (100%). Of all the results of the intake categories for children in grades 4 and 5 at SD Negeri 76 Manado, the intake of micronutrients in the morning intake was deficient, namely carbohydrate intake, which was 100%, with the number of students being 60 people.

1. Introduction

Elementary school children are an age that is entering a period of growth and development. Growth in elementary school children is the second most rapid growth period after toddlerhood, and at that time social, emotional, and cognitive growth, such as memory development, critical thinking, creativity, and language, also experience development.¹ Breakfast is food eaten before or near the start of daily activities, no less than two hours after waking up, usually no later than 10:00 and increases calorie intake by around 20-35% of the body's daily needs.² According to WHO, a proper breakfast is one that meets nutritional needs, namely a breakfast containing

carbohydrates (55-65%), protein (12-15%), and fat (24-30%). The amount of energy needed for breakfast is around 370-555 kcal, and breakfast protein is around 9.8-14.7 grams.³

In a study conducted in Tunisia, the prevalence of children who skipped breakfast was 8.3%. At least two out of three children have poor-quality breakfast. Only 1% of children consume breakfast according to composition guidelines.⁴ Based on data from Riskesdas (2018), 26% of children in Indonesia consume only drinks at breakfast, whether tea, milk, or water. At least breakfast should contain a balance of carbohydrates and protein, plus vitamins and minerals. The breakfast menu can consist of rice,



protein side dishes, such as eggs, slices of cucumber or tomato, an apple or banana, and a drink.⁵

According to nutrition experts, a healthy breakfast is one of the stages of eating three times a day. Therefore, breakfast should be able to fulfill 25% to 30% of the total recommended dietary allowances (RDA) needed every day, namely containing protein, fat, carbohydrates, water, and fiber.⁶ The lack of breakfast is still a problem in Indonesia, as evidenced by the results of research conducted at SD Inpres Fatukoa, Maulafa District, Kupang, which proves that out of 35,000 school-age children, almost 26.1% of children only have breakfast with drinking water and 44.6% children receive energy intake of less than 15-30% of their daily energy needs.⁷

Often, schoolchildren ignore breakfast on the grounds of lack of time, not being hungry, or not having an appetite. Even though breakfast is not just a stomach booster, it also provides energy so that the body can function optimally, the brain works optimally, and does not get sleepy quickly when you go to school. Macronutrients or micronutrients are chemical bonds designed for the body to carry out its functions, namely producing energy, building and maintaining tissue, and regulating life processes. Macronutrients include carbohydrates or energy, fat, and protein.^{8,9}

The energy needs of elementary school children are very important because they need good energy to think and play because the needs of elementary school-age children increase due to their active playing and learning activities. According to the RDA (recommended dietary allowances) 2019, the energy needs of children aged 10 - 12 years are given at 1900 kcal to 2000 kcal for boys and girls of that age.¹⁰ Protein is one of the macronutrients that functions as a building block, maintains body cells and tissues, and helps the immune metabolic process. It can also help

provide the energy the body needs to support the growth and development process of children. Adequate protein also plays a role in providing material to build body structure. Apart from that, protein also functions to improve mental function and raise enthusiasm that comes from the brain.¹¹

Lack of protein consumption in the body will result in imbalanced nutritional status, delayed growth, and physical and intellectual development, especially in children. Several research results report that consuming good protein during childhood will have a good impact on learning concentration and cognitive development, including learning outcomes. Fat is an energy reserve in the body. Fat consists of triglycerides, phospholipids, and sterols, all three types of which have a function in the health of the human body. Fat consumption is at least 10% of total energy.¹²⁻¹⁶

2. Methods

The type of research in this study is descriptive quantitative carried out using a cross-sectional method. Breakfast data was obtained based on direct interviews by recalling breakfast for three consecutive days. The population in this study were all students at SD Negeri 76, totaling 227 people, and the sample in this study was grades 4 and 5, totaling 60 students at SD Negeri 76 Manado.

3. Results and Discussion

SD Negeri 76 Manado is an educational unit at the elementary school level located at Jl. Siswa 1 No. 128, Taas, Tikala District, Manado, North Sulawesi. This school is accredited by A and has 12 teachers. The number of students at this school is 112 for boys and 115 for girls. Based on the distribution results in Table 1, it is known that the gender of school children is mostly 31 girls (51.7%) and 29 boys (48.3%).



Table 1. Characteristics of respondents.

Gender	Total	
	n	%
Male	29	48,3
Female	31	51,7
Total	60	100,0

Table 2. Categories of protein, fat, and carbohydrate intake at breakfast.

Intake category	Protein		Fat		Carbohydrate	
	n	%	n	%	n	%
Less	43	71,7	56	93,3	60	100
Good	17	28,3	4	6,7	-	-
Total	60	100	60	100	60	100

Based on the distribution results obtained in Table 2, it is known that the protein intake at breakfast for of the 60 elementary school students who were recalled, 43 people (71.7%) classified as low, and the fat intake at breakfast for school children was also large. Namely, 56 people (93, 3%) are classified as insufficient, and the carbohydrate intake at breakfast for school children is 60 (100%), or all are categorized as insufficient.

The low intake of macronutrients in elementary school children's breakfast can affect children's physical activity and concentration ability when studying. The energy needs of elementary school children are very important because they need good energy to think and play. The needs of elementary school-age children increase due to their moderate activity. actively playing and learning, which, if not balanced with nutritional requirements, children can experience anemia and decreased nutritional status.¹⁷⁻

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4. Conclusion

The intake of macronutrients at breakfast for children in grades 4 and 5 at SD Negeri 76 Manado is still insufficient. Of the 60 elementary school students recalled, 43 people (71.7%) were classified as insufficient, and the fat intake at breakfast for school children was also large. Namely, 56 people (93.3%) are classified as insufficient, and the carbohydrate intake

at school children's breakfast is 60 people (100%), or all of them are categorized as less.

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