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# The Effect of Giving Tumpi Tuna Fish Supplementary Food and Biscuit Supplementary Food for Toddlers on Toddler Weight Gain in the Working Area of the Health Center in North Buton Regency

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### ABSTRACT

**Introduction:** Malnutrition is a nutritional problem caused by lack of nutrition all intake both in the short and long term, generally determined by the type of nutrient less consumed by toddlers. The problem of undernutrition can be overcome by means of feeding and health practices for toddlers with the aim of restoring and improving nutrition and forming eating habits of toddlers in adulthood.

**Method:** The type of research used in this study is a quantitative study, namely pre-experimental with a two group pretest-posttest design, with a total sample of 67 toddlers, 35 toddlers tumpi tuna samples and 32 toddler MT biscuit samples carried out for 4 weeks, using an independent t-test.

**Result:** The tumpi tuna group had a greater weight gain than the MT biscuit group for toddlers.

**Conclusion:** Looking at the average increase in body weight of toddlers, giving tumpi tuna is better for increasing toddlers' weight than giving MT biscuits to toddlers.

### Introduction

Undernutrition is a nutritional problem caused by lack of nutritional intake both in the short and long term, generally determined by the types of nutrients that are not consumed by toddlers.<sup>[1],[2]</sup> According to the results of the Basic Health Research or Riskesdas in Indonesia in 2018, the percentage of malnutrition was 17.7%. Nationally, malnutrition in children under five in

Indonesia is still a public health problem and is approaching a high prevalence.<sup>[3]</sup> The prevalence of malnutrition in Southeast Sulawesi in 2018 was 13.8%, in North Buton the prevalence of malnutrition in 2018 was 11.12%.

Data on the prevalence of undernourished cases in Southeast Sulawesi Province in 2018 North Buton Regency with a percentage of 11.12%. North Buton Regency has 10 health centers, the

working area of Bone Rombo Health Center is the work area with the third highest malnutrition status of other health centers in North Buton. The problem of undernutrition can be overcome by means of feeding and health practices for toddlers with the aim of restoring and improving nutrition and forming eating habits of toddlers in adulthood. Providing a good food menu for toddlers will help mothers carry out nutritional education by utilizing toddlers' imaginations to increase appetite.<sup>[4],[5]</sup>

Supplementary feeding is an intervention program for under-fives who suffer from malnutrition where the aim is to improve the nutritional status of children and to meet the nutritional needs of children in order to achieve good nutritional status and nutritional conditions according to the age of the child. which is based on the results of measurements of weight according to body length-height less than minus 2 Standard Deviations (<2 SD), and pregnant women who are at risk of Chronic Energy Deficiency, namely pregnant women whose Upper Arm Circumference measurement results are smaller than 23.5 cm. This additional food can also be given to all targets who have normal nutritional status or prevent the risk of pregnant women with SEZ, underweight toddlers and malnourished school children with a maximum delivery time of 1 (one) month.<sup>[6],[7]</sup>

Fish is a food that provides relatively high animal protein and provides essential unsaturated fatty acids that the human body needs. Fish is also a very well-known source of vitamin A in addition to other vitamins and also contains various minerals. Fish are also rich in benefits and can increase the maximum growth and development of children's intelligence.<sup>[8],[9]</sup>

Fish have an important role as a source of energy, protein and a variety of essential nutrients which account for about 20% of the total animal protein. Protein from fish is an important nutritional component for countries with a high population where protein adequacy is at a low level.<sup>[1],[3]</sup> Tuna is one of the many fishery products in the North Buton area, especially in the Bone Rombo area, where most of the livelihoods in Bone Rombo are fishermen. The price of tuna with other fish such as tuna and skipjack tuna is not much different and the price of tuna in North Buton is relatively cheap. Tuna fish contains

nutrients such as energy, protein, fat, calories that can affect the growth and development of children.<sup>[10],[11]</sup>

Based on the study of the problem, the researcher is interested in conducting a study with the title "The Effect of Supplementary Feeding of Tuna Fish Tumpi and MT Biscuits on Toddler Weight Gains in the Work Area of Bone Rombo Health Center and Waodeburi Health Center, North Buton Regency".

## Method

The type of research that will be used in this research is quantitative research, namely Pre-experimental with Two Group Pretest-Posttest design which is used to see the difference before and after treatment. Pre-experimental research is a study involving group of subjects and a control group that was tested pretest and posttest which aims to determine the effect of consumption of PMT tumpi tuna and MT biscuits for toddlers on increasing weight gain in toddlers.

## Result

**Table 1** the difference in body weight before the intervention (pre-test) was 0.94 kg for toddlers treated with biscuits, while the tuna tumpi before being given treatment (pre-test) was 0.88 kg. The difference in average body weight is 0.06 kg.

**Table 2** the difference in body weight before intervention (pre-test) for toddlers treated with tuna tumpi is 0.85 kg, while after being given treatment (post-test) it is 0.93 kg. The average difference in body weight is 0.08 kg.

**Table 3** the difference in body weight before intervention (pre-test) for toddlers treated with MT biscuits was 0.94 kg while after being given treatment (post-test) was 0.99 kg. The difference in average body weight is 0.05 kg.

**Table 4** the difference in body weight after the intervention (post-test) in infants treated with MT biscuits was 0.99 kg, while in tumpi tuna after being given treatment (post-test) it was 0.93 kg. The difference in average body weight is 0.05 kg.

**Table 1**  
**Differences in Body Weight Before Intervention of MT Biscuits for Toddlers and Tumpi Tuna**

Weight	Mean	SD	t	Sign	n
MT Biscuits Pre-Test	9.466	1.8487	-2.253	0.28	67
Tumpi Tuna Pre-Test	8.537	1.5197			

**Table 2**  
**The Difference in Body Weight Before Intervention (Pre-Test) and After Being Given Treatment (Post-Test) For Toddlers with Tuna Tumpi**

Weight	Mean	SD	t	Sign	n
Fish Tumpi Pre-Test	8.537	1.5197	13.944	0.00	67
Fish Tumpi Post-Test	9.306	1.5437			

**Table 3**  
**The Difference in Body Weight Before Intervention (Pre-Test) and After Being Given Treatment (Post-Test) For Toddlers with MT Biscuits**

Weight	Mean	SD	t	Sign	n
MT Biscuits Pre-Test	9.466	1.8487	-31.249	0.000	67
MT Biscuits Post-Test	9.991	1.8207			

**Table 4**  
**Differences in Body Weight After Intervention of MT Biscuits for Toddlers and Tumpi Tuna**

Weight	Mean	SD	t	Sign	n
MT Biscuits Post-Test	9.991	1.8207	-1.665	0.010	67
Tumpi Tuna Post-Test	9.306	1.5437			

## Discussion

### The Effect of Tumpi Tuna on Toddler Weight Gain

In this study, giving tumpi tuna in the intervention group had an increase in bodyweight in the moderate category because from the first week (1) to the sixth week. In (4) intervention, toddlers begin to adapt to the taste of tuna tumpi, where toddlers have started to like the taste and texture of the tuna tumpi. Tuna fish tumpi has a savory fish taste, not spicy and easy for toddlers to chew so that it can increase appetite. Meanwhile, in the control group, MT biscuits were given to underweight toddlers who experienced an increase in body weight with a slightly increased category.<sup>[12]</sup> Of the four pieces of tuna tumpi given in one day, all were spent. Toddlers really like the taste of fish in the tumpi tuna. On average, toddlers who are given tuna tumpi really like the

taste of these snacks so they are easy to spend in 1 day.<sup>[10]</sup>

Based on the results of interviews with mothers of toddlers whose children have problems underweight because the toddler does not have a good appetite. Children who are underweight do not like snacks that taste familiar on the tongue, such as tumpi tuna which has a fish taste in it so that children are familiar with these snacks and can consume them well.<sup>[8],[13]</sup>

### The Effect of Giving Toddler MT Biscuits on Toddler Weight Gain

The provision of toddler MT biscuits at the Health Center is a product of the additional food provided by the Ministry of Health. The provision of Supplementary Food has not yet reached the target of Minimum Service Standards to increase

the weight of toddlers in the North Buton Regency area.<sup>[4],[12]</sup>

Measurements on the anthropometric index of BB/U before and after the MT biscuits for toddlers showed that more children experienced changes in body weight with a slightly increased category overall. This is directly proportional to the level of consumption of toddlers, where the toddler consumes MT biscuits according to the specified standard.<sup>[14]</sup> The results of the toddler MT biscuit form showed that toddlers with the same percentage of toddler MT biscuit consumption as toddlers who consumed tuna tumpi.

### **Differences Between Giving Tuna Fish Tumpi with Toddler MT Biscuits on Toddler Weight Gain**

Tuna fish tumpi is a relatively new snack for children, but with the taste of the fish in the snack, the children become fond of the snack. In the study, there was no difference between tumpi tuna fish and MT biscuits for toddlers, where for the level of preference, toddlers both liked the tuna tumpi and MT biscuits for toddlers because they both had a taste that was acceptable to children's tongues. Based on the measurement of body weight after the intervention has a relatively small difference.<sup>[6]</sup>

Children who consumed tuna tumpi for four weeks experienced a change in body weight with a moderate increase category after body weight measurements were made at the fourth week of intervention. Children who consumed MT biscuits under five also experienced an increase in body weight with a slightly increased category after the weight measurement was carried out in the fourth week.<sup>[14],[15]</sup>

### **Conclusion**

There is a difference in the effect of giving tumpi tuna with giving MT biscuits to toddlers on increasing the body weight of toddlers in the Bone Rombo Health Center Work Area, North Buton Regency and Waodeburi Health Center, North Buton Regency.

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