

Provision of Fish Cork Nugget on Improvement The Resistance Of The Body Of Children In Sentani Health Center Jayapura District, 2019

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Abstract---*Toddler age is very vulnerable to various diseases due to low endurance. In addition to the infection factor, there are also parents who lack understanding about nutritious food for children under five, especially those that contain lots of protein. Efforts to improve the immune system of children under five by improving nutritious menus. Cork fish is a good source of protein for the nutritional needs of toddlers. The purpose of this study was to prove the effect of cork fish nuggets on increasing children's endurance. Quasi-experimental research methods with pre and post-test approaches in one group without a control group. The total sample of 30 children who do routine weighing at the posyandu and meet the inclusion requirements. Blood tests for hemoglobin and leukocytes are performed before and after the child gets cork fish nuggets 6 times for 2 weeks.*

Results: The mean change in hemoglobin value occurred after the child consumed cork nuggets 6 times for 2 weeks based on data processing stated that by giving cork fish nuggets 6 times for 2 weeks there were changes in hemoglobin and leukocyte values

Conclusion: by consuming cork fish nuggets can increase toddler endurance. It is recommended to the public to consume more cork fish as a source of protein in fulfilling nutrition.

Keywords--- *Cork Fish Nuggets, Toddlers*

I. BACKGROUND

Childhood is a vulnerable period for diseases that can inhibit growth and development, especially brain development which is said to be the golden period, in which during infancy there is very rapid growth and development of cells in the brain [1]. and is strongly influenced by nutrition intake, parenting, home, care and optimal health status [2]. Protein deficiency in infants can fail to thrive and a decrease in endurance, because the role of protein is very important in the formation of the immune system so it is not susceptible to infectious diseases [3]. One infectious disease that is often experienced by children under five is ARI. Sentani Public Health Center Annual Report 2018 The incidence of ARI reached 1581 girls under five and 1093 boys under five. The problem of malnutrition in Papua is caused by economic factors and the limited knowledge parents have about nutrition. When children have been in conditions for months without adequate nutrition, they are essentially getting closer to death [4].

Research conducted by Limanto [5] states that nutritional problems can occur in children with chronic infectious diseases such as malaria and poor knowledge as much as 43%, can cause errors in providing nutrition for children under five. This research is supported by Puspasari & Adriani's research, where mother's knowledge has a significant relationship with nutritional status in infants [6]. The results showed that 77 under-five children under study showed good nutritional status of 20 people (25.97%) and experiencing ARI, while 6 toddlers had undernourished, and 4 of them suffered from ARI

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(66.67%) indicating malnutrition as well suffering from ARI [7]. The study was also supported by Pore who said that there was a significant relationship between nutritional status and the incidence of acute respiratory infections in children under five [8].

High protein feeding is one alternative to improve nutritional status in children under five with infectious disease problems. One of the high-protein food sources and albumin is cork fish which is needed during the growth and development of children under five (Dramaga [9]; Listyanto [10]). Cork fish can also be processed with a variety without reducing the nutritional content. One of the processed cork fish that can be given to children is cork fish nuggets. Processed nuggets are in great demand by children not only consumed with rice, but also used as snacks for school children. To improve the ability of the Papuan people to process and cultivate local food.

Toddler nutritional needs, is a very important requirement in helping growth and development and prevent various diseases due to malnutrition in a child's body. The nutritional needs of children under five years of age based on the AKG in 2012 are as follows:

Table 1. Recommended nutritional adequacy rates for babies and children under five per person per day

Age	Height (cm)	Weight (kg)	Energy	Protein	Fat	Karbohydrate
			(kkal)	(gr)	(gr)	(gr)
0 - < 6 month	61	6	550	12	30	58
6 - < 12 month	71	9	700	16	35	80
1 – 3 year	91	13	1050	20	40	145
4 – 6 year	112	19	1550	28	60	210

Source: Widya Karya National Food and Nutrition, 2012

Nutritious food is food that has an adequate amount of carbohydrate, protein, fat, vitamins and minerals for the body [11]. Nutritious food requirements according to Perumal et al [12] namely: must contain enough calories, protein, vitamins and minerals as well as a good comparison between carbohydrate and fat sources. Besides that it is easy to digest, clean, attractive and tasty, not too hot when eaten.

Cork fish (*Channa striata*), is one type of freshwater carnivorous fish that inhabits the Southeast Asian region, but not much is known about its history and biological properties. In Indonesia, this fish is known by many regional names. In English, they include common snakehead, snakehead murrel, chevron snakehead, and striped snakehead [13].

II. THE CHEMICAL COMPOSITION OF CORK FISH.

Cultured cork fish have higher amino acid levels than natural cork fish. Essential amino acids are dominated by leucine, phenylalanine, and lysine, while non-essential amino acids are dominated by amino acids alanine, glycine, aloisoleucine, proline, aspartic acid, and glutamine. The amino acids isoleucine, leucine and valine which are branched-chain amino acids (BCAAs) in cork fish are very important. synthesized in muscles, therefore, the presence of these amino acids shows that cork fish can help prevent muscle tissue damage and muscle growth. Also, the BCAA is also to balance hormone release and brain function. High amino acid lysine in fish is a marker or differentiator of fish protein with shellfish protein.

Research by Prof. Nurpudji from Hasanuddin University, Makassar, giving 2 kg of cooked cork fish every day to postoperative patients increased their albumin to normal. The administration of cork fish extract for 10-14 days showed an increase in albumin of 0.6 to 0.8 g / dl. The content of albumin plus the mineral zinc (Zn) in the body of cork fish which amounted to 1.7412 mg / 100 g of meat is what helps the wound healing process faster [14].

Table 2. Nutritional components of Cork fish per 100 ml

Nutrient content	Score
Protein (g)	3,36 ± 0,29
Albumin (g)	2,17 ± 0,14
Total Fat (g)	0,77 ± 0,66
Total Glucosa (g)	0,77 ± 0,02
Zn (mg)	3,34 ± 0,8
Cu (mg)	2,34 ± 0,98
Fe (mg)	0,20 ± 0,09

Source : Mustafa, 2012

Making nuggets is an initiative to provide nutritious food in the form of snacks so that toddlers easily eat while playing. Materials for making nuggets: cork fish meat (75 gr), chicken eggs (10 gr), Wheat Flour (40 grams), Taro (30 grams), Onion Leaves, Celery Leaves, Pepper and salt to taste, Lime, Panir Flour, Cooking oil. How to make: Prepare all the ingredients, then cleaned the fish after it is soaked with lime and salt. Then the cork fish is separated from the bone and mashed (pounded). Then add the spices that have been blended (garlic), pepper, celery, leeks, eggs, and flour and stir until evenly distributed. After the dough is not sticky anymore in the hand it is formed according to taste / NuGet. Steam is heated, put NuGet into steam for 30 minutes. Remove and remove from the steam, let it cool. Clean the taro then in rough grated. Dip the nugget mixture into the beaten egg, then roll it on the grated taro/panir flour Fried Nugget over medium heat until browned yellow, remove and drain and then ready to serve. This Nugget can be stored in the refrigerator and if you want to eat it can be fried.

Nutrition Value: ENERGY = 36 Kcal; PROTEIN = 18.6 grams

III. RESEARCH METHODS

The method used in this research is a quasi-experimental research method (Quasi experiment). According to Muchtadi and Sugiyono [15] Quasi experiment research method is a study used to determine whether there is a result of "something" imposed on the subject under study by looking for the effect of certain treatments on others under controlled conditions. The type of design used is Quasi Experiment with one group pretest and posttest design (Sugiyono, [15] In the chart, the single group design of pretest and posttest designs can be described as follows:

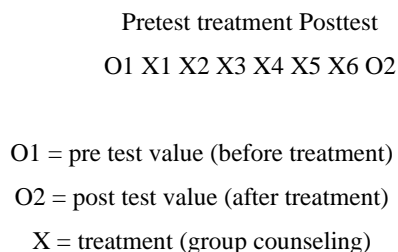


Figure 3. One group pretest-posttest design (Sugiyono, 2012: 111)

The study was conducted at the Posyandu Rumah Kita Pulomo working area of Sentani Health Center in Jayapura Regency with the time of the study on September 23 - November 9, 2019. Population and Sample: the population is all children

registered at Posyandu and who are conditional according to the criteria included in the study sample. Research variables are: Dependent Variable: Corked Fish Nugget, Independent Variable: Immune System (Leocytes and Hemoglobin).

IV. RESULTS AND DISCUSSION

Description of Respondents

Table 1. Characteristics of Toddlers by age and sex at the Center for Integrated Services, our Sentani Community Health Center in 2019

No.	Characteristics	n	%
1	Age	Average: 3,0067 ± 1,2865	
2	Gender		
3	Male	14	46,7
4	Female	16	53,3
	Total	30	100%

Primary data for September 2019.

Table 1 above shows the average age of children under five who were respondents in the study (30 children) was 3.0067 years, and most were female (53.3%).

Overview Of Blood Test Results

Before the intervention was carried out by giving cork fish nugget 6 (six) times within 2 weeks, then blood samples were taken to get an initial picture of the normal value of hemoglobin and leukocytes of children under five.

Hb Value

The value or level of hemoglobin in the blood is a picture of the health status of children can be seen in the following table:

Table 2. Hb levels before and after giving the nugget cork fish in toddlers at Posyandu Rumah Kita Sentani Health Center in 2019

No.	Group	N	Min	Max	Mean	Standar Deviasi	difference	Score p*
1	Before Giving a Nugget	30	6,80	12,80	9,4733	1,3048	1,6134	0,000
2	After Giving a Nugget	30	7,00	13,00	11,0867	1,3200		

* Normally distributed data: Paired t-test

Table 2 shows that there are differences in the average value of Hemoglobin before (9.44733 ± 1.3048) and after (11.0867 ± 1.3200) giving cork fish nuggets with an increase of 1.6134 mmHg / dl. The paired t-test results showed the value of $p = 0,000, <0.05$, which means there is a significant difference between the value of Hemoglobin before and after the administration of cork fish nuggets. This shows that the administration of cork fish nuggets can increase the value of Hemoglobin in infants.

Leukocyte Levels +

The value or level of leukocytes in the blood is a picture of the health status of children can be seen in the following table:

Table 3. Leukocyte levels before and after administration of the nugget cork fish in toddlers at the Center for integrated services home about the Sentani community health center in 2019.

No	Group	n	Min	Max	Mean	Standar Deviasi	differen ce	Score p*
1	Before Giving a Nugget	30	4700	9800	7023.33	1471.49	1143.34	0,000
2	After Giving a Nugget	30	5600	11200	8166.67	1582.08		

* Normally distributed data: Paired t tes

Table 3 shows that there were different values of Leukocytes + before (7023.33 ± 1471.49) and after (8166.67 ± 1582.08) giving cork fish nuggets with an increase of 1143.34 mmHg / Dl. The paired t-test results showed the value of $p = 0.00$, <0.05 which means there is a significant difference between the Lekosit + value before and after the administration of cork fish nuggets. This shows that giving cork fish nuggets can increase the value of leukocytes + in toddlers.

In this study, the focus was on toddlers, namely age from 1 year to 5 years. The average age is 3 years, this shows that the age is vulnerable in the body's resistance to the deterrence of germs. At this age is an age that needs attention, especially in fulfilling nutrition, especially protein for growth and development, especially in the child's brain. Fulfillment of nutrients. according to Chasanah et al [16], by using cork fish extract capsules, cork fish albumin levels are relatively high, about three times that of other consumption fish. The amino acid is also very complete and contains zinc minerals and other trace elements that the body needs.

Albumin is a part of the protein that is very important for the body. Albumin is in the blood and functions to regulate water balance in cells, provide nutrition to cells, and remove waste products. In addition, albumin also functions to maintain the regulation of fluids in the body [17]; [1]. Various benefits of albumin are for healing wounds from surgery, All Sulfide in albumin capsules can reduce the risk of cancer, can reduce homocysteine levels in the blood, for people with heart disease and stroke, contain active substances that can reduce the risk of cancer and can improve children's intelligence and health.

In this study, the results of hemoglobin blood tests showed a change in the increase in the mean value. This shows that there is a positive influence on the administration of cork fish nuggets to children under five, namely changes in hemoglobin levels of 1, 6 mmHg / ml. Other studies on protein content in cork fish are very good as antioxidants and antidiabetic and also in the process of wound healing [18]; [19]. Likewise, the study was conducted by using cork fish capsule extract supplements for 14 days in patients with nephrotic syndrome, the results can increase albumin and lose weight in these patients [20]. Research conducted by Mustafa et al [21], is almost the same, namely by using cork fish meat residues which are steamed and made into biscuit form.

From several studies on the efficacy of cork fish and its benefits for the human body, including for the faster wound healing process, there is also an increase in albumin and decrease body weight in a particular disease (SN), as an anti-oxidant and antidiabetes, so this cork fish is very good to be consumed in children under five. The form of presentation also varies according to taste or the ability of the skills of the mother to provide.

V. CONCLUSION

The conclusion from this study is that cork fish is a good source of protein for the fulfillment of the nutrition of children under five. The administration of cork fish nuggets to children under five at the Posyandu Rumah Kita Puskesmas Sentani has a statistically significant value, where there are differences in the average value of Hemoglobin (Hb) before and after the administration of cork fish nuggets with an increase of 1.065 mmHg / Dl in paired t-tests showed $p\text{-value} = 0,000 (<0.05)$.

Likewise, with the results of leukocyte examination, statistically significant test, there were differences in the average value of leukocyte levels before and after the administration of cork fish nugget with an increase of 1.175 mmHg / dl and paired t-test showed a value of $p = 0.01$ (<0.05).

The results of this research can be recommended to the public to consume cork fish as a source of protein in the family specifically for children under five.

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