Application of Toddler Biscuits which Meets Omega 3 and Omega 6 Standards

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Abstract. Biscuits are additional food for toddlers. Biscuits on the market are biscuits that contain trans fatty acids which are less safe for toddlers to consume. Because it is necessary to create biscuits that are safe for toddlers to consume by adding fish oil in their manufacture, then biscuits can be given to children who are malnourished. Applications for biscuits are 50 grams/day for children whose body weight is less than WHO standards, 40 grams/day for children whose body weight is less than WHO standards, and 30 grams/day for children whose body weight is according to WHO standards. Every week (for 8 weeks) a toddler's body weight is measured, as well as observing motor, cognitive, language and social emotional development. Based on the initial weight of the child without the addition of biscuits, it is known 33.3% have a normal weight gain and 66.3% have a late weight gain. After biscuit administration, it was found that weight gain was in a better direction, with 87.4% having a normal weight according to their age and the remaining 13.6% still having late weight development, children whose initial weight was very less than WHO standards. Weight gain is greatly influenced by the number of biscuits given to toddlers. So anatomically, growth will occur in a child's body structure that increases proportionately with age. A lack of initial body weight will hinder the rate of weight gain of the child, can directly inhibit the growth of the child, as a result the proportion of the body structure of the child is not following their age which in the end it will have implications for other developments. Growth that occurs will affect the development of gross motor and fine motor skills, cognitive, language, and social-emotional toddlers.

1. Introduction

1.1. Research background

Children under the age of five are included in one of the groups at high risk of experiencing physical development disorders if there are nutritional disorders. The growth and development of toddlers must aim to make toddlers become qualified human beings. Not just growing physically but must also can be effective both for himself, his family, community, and nation. In achieving this goal nutrition is the basic capital so that children can develop their potential optimally. Therefore, the nutrients needed must be provided in a balanced manner, both in terms of quantity and quality. Errors in providing nutritional intake will greatly affect human quality in the future, the earlier the error of feeding, the more severe the consequences it causes, this is mainly related to the growth of vital organs, especially the brain which mostly occurs very quickly in early life. Experts say that brain growth only occurs
until a child is 3 years old. Some say that brain growth is achieved in children aged 6 years. This growing brain needs perfect nutritional care, especially omega 3 and omega 6 fatty acids.

The Directorate of Aquaculture reported that aquaculture production in 2013 was able to exceed the targeted production target. Of the total production in 2013, marine aquaculture accounted for 7.75 million tons, an increase of 34.32% compared to production in 2012. As for freshwater cultivation, it was 3.63 million tons, an increase of 69.63% [1]. Statistics of Aquaculture Fisheries noted that the development of Siamese Jambal aquaculture experienced a 41% growth from the previous year with a total of 1,107,000 tons. In 2014 aquaculture fish experienced an increase in production of around 13.97 million tons and in 2015 aquaculture fish production was 18.59 million tons including conjoined jambal fish [2].

The production of conjoined jambal fish culture would indirectly have a positive impact on the fish processing industry such as fillets, smoked fish, salted fish, meatballs, nuggets, burgers, and others. The production of Siamese Jambal fish fillets in 2013 was 8,400 tons, and the remaining processing yield of this fish fillet around 37.5% (3,360 tons) was an untapped material. The remainder of this is meat, bones, stomach contents, and head. This section can be further utilized to provide added value while reducing the impact of environmental pollution [3].

Siamese jambal fish or better known by the community as catfish that live in ponds and cages, is one of the most cultured fish cultivated by people in Riau Province, especially in Kampar Regency. According to data from the Riau Province Fisheries and Maritime Service, the production of Siamese Jambal aquaculture in 2008 reached 13,206 tons, this production increased from 2007 with a total production of 6,391 tons, and in 2006 the total production was 3,394 tons. Since 2011 Kampar Regency has been able to produce conjoined jambal fish 50 tons per day, subsequently increased to 100 tons per day [4]. Siamese jambal is a fish that many consumers like and has a relatively high fat content.

Based on these data, the business of conjoined jambal fish farming in Riau Province continues to increase every year so that it can cause an abundance of Siamese Jambal fish production. One effort to overcome the abundance of production and consumer saturation of fresh Siamese Jambal fish is by doing fisheries product processing. This treatment will produce waste in the form of the stomach contents of the fish which are deliberately discarded and not utilized. In addition to waste from processing, the stomach contents of conjoined jambal fish also originate from the slaughtering of fish for household consumption and the restaurant industry in Pekanbaru and its surroundings. The amount of waste is relatively large, especially if coupled with waste from other types of fish which are also widely cultivated in Kampar Regency and in Riau Province in general.

The components of grouper fat contain 14 types of saturated fatty acids ranging from C4 to C24 atoms with sub-total 45.26%. Also contains 16 types of unsaturated fatty acids which have C15 to C24 atoms consisting of 3 types of monounsaturated fatty acids (0.58%) and 13 polyunsaturated fatty acids (54.16%) with sub-total unsaturated fatty acids 54.74%. The omega 3 fatty acid content of groupers is 5.38% and omega 6 15% [5].

The fat content of fish has been studied for a long time, especially belly fat and other edible parts of the fish such as muscles. The results showed that belly fat is removed when conjoined jambal fish will be processed or prepared for consumption, even though it has good nutritional value and health effects mainly due to the content of EPA and DHA. The ratio of omega 3 with omega 6 belly fat in conjoined jambal fish is 1: 6.8 [6, 7]. Cheap fish oil can be obtained from the belly fat of conjoined jambal fish. To meet the WHO standard on the omega 3 ratio with omega 6 1: 5, it can be combined with grouper fat which has a ratio of 1: 2.8 [8]. The results of this fish oil combination can be formulated in toddler and baby food to meet omega 3 and omega 6 standards.

The combination of fish oil can be utilized in making toddlers biscuits that meet SNI 01-7111.2-2005 and WHO while reducing the impact of the use of butter. Biscuits are one of the food products that are widely known by the community as snacks and supplementary food for children under five. These biscuits have an important role for the community, especially children and adolescents who are growing. Phase I research has obtained the best biscuit formula, namely the use of 21 ml of
combination oil in the biscuit. Based on the above background the authors have continued the phase II research on "Application of giving biscuits for infants meeting omega 3 and omega 6 standards".

1.2. Formulation of the problem
Toddlers are one of the age groups that are vulnerable to malnutrition. Nationally from 2007 to 2010 the prevalence of malnutrition and malnutrition decreased by 0.5%. In 2012 there were still around 900 thousand (4.5%) of the 22 million children under five in Indonesia experiencing malnutrition and malnutrition [9]. According to the Basic Health Research in 2013, the tendency in each province of malnourished children is 19.6%, up from 18.4% in 2012. When it is converted into an absolute number, when the number of children under the year 2013 is 23,708,844, the number of children under five with severe malnutrition and under nutrition is 4,646,933 children under five. While the region with the highest number of malnourished children under five is NTT around 34%. In 2014, the number of malnourished children under five was 5.7% and malnutrition was 13.9%, in 2015 the number was 17.9%, although the number dropped but it was still below the MDG target of 15% (nutrition.depkes.go.id). An alternative that can be done to overcome this problem is to increase the intake needed to meet the adequacy of nutrients. One of the additional foods that can be consumed by children under five is biscuits.

Butter is one of the raw materials in making biscuits. Butter contains trans fatty acids (Trans Fatty Acid) which can cause negative effects on health that is as a trigger for coronary heart disease. High intake of trans fatty acids can affect the metabolism of omega 3 fatty acids and essential fatty acids which inhibit tissue growth, for children the use of butter is not recommended, therefore adding fish oil to reduce the negative effects of butter. Due to the content of omega 3 and omega 6, the stomach oil of conjoined jambal fish (Pangasius hypothalamus) is below the WHO standard, to meet the 1:5 standards, it can be combined with grouper oil (Cromileptes sp). Until how much combination fish oil can be used in making biscuits that meet SNI 01-7111.2-2005 and WHO (Omega 3: Omega 6 1:5 ratio) (phase I). Furthermore, phase II needs to be done application of biscuits that meet the omega 3 and omega 6 standards for under-malnourished and malnourished children.

1.3. Purpose and Research Objectives
The purpose and objective of the research are to apply the provision of toddler biscuits that meet the standards of omega 3 and omega 6 in children with severe malnutrition.

2. Research Methods
2.1. Materials and tools
The raw materials used in this research are grouper fat and belly fat of conjoined jambal fish. Grouper fish can be obtained from aquaculture in Batam, Riau Islands Province and conjoined jambal belly fat from fish processing residues in Kampar District, Riau Province. The chemicals used are diethyl ether, red blue methylene, aquods, NaOH, H₂SO₄, H₂BO₃, HCl, and 1 gram of catalyst (Cu complex) and standard omega 3 and omega 6 fatty acids. The ingredients used for making biscuits are fish oil (combination of grouper oil and siam jambal), wheat flour, refined sugar, butter, egg yolks, cocoa powder, baking soda, and salt.

The equipment used for laboratory analysis are ovens, destruction flasks, Kjeldahl flasks, sublets, furnaces, glassware, analytical scales, GC, and other tools needed in this study. The equipment used in making biscuits is knives, cutting boards, mixers, spoons, pans, biscuit molds, ovens, measuring cups, toddler scales, blenders, and label paper.

2.2. Research procedure
1. Fish Oil Extraction [10].
2. Biscuit Making Procedures (8).
2.3. Research methods
Application of biscuits for malnourished children (3 people), under-nutrition children (3 people) and normal children (3 people). Every week (for 8 weeks) weighing of toddlers, observing motor, cognitive, language and socio-emotional development. The results of weight weighing are compared with normal weight gain according to their age according to WHO standards. Likewise, motor, language and social-emotional development. The expected outcome is to get the duration of underweight recovery of underweight and malnutrition weight so as to achieve a toddler body weight according to WHO according to age, the motor development, cognitive, language, and emotional social development towards a better direction.

The development of a toddler is different from its growth. The development of toddlers refers more to qualitative parameters. Whereas the growth of children under five is more quantitative. Thus, what is meant by the development of a toddler is an improvement in the quality of motor, cognitive, language, and social emotional functions.

2.4. Data analysis
Data on body weight gain, motor development, cognitive, language, and socio-emotional under five children of malnutrition, malnutrition, and normal nutrition were analyzed descriptively. Furthermore, an analysis is carried out whether developing in a better direction or not during administration of the biscuits.

3. Results and Discussion
3.1. Weight gain of toddlers
The weight of the children measured in this study were children who were eating biscuits, which were 1-4 years old. The provision of biscuits is adjusted to the child's initial weight. Children who initially weigh less than the WHO standard are given 50 grams of biscuits/day, less than WHO standards are given 40 grams of biscuits/day, and according to WHO standards are given 30 grams of biscuits/day. The average weight gain of children per week at the age of 1-4 years in accordance with the initial body weight can be seen in Tables 1-3.

Table 1. Early weight of children aged 1-4 years and weight gain per week in infants who are very underweight by WHO standards

| Ages | Early weight of children (gram) | Child weight gain (gram) |
|------|--------------------------------|-------------------------|
| 1 year | 7600 | 80 |
|       | 7700 | 90 |
|       | 7700 | 90 |
|       | Average 7600 (standard 9900) | Average 87 |
| 2 years | 9600 | 100 |
|        | 9700 | 100 |
|        | 9800 | 100 |
|       | Average 9700 (standard 12400) | Average 100 |
| 3 years | 11700 | 100 |
|        | 11800 | 110 |
|        | 11900 | 110 |
|       | Average 11800 (standard 14500) | Average 107 |
| 4 years | 13500 | 110 |
|        | 13600 | 120 |
|        | 13600 | 120 |
|       | Average 13587 (standard 16500) | Average 117 |
Table 2. Early weight of children aged 1-4 years and weight gain per week in infants who are underweight by WHO standards

| Ages | Early weight of children (gram) | Child Weight Gain (gram) |
|------|---------------------------------|-------------------------|
| 1 year | 8100, 8100, 8200 | 100, 110, 110 |
|       | Average 8137 (standard 9900) | Average 107 |
| 2 years | 11300, 11500, 11500 | 110, 110, 110 |
|       | Average 11360 (standard 12400) | Average 110 |
| 3 years | 12700, 12780, 12790 | 110, 120, 120 |
|       | Average 12800 (standard 14500) | Average 117 |
| 4 years | 13500, 13600, 13600 | 120, 120, 130 |
|       | Average 13587 (standard 16500) | Average 123 |

Table 3. Early weight of children aged 1-4 years and weight gain per week for infants who are in accordance with WHO standards

| Ages | Early weight of children (gram) | Child Weight Gain (gram) |
|------|---------------------------------|-------------------------|
| 1 year | 9900, 9900, 10000 | 100, 110, 110 |
|       | Average 9937 (standard 9900) | Average 107 |
| 2 years | 12300, 12500, 12500 | 120, 120, 120 |
|       | Average 12437 (standard 12400) | Average 120 |
| 3 years | 14400, 14600, 14500 | 120, 130, 130 |
|       | Average 14500 (standard 14500) | Average 123 |
| 4 years | 16500, 16600, 16600 | 130, 130, 130 |
|       | Average 16567 (standard 16500) | Average 130 |

Based on weight gain per week it can be seen the weight gain of infants who are very underweight initially from WHO standards by giving biscuits 50 g/day, the average weight gain can reach 87 -117 grams/week (Table 1). The speed of weight gain is proportional to the initial weight, the lower the initial weight the lower the weight gain. If the weight gain is within the limits of the scale of 100 grams/week means the toddler is growing healthy. Giving biscuits 50 grams/day can increase body weight >100 grams per week in children aged 3-4 years who are poorly nutritional, while children aged 1-2 years gain weight on average < 100 grams per week. Means the provision of biscuits as much
as 50 grams/day can restore the weight of children aged 3-4 years who are poorly nourished. DHA added to poor nutritionally based toddlers can increase a child's weight. The addition of long chain unsaturated fatty acids (omega 3 and omega 6) contained in biscuits can restore a child's low body weight [11]. Supplementary food in the form of biscuits for toddlers is an effort to improve consumption patterns at the age of five to overcome malnutrition and malnutrition [12].

Furthermore, in Table 2 the weight gain of children per week whose initial weight is less than the WHO standard by giving biscuits 40 g/day, the weight gain can reach 107 - 123 grams/week. The speed of weight gain is proportional to the initial weight, the lower the initial weight the lower the weight gain. If the weight gain is within the limits of the scale of 100 grams/week means the child is growing healthy. Giving biscuits 40 grams/day can increase body weight > 100 grams per week. Means biscuits with a dose of 40 grams/day can increase the weight of children aged 1-4 years above 100 grams per week (for children who initially weigh less than WHO standards).

The important organs such as the retina and the central nervous system are mainly composed of fat. Fatty acids that are needed for body growth especially are essential fatty acids. Essential fatty acids are fatty acids that cannot be made in the body so they must be obtained from food, consisting of linoleic acid, linolenic acid, and arachidonic acid. DHA and arachidonic acid contained in biscuits can restore the weight of children aged 1-4 years that are less than WHO standards [22, 23].

Furthermore, in Table 3 the weight gain of babies per week whose initial weight is according to WHO standards and the provision of biscuits as much as 30 grams/day, the increase can reach 107-130 grams/week. The speed of weight gain is proportional to the initial weight, the lower the initial weight the lower the weight gain. If weight gain is within the limits of the scale of 100 grams per week, it means the child is growing healthy. Giving biscuits 30 grams/day can increase body weight >100 grams per week. Means the provision of biscuits 30 grams/day to children under five whose weight complies with WHO standards, can increase the weight of children aged 1-4 years above 100 grams.

Based on the initial weight of the child without the addition of biscuits, it is known 33.3% have a normal weight gain and 66.3% have a late weight gain. After biscuit administration, it was found that weight gain was in a better direction, with 87.4% having a normal weight according to their age and the remaining 13.6% still having late weight development, i.e., children whose initial weight was very less than WHO standards.

Weight gain is greatly influenced by the number of biscuits given to the baby. So anatomically, growth will occur in a child's body structure that increases proportionately with age. A lack of initial body weight will hinder the rate of weight gain of the child, can directly inhibit the growth of the child, as a result the proportion of the body structure of the child is not in accordance with their age which in the end it will have implications for other developments.

Omega 3 is a polyunsaturated fatty acid that has many benefits. Sources of omega 3, EPA, DHA are naturally found in fish and fish oil. Therefore, it is necessary for everyone to pay attention to food consumption from sources of omega 3, EPA, and DHA because the lack of omega 3, EPA, DHA has an impact on health for example in children under five can disrupt child development. Diana [14] suggested that omega 6 is as essential as omega 3, but in consuming omega 6 must be careful because if the amount is not balanced with consumption of omega 3, it will negatively affect the body. Although omega 6 has significance for the body, its consumption is recommended not to be excessive. The balanced ratio between omega 6 and omega 3 is very important [15].

3.2. Growth and Development of Toddler Children

Growth: is a physical change in children under five that can be seen and measured with standard measurement tools including weight gain, while Development: is a change in the individual abilities of children under five that can be seen but cannot be measured in a standard way. Physically in terms of the type of muscle used, children under five have two motor skills, namely gross motor and fine motor. Gross motor skills are movements carried out by coordination of the brain and the whole body. Fine motoric motions are movements instructed by the child, coordinated by the eyes and hands. Gross motor operations require balance and coordination between limbs, using large muscles such as the
muscles of the entire body, arms, and legs. Fine motor skills: abilities related to physical skills that involve small muscles (such as fingertip muscles) and eye and hand coordination.

From birth to one year of age there is a very dramatic development of the ability of gross motor movements starting from the headfirst then to the legs. The baby will gradually be able to make head movements, roll, lie on his stomach, sit, crawl, stand, walk assisted until walking alone. The coordination skills of eye - hand and other fine motor movements also develop rapidly. At first the baby has a reflex to grasp, can control the grasping motion, move objects from one hand to another, point with fingers, feed themselves to make scratches with a pencil or crayon.

At the developmental stage that needs to be evaluated are muscle strength, quality of movement and the extent to which the child is can make movements. While the development of the second motor ability is the child's ability to move small parts of his body. Like fingers, toes and eyes. This motor ability can be seen from the ability of children to throw and catch something, draw and reach objects.

For example, in children aged 2 years, gross motor activity that has been mastered, among others, children can begin to run, get up on their own when falling, and take and put objects. Fine motor activities are holding stationery and making strokes, tearing paper, sticking objects, taking objects with the tips of fingers. A 2-year-old has started learning to hold objects with his fingertips, make scribbles, and turn pages of books. Furthermore, based on the results of the study, it can be seen the motor development of toddlers according to their age.

3.2.1 Motor Development

1) Motor development of children aged 1-2 years

Gross motor development: starting from crawling, walking normally, walking fast, crawling on the ladder, being able to crawl faster, being able to sit alone in a chair that suits his body size, being able to lift his own body and stand while holding on to furniture, and sitting again with effort themselves, like to move things from one place to another like pulling and pushing a chair / table, and throwing a ball. Fine motor development starts taking small objects with thumb and forefinger, being able to feed oneself with a spoon and a glass, even if it's a mess, opening a book, arranging several (two - four) toy blocks, pouring liquid into another container, doodling, and able to open several parts of the shirt.

2) Motor development of children aged 2-3 years

Gross motor development starts with jumping in bed, kicking the ball with your feet swinging, running more agile and better despite falling several times, standing on one leg, able to walk backwards, and pedaling a tricycle or a toy car. Followed by opening drawers and cupboards, bending down to pick up an object and not falling, kicking a bigger ball, jumping on the spot with both legs falling together, throwing the ball, climbing, rolling, and going up and down the stairs yourself, one step at a time. Fine motor development starts with crossing out with one hand, drawing irregularly, opening the door latch, holding a pencil, being able to arrange four to six toy blocks. Can already wear their own pants, unbuttoned and unzipped shirts. Be able to drink from a glass, use a straw and feed yourself with a spoon, and be able to wash your own hands.

3) Motor development for children aged 3-4 years

Coarse motor development starts standing with the sole of the back foot without losing balance, jumping on one foot, walking along the board, catching a big ball, riding a bicycle and a reasonably skilled toy car. Followed by stopping walking and running when passing someone else or changing direction when walking and running fast, going up stairs with alternating legs, jumping with two feet from the top of the bed down, some have started jumping on one foot, already can maintain balance with the board, throwing and catching the ball with upper body movements or holding the ball to the chest. Ball-throwing activities require eye and hand coordination. Mimic the movement, for example when you exercise or dance, or when watching movements on television or video. This ability is also related to children's cognitive abilities.
Fine motor development: Can scoop up liquids, wash and wipe your own hands, eat with spoons and forks, carry containers without spilling their contents, build towers from toy blocks, draw cross lines and circles, pick up and arrange pieces of toys simple, use scissors to cut paper or plastic food wrappers, and can already open and close boxes or toy bags. Followed by tracing lines with stationery, can already draw simple shapes such as rectangles, triangles, and circles. This ability will be very important when children learn to write letters and numbers, some children also start writing a few capital letters.

The speed of a child's motor development may vary. Some children are quick to master fine motor skills, there are also children who are superior in gross motor skills. Some children are need more time to master both. Like other aspects of development, this is influenced by two factors, namely: (1) genetic factors (2) environmental factors, among others, patterns of care, nutrition, and stimulus. Genetic factors determine a child's maturity, or his readiness to learn new skills. For example, a 2-year-old child cannot ride a two-wheeled bicycle, because his muscles are not strong enough and his balance is also not enough. On the other hand, environmental factors also affect the speed and flexibility of children in doing fine or gross motor movements. These two factors are interrelated in supporting or vice versa can hinder children's development.

Newborn children, brain weight is only about 25% of the brain weight of adults, until the age of 3 years, the child's brain will develop rapidly and produce billions of brain cells and connections between brain cells, through brain synapses. Brain cells that require connections that connect between brain cells. When children learn and receive stimulus, connections become stronger. The more connections the brain cells have, the faster the learning process takes place. Stimulation needs to be given to the child to train his gross motor skills so that later the child is skilled and agile in the various movements needed to adjust to his environment.

Children aged 1-2 years are experiencing rapid brain growth. Brain maturation, formation of nerve networks and relationships between nerves develop very rapidly currently. As many as 2 million synapses are formed every second in the cerebral cortex of a healthy child's brain. At the age of 8 months synapses in the baby's brain increase from 50 trillion to 1,000 trillion. In addition to synapses, myelinization process occurs in nerve fibers which are important for the transmission of neurotransmitter impulses to synapses. At the age of 6 months, the baby's brain has reached half the weight of the adult brain (Early Childhood Development, WHO). At the age of 1 year the baby weighs up to 3 times the birth weight, the length increases to half the length of the birth and the brain has gained weight so rapidly that it reaches almost its adult brain later. This growth requires adequate food nutrition and a healthy environment.

Children under five are a group that needs to be considered for their nutritional needs, because they are in their infancy. Deficiency of nutritional needs in childhood as well as disrupting physical growth will also cause disrupt children's mental development. Children who suffer from malnutrition after reaching adulthood will not be as tall as they could have achieved, as well as underdeveloped muscle tissue. Child development includes physical, motor (gross and fine) development, cognitive, language, and social emotion.

The physical development of children under five follows certain patterns, the development of large body parts earlier than smaller body parts. For example, the development of the function of the hands and feet ahead of the fingers. The next pattern is the development of the main organs of the body ahead of other parts. The main organs such as the stomach, heart and other core organs are first and stronger than the development of foot and hand function. The last pattern is from the upper part of the body to the lower part. The development of children under five starts from the new head and then to the legs. This is the reason why babies can lift their heads before rolling over.

There are four development parameters used in observing the development of children under five, namely: gross motor skills can be observed from the ability to sit, kick, run, and go up and down stairs. Fine motor development can be observed from the ability to draw, write, and hold things. Toddler social behavior is observed from how to eat alone, organize, or clean toys, and interact with the environment. Language skills can be observed from responding to sound, speaking, and carrying
Development monitoring is useful to find barriers to children's development, so that prevention and recovery efforts as well as recovery efforts can be provided with clear indicators as early as possible in critical times of child development.

The development of children under five is all the changes that occur in children, viewed from various aspects, including motor, cognitive, and social emotional aspects (how children interact with their environment). One of the development of toddlers is motor development, in general motor development is divided into two namely gross motor and fine motor. Gross motor is part of motor activity that involves the skills of large muscles. Movements such as stomach, sitting, crawling, and lifting the neck. This is the first movement that occurs in the first year of age of children. Fine motor skills are activities that involve the movement of small muscles such as drawing, writing, and eating. Fine motor skills develop after the gross motor abilities of the child develop [15]. Gross motor development is related to movements that are affected by large muscle skills such as sitting, standing, and walking while fine motor skills are related to movements that are affected by fine nerve skills such as: holding objects with the index finger and thumb. This ability develops with age and maturity of the nerves and muscles of children.

Motor development is strongly influenced by nutrition, health status, and treatment of motion in accordance with the period of development. So anatomically, development will occur in an individual's body structure that changes proportionally as a person age. Poor nutritional status will inhibit the rate of development experienced by individuals, as a result the proportion of body structure becomes incompatible with his age which in the end all of that will have implications for the development of other aspects. Nutrients consumed by infants will affect the nutritional status of infants. Differences in the nutritional status of children under five have different effects on each child's development, where if the nutrients consumed are not fulfilled properly then the development of toddlers will be hampered. If toddlers experiencing malnutrition will have an impact on growth limitations, are vulnerable to infection, inflammation of the skin and ultimately can inhibit children's development including cognitive, motor, language, and intelligence compared to toddlers who have good nutritional status [16]. In children aged 12-18 months in the Sidoarjo District Health Center the good nutritional status group was 78.6% having normal development and 21.4% stunted development. Whereas in the malnutrition group there were 53.6% had normal development and 46.4% stunted development. This shows that normal nutritional status and nutritional status lack developmental differences (gross motor, fine motor, language, and social emotion) [17].

Nutrition is important for child development. This malnutrition can affect the process of growth and development of children. Children will experience delays in the development of motor functions such as can reduce motivation and curiosity and can reduce the activity and ability of children's exploration. Malnutrition in children can lead to decreased physical development, intelligence, mental, children's interaction ability with the caregiver's environment. This is consistent with the results of Husaini's research [18] that children with poor nutritional status tend to be more hampered by gross motor development (25%) and 8 times more likely to be delayed in gross motor development compared to children with normal nutritional status. The same thing is also stated in the results of Lindawati's research [19] the lower the nutritional status of children, the higher the development delay.

### 3.2.2. Cognitive Development

The development of children under five includes the development of cognitive abilities. This cognitive ability is related to memory, ability to analyze and ability to solve problems. Cognitive development refers to the development of thinking and learning abilities of children, which includes the development of language, the span of concentration, the ability to plan things, solving problems and memory competencies. Children under five are actively observing, they are actively observing and analyzing what is around them. Here environmental factors play a role in determining the cognitive development of children. Healthy interactions between children and the environment can optimize their cognitive development.
1) Cognitive development of children aged 1-2 years:
Cognitive development that occurs in children aged 1-2 years has begun to recognize various objects around him, pointing to pictures of animals or objects that are asked to him, observing pictures or objects that he knows carefully, pointing and mentioning the names of limbs. Furthermore, it can work together when playing together, be able to play alone longer, and be able to identify and tell which parts of the body are sick.

2) Cognitive development of children aged 2-3 years:
Cognitive development that occurs in children aged 2-3 years have begun to recognize various objects, colors, surface size, rough or smooth, and the function of objects. Shows and mentions the name of the picture he knows, is interested in reading a story especially if it is liked. Furthermore, it can show the members of the body that are known or sick, can classify colors, have understood the concept of small or large, small or large, long or short, and understand the concept of direction, open or close, front or back, exit or enter.

3) Cognitive development of children aged 3-4 years
Cognitive development that occurs in children aged 3-4 years has begun to recognize different functions correctly, grouping objects according to shape, color, size, and function. Participate in reading activities by writing simple words, can mention the basic colors he knows, and show the basic shapes requested such as circles, triangles, and squares. Furthermore, can understand the concept of full or empty, thin, or fat, more, or less, short, or long, the concept in front or behind, above, or below, on the right or left.

4) Cognitive development of children aged 4 - 4.5 years
Cognitive development that occurs in children under five is to start proficient in terms of language. His speech is easy to understand in mentioning letters, numbers, or names of days. To form a sentence already started using time information. Children under five can already sing songs with poems that are so short. Some things that can be done independently at this age are wearing their own shoes, wearing their own pants or clothes, and brushing their teeth without assistance.

3.2.3. Language Development
Initially the child is only able to ramble, then can say a word. Increasing age, children will begin to be able to combine two words, three words, until they can make a simple sentence. Children's ability to speak reflects children's intelligence. In addition to support from the closest people and the surrounding environment, early childhood development also needs to be supported by an adequate supply of nutrition. During the development of toddlers, essential nutrients are needed for the process of tissue maturation and to provide energy in the process of exploring children. As it grows, your child's nervous system is more mature. Furthermore, it can be seen the language development of toddlers.

1) Language development of children aged 1-2 years
Language development in children aged 1-2 years can respond to simple commands, understand statements or simple questions, show objects that are known when asked, move the body so that others understand, say at least 3 words other than the words mama, papa, and bye, call at least one other person's name, and respond to the statement yes and no to express his desire/will, they can already say no to reject something, ask to eat if feel hungry like eating bananas and biscuits, say his own name or someone else he knows, and so on. Shows pictures that he knows, and mentions objects he knows, starting with one, two, three objects and so on. Enjoy playing games that look for hidden objects, enjoy looking at picture books, and begin to understand the function of tools in the house.
2) Language development of children aged 2-3 years
The language development of children aged 2-3 years can already say me, say they want to urinate or defecate, and make sentences with two or three words. Furthermore, the words that are spoken have started to clear. Can already ask with the question "where, why", mention first name and full name, understand simple commands, and point around some objects (usually <10 items) that he knows. Able to follow simple instructions, listen when people talk to him, and be able to show their body parts when asked their whereabouts. Understand that language is important for communicating what they need, being able to name most of their toys, and often asking questions to learn things around them.

3) Language development of children aged 3-4 years
The language development of children aged 3-4 years can answer the question "who, why, where", ask the question "when, how", compose sentences with four words, mention gender, age, and siblings, understand and carry out commands simple, recognize, imitate and know the sounds of objects or animals, point to more than 10 objects that are known, and mention more than 10 objects that are known.

Language development in children under five can mention the name, age and place of residence. Understand the concepts of shape and size, are good at counting from 1 to 50, and can already read hands clockwise. Children under five are very eager to learn new things, they are also very easy to remember something. Increased vocabulary and the ability to tell and express sympathy has been seen in children under five. In addition, it also appears that the ability to start an independent life such as wearing own shoes and clothes, going to the toilet alone and eating alone. He also already knows and socializes with his friends. Love to play and understand that the game has rules that must be obeyed. The results of research by Muthayya [20] and Muthayya et al [21] suggest there is a DHA relationship with the development of the brain, nerves, and eyes.

3.2.4. Development of Social Emotion
The social development of children's emotions is not clearly seen before reaching the age of three. We only guess or guess what the child wants. Once a child reaches the age of three, we can read his mood and respond to his various needs quickly. Instead, the child is able and understands what he wants. The following can be observed the social emotional development of children who were observed when conducting research.

1) Emotional social development aged 1-2 years
Social emotional development that occurs in children aged 1-2 years, starts playing with simple games such as rolling the ball forward and back, playing with a variety of toys, playing in games that involve other parties, imitating sounds from the environment, imitating activities such as household chores, and mimic the movements of objects. Next begin to connect objects and their functions, and imitate other people's movements, such as inserting objects into containers. Start not being afraid when meeting strangers and more open to meeting new people. Tend to want to do everything independently. Interested in new things. This can lead to dangerous activities, such as exploring new places and climbing things.

2) The emotional social development of children aged 2-3 years
Social emotional development that occurs in children aged 2-3 years, begins to show who he is, trying to do something himself, likes to play jokes, uses puppets to play roles, identifies himself with children of the same age, and plays simple group games. Start playing with other children with adult supervision, be aware of and want to know about gender differences, help and dispose of your own garbage, want to work with other adults, and imitate adult work. Able to help with easy instructions, such as arranging or cleaning the dining table. Understand when people are happy or sad with them. and have difficulty choosing between 2 choices and tend to want both.
3) Social development of emotional children aged 3-4 years

Social emotional development that occurs in children aged 3-4 years, can begin to wait their turn, play together but with adult supervision, and have imaginary friends / idols. Can already use blocks or other objects to make simple buildings, follow activities for up to 20 minutes, and work in small groups for 5-12 minutes. Listen and imitate good words. Following/imitating prayer readings before and after doing activities. Imitate some of the worship movements. Listening and imitating God. Feel and be able to show affection, love given through caresses and embraces. Lindawati [19] suggests that several factors that can affect social emotional development in children are: 1) Genetic. 2) Environment. 3) Socio-economic. 4) Nutrition. 5) Health.

Growth and development in children occur starting from growth and development physically, intellectually, and emotionally. Growth and physical development can be a change in the size of the function of organs from the cellular level to changes in body organs. Physical growth is often used as an indicator of the nutritional status of both individuals and populations. Children who suffer from malnutrition look shorter with lower body weight compared to peers who are healthy and well nourished. If nutritional deficiencies last for a long time and are severe, then height will be affected, even the process of maturity begins to be disrupted [16].

4. Conclusions

Based on the results of the study the provision of biscuits 50 grams/day in malnourished children can increase body weight > 100 grams per week in children aged 3-4 years, while children aged 1-2 years gain weight on average < 100 grams per Sunday. Means the provision of biscuits as much as 50 grams/day can restore the weight of children aged 3-4 years in children under five with severe malnutrition. Giving biscuits 40 grams/day can increase body weight > 100 grams per week. Means biscuits with a dose of 40 grams/day can increase the weight of children aged 1-4 years above 100 grams per week (for children who initially weigh less than WHO standards or children who are malnourished). Giving biscuits 30 grams/day can increase body weight > 100 grams per week. Means the provision of biscuits 30 grams/ day to children under five whose weight is according to WHO standards or normal, can increase the weight of children aged 1-4 years above 100 grams. The speed of weight gain is proportional to the initial weight, the lower the initial weight the lower the weight gain. If weight gain is within the limits of the scale of 100 grams per week, it means that children under five are growing healthy.

Based on the initial weight of the child without the addition of biscuits, it is known 33.3% have a normal weight gain and 66.3% have a late weight gain. After biscuit administration, it was found that weight gain was in a better direction, with 87.4% having a normal weight according to their age and the remaining 13.6% still having a late development of weight children whose initial weight was very less than WHO standards.

Weight gain is greatly influenced by the number of biscuits given to the baby. So anatomically, growth will occur in a child's body structure that increases proportionately with age. A lack of initial body weight will hinder the rate of weight gain of the child, can directly inhibit the growth of the child, as a result the proportion of the body structure of the child is not in accordance with their age which in the end it will have implications for other developments. Growth that occurs will affect the development of gross motor and fine motor skills, cognitive, language, and social emotions of children under five years.

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