

# Cookies Innovation Prevents Stunting

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**HumasUPNVJ** - In the modern life of women in big cities, *cookies* seem inseparable in the activity of drinking coffee while waiting for traffic jams. *Cookies* are a kind of snack and are liked by many people, including women. There are various flavors, but the chocolate flavor is the most commonly found on the market. But, have we ever thought that *cookies* will become an important food choice for pregnant women and nursing mothers so that their baby does not experience stunting? The UPN Veteran Jakarta medical lecturer research team today succeeded in making a new breakthrough, in the form of *cookies* that pregnant women and nursing mothers can consume daily. Of course, this breakthrough is worth waiting for, considering that we have often heard complaints from pregnant women and nursing mothers experiencing nausea or other discomfort when consuming milk or other nutritional support foods.

## Then what is stunting?

Stunting is short stature, one of which is caused by a cumulative process of nutritional deficiencies. Stunting starts in the uterus (11.2%), between birth and 2 years (60.6%), and at the age of 2-5 years (28%). A child is said to be stunted if the height for age based on the 2000 CDC growth standard curve is <math>\leq 10\%</math>

95%. Children under the age of two are very vulnerable to nutritional problems, especially stunting. Stunting conditions that are realized too late will interfere with the physical and cognitive development or intelligence of children, delay mental development, and reduce the quality of learning at school. Children with stunting also show lower educational performance, verbal skills and lower IQ.

According to UNICEF (2019), Nutrition is a fundamental factor for human growth and development. Nutritional deficiencies at 1000 HPK can affect morbidity, mortality, and are related to intellectual performance and overall health of children from adolescence to adulthood. Meanwhile, micronutrient deficiencies in pregnant women will affect the growth and development of the fetus and affect the future of the fetus to become a human with abnormalities in the kidneys, cardiovascular function, pancreas and lung function.

WHO data in 2020 found that at least 155 million children around the world aged less than 5 years were stunted. In Indonesia, stunting sufferers in 2019 reached 27.67 percent of the total population. This figure was successfully reduced from 37.8 percent in 2013. However, this figure is still higher than the maximum tolerance for stunting set by the World Health Organization (WHO), which is less than 20 percent. Indonesia's position is still fourth in the world and second in Southeast Asia regarding cases of stunting under five. President Joko Widodo in January 2021 targeted that by 2024 stunting cases in Indonesia could be reduced to 14 percent.

### **Cookies Innovation Prevents Stunting.**

The UPN Veterans Jakarta medical lecturer research team recently succeeded in making a breakthrough, in the form of nutrient-dense snacks for stunting prevention. The application of this snack starts during pregnancy until breastfeeding. The team, chaired by Arfyanti, makes additional food for pregnant women based on a series of research results on pregnant women. Additional food in the form of chicken meat cookies. Cookies are fortified with food sources of nutrition. Then the cookie formula is programmed so that it meets the nutritional needs of pregnant women. The innovation has been registered with a patent and is currently awaiting the final patent test (substantive test). UPN Veteran Jakarta is expected to cooperate with factories in mass-producing innovative products, so they can be sold *online* or *offline*.

### **Cookies in Breastfeeding Mothers.**

UPN Veteran Jakarta is also conducting research on making additional food for nursing mothers in the form of *cookies*. *Cookies* are fortified with food sources of nutrition, which contain micro and macronutrients and ligands. The nutritional content of *cookies* is adjusted to the nutritional needs of additional food for breastfeeding mothers. The tuna fish *cookie* formula is programmed so that it is sufficient for the RDA for additional food for nursing mothers. The innovation results have been registered with a patent in the name of UPN Veteran Jakarta. Currently *cookies* are in the final patent testing process (substantive test). Researchers hope that UPN Veteran Jakarta can cooperate with factories to mass-produce innovative products to be sold *online* and *offline*.

### **What's the Urgency?**

According to the Indonesian Ministry of Health (2018), in order to achieve proper nutrition fulfillment of 1000HPK, it is necessary to carry out Early Breastfeeding Initiation (IMD) after the baby is born for at least 1 hour. Give mother's milk (ASI) exclusively starting from the baby's birth until the baby is 6 months old. Providing complementary food for ASI (complementary food) from the age of 6 to 24 months, with continued breastfeeding until the child is 24 months old. IMD can stimulate milk production, produce antibodies for newborns, reduce postpartum bleeding, determine the success of formation and a longer duration of breastfeeding. Research shows that IMD is associated with a lower risk of neonatal death. Exclusive breastfeeding has also been shown to be able to meet nutritional needs and protect infants from various infectious diseases such as diarrhea, gastroenteritis, acute lower respiratory tract infections, and otitis media. The duration of exclusive breastfeeding can reduce the prevalence of overweight and obesity in children.

Breast milk is produced by a pair of mother's breast glands after giving birth, contains various nutrients in the form of macro and micronutrients that are sterile from microorganisms so that it is safe for babies to consume. Macronutrients found in breast milk include carbohydrates, proteins and fats, while micronutrients consist of vitamins (B6, B12, C, A, E, D, K) and minerals (calcium, magnesium, selenium, zinc, phosphorus, iron, sodium). . Breast milk provides babies with balanced nutrition and protection against infectious pathogens. Breast milk also contains non-nutritional substances in the form of; hormones, immune factors, anti-allergy, anti-inflammatory which are sufficient for all the elements a baby needs. Breast milk can increase 4.5 IQ points in babies who are breastfed compared to those who are not breastfed.

Fat is the main source of calories in breast milk, functions for growth regulation, inflammatory response, immune system, vision, cognitive development, affects children's cognitive development and the process of brain development and motor systems in infants. Lactose in breast milk will increase calcium absorption and undergo hydrolysis into glucose and galactose. Glucose serves as a source of energy for brain growth. Galactose is a source of galactolipid production and then cerebrosides which are important for brain development. Protein in breast milk consists of casein and *why protein* (lactoserum). Breast milk also

contains an essential amino acid, taurine, which acts as a neuroprotector and osmoregulator for brain development. During the first 6 months of birth, breast milk is the only source of nutrition for children. Mother's nutritional status affects the quality of breast milk so that it can affect fetal growth. When a mother has inadequate intake of micronutrients, it can cause a decrease in the quality of breast milk.

Considering that the impact caused by malnutrition on breastfeeding mothers is very broad, PMT accompanied by the government's iron-folate supplementation program for breastfeeding mothers really needs to be considered to help improve the nutritional status of breastfeeding mothers, increase the nutritional content of breast milk, prevent stunting 450 HPK, increase the quantity and capacity competitiveness of human resources in the future.

According to WHO, complementary food for ASI is needed, when breast milk does not meet the nutritional needs of the baby, so other food and drinks are needed along with breast milk. At 6 months of age, there is an increased need for calories, protein, zinc, iron and fat-soluble vitamins (vitamins A, D, K), which are necessary for adequate growth. After 6 months of age, milk production and breast tissue volume will decrease. Babies after the age of 6 months must get MPASI to meet their needs. Complementary Food for Breast Milk (MPASI) which can complement deficiencies of macronutrients, micronutrients and while continuing to breastfeed until the baby is 24 months old. Inadequate complementary feeding will cause stunting.

According to UNICEF (2020), the provision of complementary foods is a crucial period for preventing malnutrition in children, including stunting, wasting, micronutrient deficiencies, obesity, and non-communicable diseases related to diet.

Proper complementary feeding can provide many benefits; complement the baby's nutritional sources, support the baby's growth and development, guide the baby in recognizing and consuming foods other than breast milk needed to meet their nutritional needs, reduce the risk of infection, develop the baby's ability to chew and swallow food, reduce the risk of allergies, help neurodevelopment, help form microbiota digestive tract.

According to UNICEF (2020), MPASI is given when the baby is 6 months old, the frequency is increased, the consistency is gradual, the food is varied and varied, responsive, hygienic, the portion is added gradually according to age.

### Practical Products

So, you can imagine that if this innovation reaches the stage of launching a commercial product on the market, pregnant women and breastfeeding mothers in Indonesia will have new options in preventing stunting from an early age. They can avoid the effects of nausea and strengthen discipline in maintaining a meal schedule amidst busy activities. It is hoped that *Cookies* will no longer be present only during coffee but turn into loyal friends during pregnancy and breastfeeding. It needs to be underlined, this *cookie* innovation is not targeted at a particular segment, but all layers of pregnant women and nursing mothers in order to reduce the number of stunting sufferers as targeted by President Joko Widodo.

**Author Dr. Arfiyanti. M. Kes**

**The research team is a lecturer at the Faculty of Medicine, UPN Veterans Jakarta**

