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Importance of Breastfeeding in the Second Year

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Breastfeeding is just as important in the second year as in the first year of an infants life. To continue breastfeeding in the second year further improves the health and nutritional status of the child. Breastmilk contributes to the child's daily requirement of energy, protein, vitamins and minerals. It maintains protection against illness. In a recent study in the Republic of Gabon it was found that 28.9% of children aged one to two years who were breastfed or mixed fed, had parasites in their small intestines as compared with 65.9% of children who were artificially fed. It was deduced that fatty acids liberated by the action of the enzyme, lipase in human milk, actually kill the protozoan parasite Giardia in the infants small intestines. Another recent study carried out in the United States showed a tendency of infants who are exclusively fed artificial formula to develop lymphomas at a rate five to six times higher than in breastfed infants. These findings underscore the immunological properties of human breastmilk which contains antibodies against infectious agents such as bacteria and viruses.

The continuation of breastfeeding in the second year prolongs and maintains the psychological bonding relationship between mother and child and contributes to the mother's sense of well being and the child's emotional development.

Because suitable supplementary foods should be given to the child in the second year, the contraceptive effect of breastfeeding may be reduced since the mother will be breastfeeding substantially and not exclusively.

Physiological considerations:

In the second year as in the first year, the more regularly the mother breastfeeds, the more milk will be produced.

Sucking on the nipples sends impulses to the anterior part of the pituitary gland in the brain. The hormone prolactin is then secreted and in turn induces the production of more milk in the breast alveoli. Similarly the same stimulation causes the posterior part of the pituitary to secrete oxytocin which releases the milk towards the nipples two to three minutes later (the "letdown" reflex).

In the second year of the child, the quantity of mothers' milk produced may be reduced but the quality is not adversely affected. Between birth and six months, a healthy mother is expected to produce 700ml of breastmilk daily. An

infant aged six months to one year requires about 13gm of protein and 800 calories of energy daily. When the baby is one year old, however, the optimum daily production of mother's milk may have dropped to a level whereby only 5g of protein and 300 calories are available. To make up for the deficits, suitable nutritious supplementary foods are recommended.

Lactose is the main carbohydrate in human milk. It is in adequate amounts in the second year under normal and healthy conditions. However, breastmilk has a relatively low content of iron and copper, minerals required for blood formation. Potassium, calcium, phosphorus, chlorine and sodium are present in good amounts.

Vitamins A, B, and C are in adequate amounts provided the mother maintains an adequate intake of her diet. They can be decreased with poor maternal diet and extended lactation except for vitamin C which remains steady up to 24 months. A daily volume of 500ml of breastmilk, which amount is common in the second year, provides 95% of the child's daily requirement.

Casein is the protein food substance in human milk. Although the casein content of human milk is much less than that in cow's milk, the human baby grows much slower than the calf and needs much less protein especially in the first year. However, many babies grow faster in the second year and may need additional protein if the breastmilk cannot supply the daily requirement as indicated earlier.

#### Supplementary Foods:

Additional foods in the form of semi-solids and solids must supply the additional requirements in the second year of the baby's life.

Sustained breastfeeding must continue at the same time.

Protein rich foods of animal origin include meat, poultry, eggs and fish. Young infants are able to eat and digest meat satisfactorily at eight to ten months of age.

Children should certainly be eating meat or fish by the time they are a year old. It is recommended that local African foods are used for supplementation. Boiled fish may be given with mashed potatoes or soft rice. However, foods with high fibre content and which contain anti-digestive properties such as cassava, should be avoided at this stage.

Various types of meat contain 15-20% of protein, 5-30% of fat, no carbohydrate, some phosphorus, iron and vitamin B group especially the liver. Eggs have 13% protein, minerals and certain vitamins. Fresh fish contains 18% protein but the fat content varies with the species. Fish has no carbohydrates but contains useful amounts of phosphorus, sulphur, potassium, iron and copper. Marine fish provides important amounts of iodine and fat fish are rich in vitamins A and D especially their livers. Fish flour has

a high protein content of 80%. Fish is digested faster. Protein rich vegetables include the pulses - beans and peas, groundnuts, soya-beans and sesame. In general the pulses have 15-30% proteins. Black-eyed beans (cowpeas) have 62% carbohydrates, 23% protein and 1.58% fat. Groundnuts have 43% fat, 23% carbohydrates and 27% protein. Groundnut paste is a very useful protein energy food : supplement for the 1-2 year old child, if prepared hygienically and consumed without delay. Beans and peas are also valuable for their calcium, phosphorus, iron and vitamins of the B group. Sesame seeds have 22% protein, 48% fat and 10% carbohydrate. Rice and maize have up to 76% carbohydrates, 1% fat but parboiled rice may have up to 9% protein and thiamine (vitamin B).

The roots, tubers and plantain group include cassava, yam, cocoyam, sweet potato, plantains and bananas. This group has 20-25% starch, 1-2% protein and less than 1% of fat when raw peeled. It is quite dangerous to rely entirely on cassava or corn flour porridge as a sole food supplement for infants. The yellow variety of sweet potatoes contains carotene, a precursor of vitamin A. Bananas and plantains contain potassium.

Starchy fruits like the baobab ("monkey bread"), locust beans and breadfruit have 60-70% starch, 10-20% indigestible cellulose, 1-3% protein and 0-3% fat. The floury pulp of the locust bean is rich in vitamin C and in calcium. The baobab has good amounts of calcium, vitamins C and B1. Most fruits have a large amount of water, a little sugar, and very little protein and fat. They are an important source of vitamin C notably guava, tangerine, orange, pineapple and pawpaw. Mangoes and pawpaws have good amounts of vitamin A. The main minerals in fruits are potassium, calcium, magnesium, iron and copper.

Green leaves have proteins, vitamins A and C. When green leaves and some vegetables are cooked, part of the mineral salts and vitamins are dissolved in the cooking water and are lost if the water is eventually discarded.

In conclusion, breastfeeding must continue and be sustained in the second year of the baby's life while at the same time giving nutritious food supplements. As we have seen, many nutritious foods are available locally. But these must not be given to the child exclusively at the expense of breastmilk.

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