



NUTRITION THROUGH THE LIFE COURSE: PART 3 - NEWBORN TO 24 MONTHS

Breastfeeding provides the complete form of infant nutrition for the first six months of life. However after six months breastmilk alone will not be able to provide all the nutrients the infant requires to achieve optimum growth and development. At six months breastmilk must be complemented with a variety of adequate nutritious foods from the six food groups so that the infant will have sufficient energy, protein and nutrients needed for growth, increased activity and good health. Along with adequate complementary foods, breastfeeding should be continued up to two years and beyond as it remains an important source of energy and nutrients.

Introducing complementary foods too early (before six months) can result in risks to the infant's health because:

- Breastfeeding may be reduced because the infant suckles less which results in less breastmilk being produced.
- The risk of disease increases as less of the anti-infective constituents of the breastmilk are consumed.
- The risk of diarrhoea increases because complementary foods may not be prepared properly.
- The risk of overweight increases because the infant does not need so many calories at this stage.
- The risk of allergies increases because of the immaturity of the infant's digestive tract.

On the other hand, if the mother introduces complementary foods too late or if the frequency of feeding is not adequate, the infant will not

receive sufficient energy and nutrients such as protein and iron increasing the risk of malnutrition and anaemia.

Principles of Complementary Feeding

At six completed months, the infant should be offered a soft mashed food such as porridge. This can be made from rice, oats, cornmeal and green bananas along with milk and sugar and should be of thick consistency. Porridge and other foods should be given from a bowl with the use of a spoon. Bottle feeding should be discouraged.

As the infant grows, a variety of complementary foods from the six food groups should be offered. These foods should be pureed and mashed. Breastfeeding should be

continued and complementary foods should be given after the infant is breastfed.

At the start of complementary feeding, small servings (two to three tablespoons of food) twice per day should be introduced then gradually increased. This allows the infant to get accustomed to the taste and texture of new foods. A wide variety of foods including staple foods such as yam, potato, rice, peas and beans, meat, fish and vegetables such as carrot, pumpkin and green leafy vegetables, mashed fruits such as mango, papaya and banana, should be offered along with breastmilk

At 6-8 months of age, infants should be fed two to three meals per day along with one to two snacks a day in addition to breastfeeding. At nine to eleven months, the infants should be given finely chopped or mashed foods and foods that the infant can pick up. They require three to four meals and one to two snacks.

A one to two year old infant can be given regular family foods. These foods should be chopped or mashed if necessary. Along with breastmilk, parents should offer three to four meals and one to two snacks each day.

Parents can follow these tips in feeding their infants and toddlers:

- Foods should be well cooked and should be taken out from the pot before the addition of salt, pepper or other spices. Bland foods with a neutral flavour are better accepted than foods which are spicy and highly flavoured.

- Food should be prepared fresh and should not be used for another meal.
- Good hygiene practices should be maintained in preparing foods for the infant.
- Never force children to eat.
- Juice should not replace breastfeeding and should be given at the end of the meal. Too much fruit juice can cause diarrhoea.
- Nutritious snacks such as yogurt and other dairy products, fruits, bread or biscuits or crackers spread with peanut butter should be offered. Don't encourage foods high in refined sugar or high fat foods.
- Food should not be restricted for children who are ill. Mothers should continue to breastfeed the infants frequently. Complementary foods that the infant likes to eat should be given. During the recovery period, a nutritious diet with adequate energy, protein and nutrients should be given for rapid weight gain and the replacement of nutrient stores.

Nutritionally High Risk Groups

LOW BIRTH WEIGHT INFANTS

Low birth weight infants (weight is less than 2.5 kg) include premature infants and infants who are small for gestational age. These infants are

at greater risk of developing serious infection and death. Breastmilk is particularly important for low birth weight infants because of the enhanced immunologic properties which promote increased resistance to infections.

Low birth weight infants must be fed adequately in order to fulfil the needs of rapid growth. Infants who are able to suckle, should be encouraged to do so frequently to satisfy their nutritional needs and to increase the volume of milk produced by their mothers. Low birth weight infants who are not able to suck effectively at the breast at first, should be given expressed breastmilk by cup until successful lactation is achieved. Premature infants below 30 weeks usually require tube feeding in the hospital. Infants between 30-32 weeks gestational age can take feeds from a small cup until they are at 32 weeks gestational age or more when they are able to start suckling at the breast.

It is essential that mothers of low birth weight infants, whose infants are unable to suckle, start expressing their milk within six hours after delivery for adequate milk production. It is important that health professionals provide adequate support and encouragement to mothers so that they can effectively initiate and continue breastfeeding successfully. Low birth weight infants should be followed up regularly in order to ensure they are receiving adequate breastmilk required for healthy growth and development.

CHILDREN WITH HIV

Children become infected with the HIV virus through their mother either during pregnancy across the placenta or during labour and birth through blood and other secretions or through breastfeeding.

Mothers known to be HIV-infected need skilled counselling and support in infant feeding practices and antiretroviral (ARV) therapy to protect their health and to prevent mother-to-child transmission of HIV. These women should be informed of the infant feeding strategy recommended by the Ministry of Health in their respective countries and the advantages and risks of alternative options.

The strategy promoted in many Caribbean countries, is that mothers known to be HIV-infected should not breastfeed at all, but should instead feed their infants only on commercial infant formula for the first 6 months with the introduction of complementary foods at age six months. In many of these countries, the Ministry of Health provides supplies of infant formula to assist mothers to carry out replacement feeding. However, if instead, national authorities decide to promote breastfeeding in combination with ARV therapy, then according to recent WHO guidelines, mothers known to be HIV-infected with infants of unknown status should be counseled to exclusively breastfeed their infants for the first 6 months, introducing appropriate complementary foods thereafter, and continue breastfeeding up until the infant is 12 months of age.

Mixed feeding, that is, a mixture of breastfeeding and replacement feeding, is not recommended because foods other than breastmilk can irritate the intestinal wall making it easier for the virus to enter the infant's body. Mothers should not restart breastfeeding once it has been stopped as this increases the risk of the virus being transmitted to the infant.

Infants and young children known to be HIV-infected are more susceptible to malnutrition and increased risk of infections.

This is due to:

- Inadequate food intake due to poor appetite and altered taste which decreases interest in food.
- Gastrointestinal complications such as diarrhoea and malabsorption which causes nutrient losses.
- Socioeconomic factors such as poverty which lead to food insecurity.
- Illness of parents which affects their ability to successfully feed and care for their infant.

Infants and children who are HIV positive may have higher energy requirements to achieve catch up growth and to fight infections. These children may require more frequent, energy dense feeds to fulfil their needs. For children on solid foods, fat, gravy or sauces and full fat dairy products can be added to meals. Complementary foods must be nutritious and given in sufficient amounts to enable the child to achieve adequate growth.

Underweight Children

An infant or young may become under nourished if he is not fed adequately. This is due to the lack of energy, protein, vitamins, and minerals required for growth, development and protection against infections.

A child's weight and length should be plotted on a growth chart to determine if he or she is growing adequately. A flattening or decline in the child's growth line is usually a bad sign. Inadequate energy and nutrient intakes may be due to early introduction of bottle feeds and infrequent breastfeeds. Sometimes, as a result of poverty, formula feeds are not prepared properly. Feeds may be diluted because parents cannot afford the amount of formula required. Unsafe water and improper sanitation in the home may lead to contaminated feeds which increase the risk of diarrhoea and other illnesses which hinder healthy growth and development.

The late introduction of a variety of foods in sufficient amounts after six months as a result of poverty or lack of knowledge can also be detrimental to the infant.

Infants malnourished early in life are at risk of having problems with learning, behaviour and a lowered resistance to infection. Research has shown that if emotional and physical stimulation are given and living conditions are improved during or shortly after malnutrition, this will reduce the risk of permanent mental and physical impairments.

To increase weight gain in undernourished children, parents should provide three main meals and 2-3 nutritious high calorie snacks each day. To increase calorie content of meals, food such as cheese, milk and butter should be added to meals.

Children with Anaemia

Iron is needed for growth and development, fighting against infections and for the formation of haemoglobin in blood. Young childrens requirement for iron are very high because of their rapid growth rate in the early years.

Iron deficiency anaemia may develop if infants do not receive adequate sources of iron. Iron deficiency anaemia can range from mild to severe. In the mild form of iron deficiency anaemia, the

child may have no symptoms. Severe iron deficiency anaemia may cause extreme tiredness and weakness, shortness of breath, pale skin, tongue, gums and nail beds, poor weight gain, frequent infections, behaviour disorders and development delay.

Complementary feeding should include meat and chicken and organs such as liver and heart which are excellent sources of iron. Fortified flours and cereals, peas and beans and green leafy vegetables contain iron. They should be eaten with foods rich in Vitamin C such as tomato, mango, pineapple, papaya, orange and other citrus fruits. Vitamin C helps to increase the amount of iron absorbed from plant foods. Young children should be offered iron-rich foods daily or as often as possible.

For further information contact:

Caribbean Food and Nutrition Institute
UWI Campus, P.O. Box 140, Kingston 7
Jamaica, W.I.

Caribbean Food and Nutrition Institute
UWI Campus, St. Augustine
Trinidad, W.I.

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