

Improving Young Child Feeding in Eastern and Southern Africa

Household-Level Food Technology

Proceedings of a workshop
held in Nairobi, Kenya,
12-16 October 1987

Proceedings



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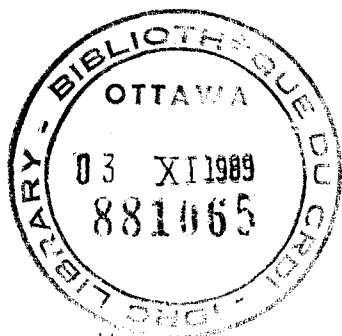
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Improving Young Child Feeding in Eastern and Southern Africa

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Editors: D. Alnwick, S. Moses,
and O.G. Schmidt



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Abstract

The weaning period, that is the period in a young child's life when supplementary foods are introduced to complement breast milk, poses great nutritional risk to children in developing countries. By the end of the second year of life, one-third of children in eastern and southern Africa are chronically malnourished. The following factors contribute to the growth faltering commonly observed in weaning-age children: low nutrient intake, high incidence of diarrheal disease (often caused by contaminated weaning foods), and recent declines in duration and intensity of breastfeeding.

Food scientists, nutritionists, and health planners working in Africa and South Asia met in an international workshop to examine household-level food technologies that hold promise for improving nutrition of infants and young children. After reviewing current knowledge of breastfeeding and weaning practices in eastern and southern Africa, participants discussed the use in weaning diets of fermented foods and germinated flour, for both improved nutrient intake by young children and decreased risk of food contamination. Research that should be conducted into the effectiveness of the food technology was identified and its diffusion at the community level discussed.

This publication contains the proceedings, conclusions, and recommendations of the workshop. It is directed at scientists and health planners who are involved in nutrition research and developing programs to improve feeding of infants and young children in developing countries.

Résumé

Le sevrage, c'est-à-dire la période où l'on commence à donner des aliments solides à un jeune enfant en complément du lait maternel, présente de graves risques nutritionnels pour les enfants dans les pays en développement. Dès la fin de leur deuxième année, le tiers des enfants en Afrique orientale et australe souffrent de malnutrition chronique. Les facteurs suivants sont à l'origine du retard de croissance que l'on retrouve couramment chez les enfants en âge d'être sevrés : carence nutritionnelle, forte prévalence des maladies diarrhéiques (qui s'expliquent souvent par la contamination des aliments) et diminution récente de la durée et de l'intensité de l'allaitement maternel.

Des spécialistes des sciences de l'alimentation, des nutritionnistes et des planificateurs de la santé travaillant en Afrique et en Asie du Sud se sont réunis dans le cadre d'un atelier international afin d'examiner des technologies alimentaires applicables au niveau des ménages qui semblent prometteuses pour améliorer la nutrition des nourrissons et des jeunes enfants. Après avoir examiné les connaissances actuelles en matière d'allaitement au sein et les pratiques de sevrage en Afrique orientale et australe, les participants ont discuté de l'utilisation, au cours du sevrage, d'aliments fermentés et de farine germée, tant pour améliorer l'apport nutritionnel chez les jeunes enfants que pour diminuer les risques de contamination des aliments. Ils ont également discuté des recherches qu'il y aurait lieu d'entreprendre sur l'efficacité des technologies alimentaires et sur leur diffusion dans la collectivité.

Cette publication fait un compte rendu des discussions de l'atelier et présente ses conclusions et ses recommandations. Elle s'adresse aux scientifiques et aux planificateurs de la santé qui participent à des recherches en matière de nutrition et à l'élaboration de programmes visant à améliorer l'alimentation des nourrissons et des jeunes enfants dans les pays en développement.

Resumen

El período de destete, es decir, aquel período en la vida de un niño en que se introducen en su dieta alimentos suplementarios para complementar la leche materna, representa un gran riesgo nutricional para los niños de países en vías de desarrollo. Hacia el final de su segundo año de vida, un tercio de los niños en África oriental y del sur muestran señales de malnutrición crónica. Los siguientes factores contribuyen al crecimiento vacilante que se observa comúnmente en los niños que se encuentran en edad de dejar la lactancia materna: baja ingestión de nutrientes, alta incidencia de diarrea (a menudo causada por alimentos para el destete contaminados), y nuevas disminuciones en la duración e intensidad de la alimentación proveniente del pecho de la madre.

Científicos del campo de los alimentos, especialistas en nutrición y planificadores de la salud que trabajan en África y en el Sur de Asia se reunieron en un taller internacional para examinar las tecnologías de alimentos que se utilizan en el hogar y que prometen buenos resultados en el mejoramiento de la nutrición de lactantes y niños pequeños. Después de analizar el conocimiento que existe actualmente sobre la alimentación recibida a través del pecho de la madre y las prácticas que se utilizan para el destete en el oriente y sur de África, los participantes discutieron el uso en dietas para el destete de alimentos fermentados y harina germinada para que los niños puedan ingerir nutrientes mejorados y haya una disminución en el riesgo causado por la contaminación de los alimentos. Se identificó la investigación que se debe realizar sobre la efectividad de las tecnologías de alimentos y se discutió su difusión en el seno de la comunidad.

Esta publicación contiene las actas, conclusiones y recomendaciones del taller. Está dirigida a científicos y planificadores de la salud que participan en la investigación nutricional y en programas de desarrollo para mejorar la alimentación de lactantes y niños en los países en desarrollo.

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TRADITIONAL WEANING PRACTICES IN ETHIOPIA

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Abstract *This paper reviews the studies of the Ethiopian Nutrition Institute on food intake of infants and young children. These studies indicate a significant prevalence of malnutrition, the first evidence of which usually appears after 6 months of age. Factors contributing to this situation are late introduction of supplementary foods, high incidence of infectious diseases, undesirable social taboos, and poor economic conditions. A low-cost, high-protein weaning food known as "faffa" was developed to minimize these nutritional problems; this food has had an appreciable nutritional impact on a certain sector of the child population. Breastfeeding is often continued for quite a long period, especially in rural areas. Most of the traditional weaning foods are prepared from a variety of cereals, but in such a way that the infant cannot easily consume and digest them. The concept of improved feeding of infants and young children is not well understood by most families in Ethiopia.*

Most staples consumed in Ethiopia contain adequate quantities of minerals, vitamins, and energy. Good child growth is, however, a result both of adequate intake of nutrients and of a low incidence of infection: inadequate food intake and infectious disease both reduce the efficiency of the body and, thus, the body's capability for proper use of nutrients from the food.

In recent years, several surveys on nutritional status have been undertaken; the most common indicator used has been "weight-for-height" (wt/ht). There are two advantages to this system: first, it does not require a knowledge of children's ages, which are often difficult to obtain; second, because the critical point is taken to be a weight below 80% of that normal for the height or length of the child, the system works quickly to indicate whether a situation is improving or deteriorating.

The first comprehensive nutrition survey in Ethiopia was conducted in 1957. The survey results showed that the overall nutritional status of the population was somewhat lower than that required for their level of activity. Evidence of protein energy

malnutrition (PEM) and of inadequate intake of vitamins A and C was found in some segments of the population. Endemic goitre was prevalent in several areas. Mild rickets was present in up to 30% of preschool children.

Another extensive survey was conducted by the Ethiopian Nutrition Institute (ENI) in five areas representing more than half the population. This survey revealed findings similar to those of the 1957 survey: up to 6 months of age, weight of infants was comparable to that of their counterparts in developed countries; after 6 months, however, the weight-for-age ratio begins to decline. There are several factors responsible for this: principal among them are the late introduction of complementary foods and the high prevalence of childhood diseases. Social taboos and poor economic conditions exacerbate the situation.

A representative sample survey of 1510 children from 12 "kebelles" in Addis Ababa in 1985 found 2.3% of the children to be acutely malnourished (below 90% wt/ht) and 21% stunted in the 2nd year of life. Hofvander (1970) noted a goitre prevalence of 8.5% for Addis Ababa, 26.9 for Ijaji, and 53.1% for Backo.

National Strategies to Combat Malnutrition

To alleviate these nutritional problems, ENI was established in 1962 as a joint undertaking of the Ethiopian and Swedish governments. During its first few years, the Institute was engaged in collecting baseline data and in developing a low-cost, high-protein, wheat-based weaning food known as "faffa." The objective of producing "faffa" was to reach the low-income families in urban areas. It is now evident, however, that because of the higher purchasing power of middle-class urban families, "faffa" is being consumed mainly by the children of that stratum. (A notable exception to this was the role played by "faffa" in saving the lives of drought victims and displaced families during 1980-1985.) At the same time, other products such as "dube," "edget," "cerepham," and "shiro" have been developed. We now have a low-cost, sorghum-based "faffa," and arrangements are being finalized with the Swiss government to establish a defatted soya line to eliminate the need to import soya flour to fortify supplementary foods.

In Ethiopia - a close-knit, predominantly rural society - breastfeeding is often continued until the natural biological source is exhausted or until the onset of another pregnancy, especially in rural areas. The importance of colostrum for the immunity of the newborn is generally recognized. The prohibitive cost of food substitutes discourages bottle-feeding, especially in the rural population and among the urban poor. Despite this widespread acceptance of breastfeeding, policymakers should promote it through substantial revision of teaching and training curricula; the benefits would include greater knowledge of maternal nutrition and an affirmation of a social status for women apart from their traditional burden of having frequent and often unwanted pregnancies.

Traditional Weaning Practices

Between the ages of 6 and 18 months, the child moves through a stage that is critical to his or her survival. One of the factors contributing to infant malnutrition is prolonging breastfeeding

without an appropriate and timely introduction of complementary foods. Weaning is a process whereby foods that are both suitable and palatable are introduced when required for adequate nutrition. Weaning that begins too early involves the risk of infection; weaning that begins too late leaves the infant with an inadequate intake of nutrients and, thus, is harmful to his or her growth and development. Several factors must be considered with regard to supplementary foods: nutrient value, ease of preparation, hygiene, digestibility, and density. The practice of supplementation calls for attention to the frequency and consistency of feeding and to any cultural taboos that may have become associated with the foods. In many parts of Ethiopia, the weaning-age child seldom receives specially formulated foods, but is gradually introduced to diluted adult food that may be nutritionally inadequate.

Immediately after birth and before the initiation of breast-feeding, the new-born infant is often fed butter. A small amount of water is also given, either mixed with butter or alone. The purpose of giving butter on the 1st day of the infant's life is to "open up its throat" or to "grease it" and to "get rid of dirty things" in the stomach. After this is done, breastfeeding can begin. Butter feeding continues, on average, up to 1-2 months of age; in some areas, it is continued even longer, mixed with a liquid made from fenugreek (*Trigonella faenum graecum*).

In one widespread practice, the child, from the age of a few days until he or she can walk, is given a liquid made of boiled fenugreek seeds. Sometimes this liquid is given on the infant's 1st day of life, in the belief that it will get rid of intestinal dirt. In some areas, it is the only supplementary food that can be given until the child is put onto adult food.

The most common way of preparing fenugreek as an infant food is to boil the whole seeds four to five times and discard successively each batch of boiling water; this is intended to remove the bitter taste. The infant receives the liquid from the last boiling. Although the seeds themselves contain 20-22% protein, the liquid made out of boiled seeds contains only 0.5% and is, therefore, nutritionally inadequate. The seeds are reused two to seven times - each extraction containing less protein. In some areas, fenugreek water is never used alone, but is mixed with milk, butter, or spices.

Depending on the availability of milk, which varies greatly from area to area, diluted milk and milk products are given from the age of 2-3 months and continued at least to 1-2 years of age; these feedings take place daily or several times each week. The milk is generally obtained from cows and, less often, from goats and camels. In urban areas, commercial powdered milk is also used.

Breastfeeding Pattern

The infant receives breast milk 2-3 days after birth. Although butter, fenugreek water, and diluted animal milk are given at an early age, breast milk constitutes the major part of the infant's diet for about the first 6 months; this is especially true in rural areas. Breastfeeding is generally continued, together with the provision of some cereal-based weaning foods, until the child is 2-3 years old. In certain communities, children receive only breast milk until they begin to eat adult foods.

According to studies conducted by ENI regarding the duration of breastfeeding, rural mothers breastfeed much longer than do their urban counterparts. A tendency was observed toward early cessation of breastfeeding in communities where milk is relatively abundant and toward prolonged breastfeeding in areas where animal milk is scarce. In some cultural groups, the breastfeeding of male infants was recorded as being significantly longer than for female infants; this difference arises from the notion, prevalent in these groups, that boys need more strength than girls.

Grain-based Weaning Foods

The point at which infants begin the actual weaning process, i.e., the introduction of grain-based solid foods, is not the same throughout the country. It varies considerably with the ethnic make-up of the population, the degree of urbanization, and the socioeconomic status of the families. In general, however, infants in the rural areas start very late - from 8 to 12 months of age - whereas urban infants begin at about 5 months. The reason for late introduction in rural areas is sometimes said to be because of the unpleasant smell of the infant's stool. Furthermore, mothers believe that if children are introduced to solid foods before 6 months of life, they develop a swollen abdomen. Gruel, porridge, "fettfet," "ketta," and "dabo" are the popular traditional weaning foods used in most households (Table 1).

When mothers introduce solid foods to their infants, they traditionally give gruel made from a variety of cereals (Table 1). As the infant grows, porridge is given in addition to gruel, and both foods are given together until about the end of the 2nd year. When the child is about 2 years of age, "fettfet," "ketta," and "dabo" are given; soon afterwards, the child is introduced to an adult diet, consisting mainly of thin leavened bread ("injera") with hot sauce

Table 1. Major grain-based traditional weaning foods.

Weaning foods	Raw food items used
Gruel	Tef, sorghum, barley, maize, wheat, emmerwheat, and ensete
Porridge	Tef, sorghum, barley, maize, wheat, emmerwheat, and ensete
Fettfet ^a	Tef, sorghum, barley, maize, wheat, broad beans, chick-peas, field peas, and lentil
Ketta ^b	Tef, sorghum, barley, maize, wheat, ensete, and chick-peas
Dabo ^c	Tef, sorghum, barley, maize, wheat, and emmerwheat

^aThin leavened bread ("injera") mixed with sauce of legumes.

^bUnleavened bread.

^cThick leavened bread.

("wot") made from legumes (split or ground, and spiced). Wherever available, butter is added to all these weaning foods. Either toasted or boiled whole cereals, legumes, or both, are also given as a small meal to older children who are able to chew it thoroughly.

Most of the traditional weaning foods are prepared from a variety of cereals, mainly "tef" (*Eragrostis abyssinica* - unique to Ethiopia), sorghum, barley, maize, and wheat. In the southern regions, however, infant diets are prepared mainly from false banana (*Ensete ventricosum*), which is the staple of the region.

The legumes grown include chick-peas, field peas, beans, and vetch. Unlike cereals, however, legumes are never used in the preparation of weaning foods. Their primary importance is to make sauce ("wot") that can be eaten together with the thin leavened bread as "fetfet." Except for onion, kale, and potato, fruits and vegetables are not widely used for feeding infants and young children, although a great variety of them are grown. A large percentage of children do not receive animal protein: their protein source is entirely of plant origin, the main part being derived from cereals. The concept of preparing infant foods from a mixture of cereals, legumes, and other food items has not yet spread through most areas of the country.

In some communities, taboos exist around certain foods, preventing their being given to infants and young children: honey is forbidden, in the belief that it will cause infants to stammer; eggs are believed to be a cause of intestinal parasites such as tapeworms; it is said that if children eat liver, they will lose their teeth; and because the heart is traditionally regarded as the centre of memory, it is believed that anyone who eats this food will be forgetful. There are also mothers who do not include certain cereals, such as sorghum and wheat, in their infants' diet because of the belief that these cereals will cause ascariis infection.

Dietary surveys undertaken in different parts of the country all show that the diets of infants and preschool children are seriously deficient in energy and often do not cover the child's need for calcium, iodine, iron, or most vitamins. The intake of protein is not only inadequate but also has relatively low biological value, as most of the total protein is from plant sources. According to these surveys, nutritious, easily consumed, digestible infant foods are almost nonexistent in most of Ethiopia.

Strategies for Improving Feeding Practices for Infants and Young Children

Organizations exist in Ethiopia for the introduction and reinforcement of developmental activities - activities that are geared toward a better quality of life for the people, especially for the rural masses. The following strategies are recommended to further these aims:

- All channels of communication - voluntary associations, religious leaders, schools, and youth, women, and peasant associations - should be used to inform the community about the value of breastfeeding. Women's associations should launch consciousness-

raising campaigns in support of improved weaning habits. The training of community volunteers should be strengthened.

- Within the public sector, there should be a consistency of communication over the feeding of infants and young children. The promotion of breastfeeding and of appropriate feeding practices should be set within the context of overall maternal and child health-care practices, national food and nutrition policies, and primary health care.
- A more concerted national effort should be made to ensure the continuation of systematic epidemiological research.
- With regard to a promotion of locally available ingredients, more "demonstrative" strategies for training and education should be encouraged through health, education, and agriculture extension programs.
- Countries must recognize the need for subsidized weaning foods, so that these foods be made available to low-income groups. This can be achieved in part through the creation of low-cost production units at the peasant association level; such units could be planned and administered by the national organizations themselves. Government support must be given to practical and appropriate initiatives that address the following issues: to improve the nutritional value and hygienic standards for traditional and locally used weaning foods; to achieve a balanced diet for infants; to educate mothers in the appropriate feeding of children; and to facilitate the exchange of information on feeding practices for young children among countries in the region. The United Nations Children's Fund (UNICEF) could play a key role in the treatment of such issues.

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