

**FEED THE NURSING
MOTHER, THEREBY THE
INFANT**

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Feed the nursing mother, thereby the infant

A successful attempt to improve nutritional status of infants by supplementing their mothers' diet is described. The habitual diet of a chronically malnourished woman whose milk production was insufficient to feed her newborn infant was supplemented with extra calories. An increase in milk production and in the infant's weight was rapidly obtained.

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IN A PRECARIOUS PHYSICAL ENVIRONMENT, breast-feeding markedly reduces malnutrition and infection, thereby enhancing survival during the early months of life.¹⁻³ However, in the presence of maternal malnutrition, insufficient caloric intake during the lactation period may severely reduce milk production, thus adversely affecting the infant's nutrition and development.²⁻⁷

This paper describes a successful attempt to improve the infant's nutritional status by supplementing the mother's diet.

MATERIAL AND METHODS

Infant C. M. was a term male, born to a gravida I, 24-year-old Mestizo (Ladino)* woman of extremely low economic status. The mother's height was 142 cm, with a weight of 42.5 kg. The pregnancy was complicated by mild pre-eclampsia, but the delivery was uneventful. The placenta weighed 250 gm; the child's birth weight was 2,611 gm; the length was 46 cm; the head circumference was 33 cm; the arm circumference was 9 cm. By physical examination, the baby was found to be normal. Evaluation of gestational age by the Dubowitz method was 42 weeks. No abnormalities were noted in the neurologic or

behavioral assessment of the infant using the Brazelton Neonatal Examination.

The baby was discharged from the hospital at 48 hours of age to be breast-fed. His weight was 64 gm less than his birth weight.

At 35 days of age, the baby's weight had increased only 110 gm despite continuous nursing; he appeared to be constantly hungry and the mother, who produced very little milk, felt tired all the time.

Socioeconomic evaluation of the family revealed that since the mother became pregnant, her diet consisted mainly of tortillas (cooked flat pancakes of lime-treated maize) and "chipilin" (*Crotalaria longirostrata*, wild leaves rich in carotene). Her estimated daily income was U.S. \$0.10 per day, an amount insufficient to purchase an adequate diet for a nursing mother in Guatemala. Because of the family's low socioeconomic status (primitive cooking facilities, contaminated water supply, and precarious financial situation), an attempt was made by the authors to increase the mother's milk production by supplementing her food intake, rather than admitting the infant to the hospital to correct malnutrition and begin formula feeding.

Over a period of 45 days, eggs, cheese, meat, and grains, including rice and beans, at a cost of U.S. \$2.00 per week, were provided. Her caloric intake increased from 800 to 2,200 calories/24 hours, as recorded by daily dietary surveys.

Milk production was estimated by measuring each day, at a specific time, the amount of milk obtained from each breast by a hand pump, one hour after feeding the baby. Daily weights of the infant were recorded during the

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*Of Hispanic culture; have adopted Hispanic cultural traits, or never had Amerindian customs.

supplementation period. This lasted 45 days and ended when the mother was able to obtain, by her own means, an adequate diet. The infant was followed for three additional months.

RESULTS

Concurrently with the improved diet, the combined quantity of milk obtained from the breasts 1 hour after feeding the infant increased from 0.1 ml the first day, to 14 ml by the fifteenth day of supplementation (Fig. 1). Thereafter, the volume of milk remained fairly constant. The infant's weight increased from 2.7 to 3.7 kg at an average of 19 gm per day, remaining below the third percentile of the Boston growth curves at the end of the third month of the follow-up period (Fig. 2). During the supplementation time the mother's weight increased only 130 grams.

DISCUSSION

A reduction in caloric intake usually results in a diminished production of milk, with little change in its composition.¹⁷ The precise nutritional intake at which lactation is diminished is not known.

Our clinical problem was the treatment of malnutrition in a 3-month-old infant whose mother was unable to produce sufficient milk to nurture him. Usually, an undernourished infant is treated with an improved diet to correct his nutritional status. However, our purpose was to increase the volume of the milk secreted by the mother, thereby correcting the nutritional deficiency of the infant.

The recommended daily caloric intake for a lactating mother, according to recommendations of the Institute of Nutrition of Central America and Panama, is 3,000 calories per day.⁸ However, in this particular case the mother had impaired appetite and still produced sufficient milk when ingesting 2,200 calories a day. To measure the exact volume of the milk produced is difficult without interfering with the normal procedures of feeding the baby.⁸ Measuring the amount of milk obtained one hour after nursing the infant at a specific time each day demonstrated an apparent increase in milk production. During the first few days, although the infant's weight was already increasing, no residual milk was collected, presumably because he was ingesting all the available supply. Only after several days did the milk collected show an increase parallel to the infant's weight gain. During this period, the mother's weight remained about the same.

Breast-feeding protects the infant not only from malnutrition but also from infection, thus preventing retarded growth and development as well as the high morbidity and mortality observed in underdeveloped countries.¹⁸

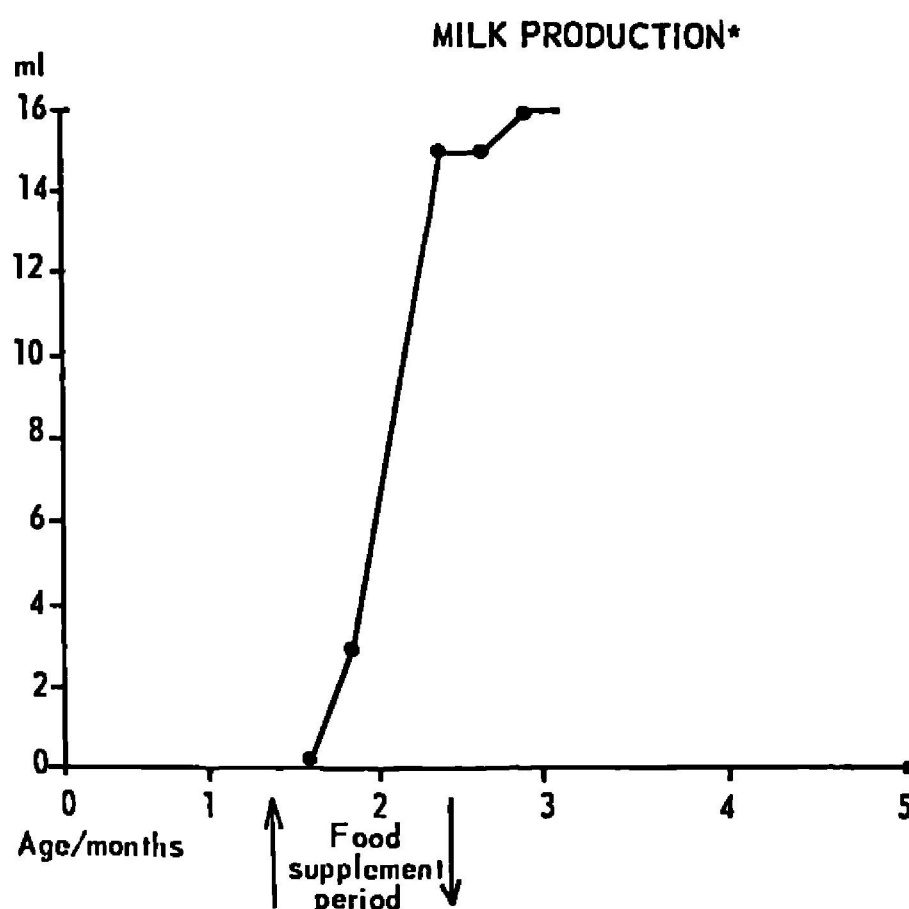


Fig. 1. Increments in milk production during the maternal supplementation period. *Milliliters of milk obtained 1 hour after milk production.

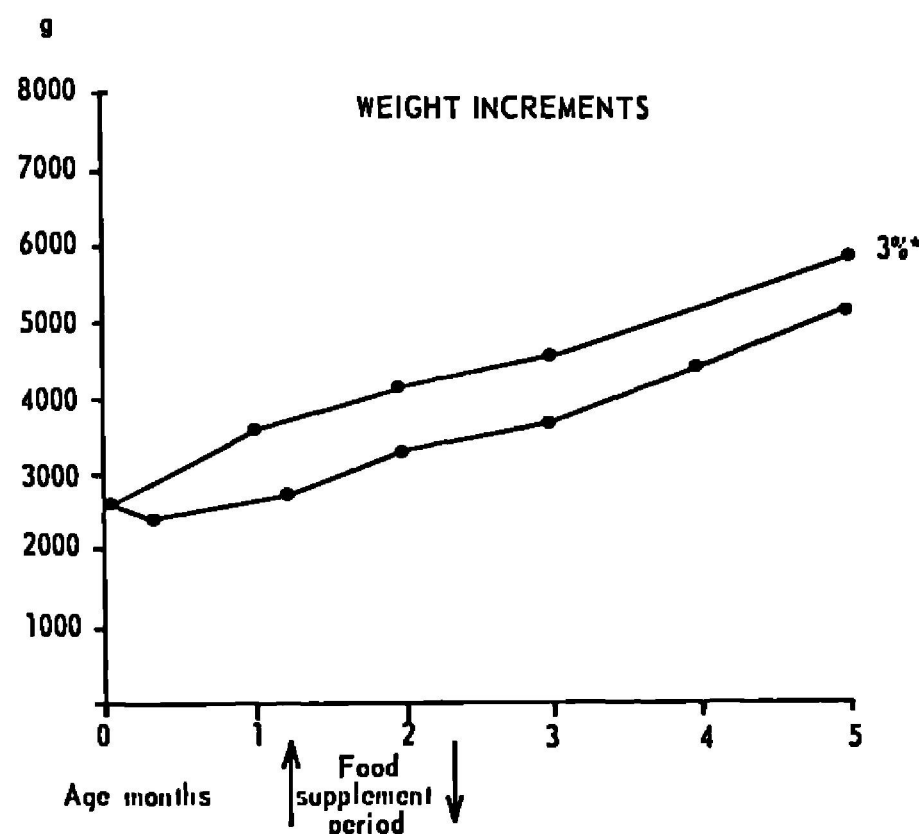


Fig. 2. Weight increments during the maternal supplementation and follow-up period. *Boston growth curves.

In the urban populations of developing countries, the breast-feeding habit is unfortunately declining, and there is a tendency toward early weaning.¹⁹⁻²⁰ This trend places infants who live in marginal areas of the cities and in crowded environments with inadequate sanitary conditions at a severe disadvantage. Present policies for the correction of malnutrition are usually directed toward feeding the infant. This paper suggests a practical approach to some aspects of infant malnutrition asso-

ciated with poverty. Feed the nursing mother, thereby the baby.

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