Crematocrit of the breast milk after a nutritional strategy for breastfeeding mothers

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Abstract

Background: The breast milk production is a biologically prioritized process, its nutritional composition, particularly fat and energy content, can be significantly influenced by maternal diet. 1 Objective: To evaluate the impact of individualized nutritional counselling on the caloric density of human milk. Methods: A prospective, observational, longitudinal study was conducted at the Milk Bank of the Dr. José María Rodríguez General Hospital. Results: The mean energy content of breast milk increased progressively, representing an average 43.5% increase after three nutritional counselling sessions. Conclusions: Regular nutritional counselling should be incorporated into maternal health programs particularly in vulnerable populations.

Introduction

The nutrition of lactating women is crucial for the health of both mother and infant. Lactating women should meet increased nutritional requirements, since during lactation, the needs for almost all nutrients increase due to breast milk production. 2,3

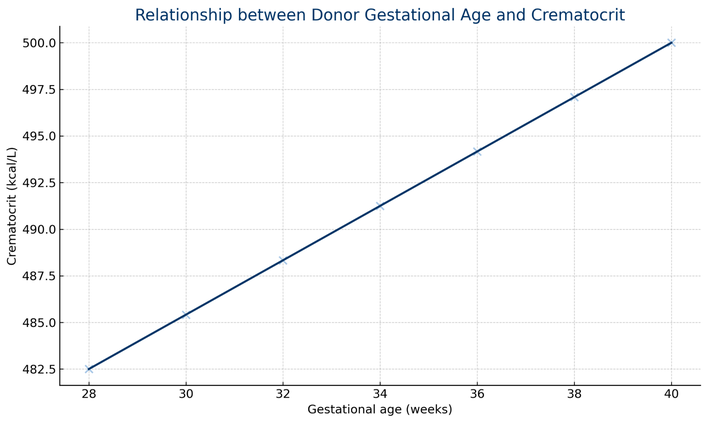
Regarding caloric intake, an extra of 330 to 500 calories per day is recommended to meet the demands of milk production.4

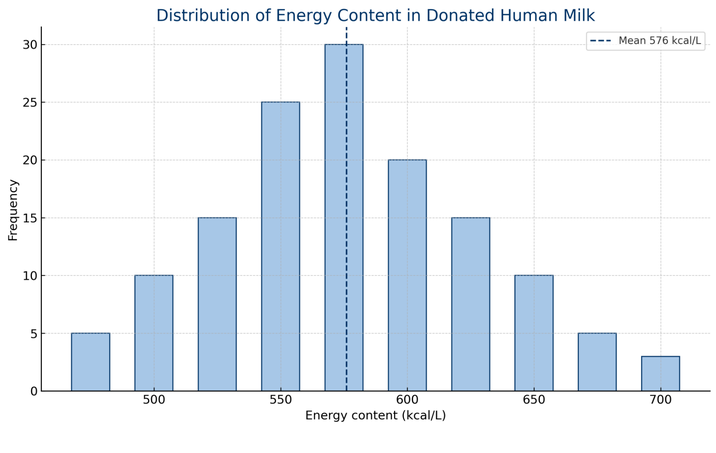
However, many women do not achieve this level of energy intake. The most common deficiencies among lactating women are deficiencies of vitamin A, folate, vitamin D, selenium, and iodine through diet alone. 5

Methods

A prospective, observational, analytical, longitudinal study was conducted at the Milk Bank of the Dr. José María Rodríguez General Hospital in the State of Mexico. The crematocrit was determined in 20 samples from donor mothers, who were offered nutritional counselling every week for 3 consecutive weeks and then one month after the last consultation. A total of 7 weeks. Crematocrit was measured weekly.

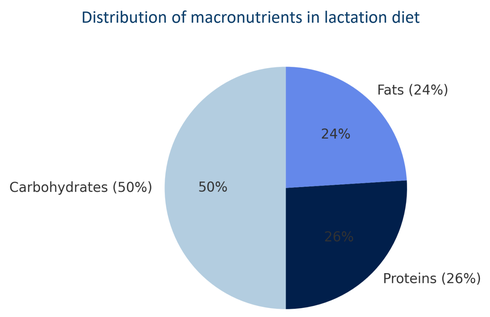
Nutritional counselling was individualized by the Milk Bank's own nutrition staff; only these cases were documented. Nutritional counselling was based on a 2,500 kcal/day diet in accordance with international recommendations for the nutrition of lactating women, providing 50% carbohydrates, 26%-27% protein, and 23%-24% fat.

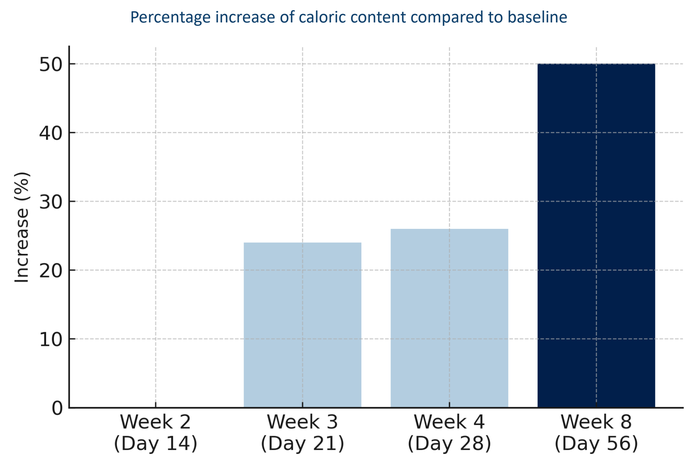




Results

A statistical analysis was performed, including minimum, maximum, mean, and standard deviation. Twenty patients were selected. They ranged in age from 27.2 years, with a standard deviation of 24.377 to 30.023, minimum age 18 years, and maximum age 44 years. The gestation period was 34.7 + 1.816 weeks, with a minimum of 32.884 weeks and a maximum of 36.516 weeks. The initial crematocrit (day 14 of lactation) was 576.5 kcal/L. The second crematocrit, 7 days after the first nutritional counselling session, was 663.6 kcal/L (day 21 of lactation). The third crematocrit was 744.35 kcal/L after 28 days of lactation. The fourth crematocrit was 827.35 Kcal/L after 56 days of lactation, with three nutritional counselling sessions. The mean energy content of breast milk increased progressively, representing an average 43.5% increase after three nutritional counselling sessions. These changes were independent of gestational age, indicating that maternal dietary improvement directly influenced milk quality.





Discussion

The results of this study confirm that the energy composition of human milk is not static but rather responds dynamically to changes in maternal nutrition. Traditionally, it was believed that breast milk quality remained constant even under moderate nutritional deficiencies. However, our findings, consistent with previous evidence (Lucas et al., 1978; Lönnerdal, 2013; Victora et al., 2016), demonstrate that the caloric density of milk can be significantly modified through targeted nutritional interventions.

The average 43.5% increase in energy content after weekly nutritional counselling highlights the critical role of dietary education during lactation. This improvement translates into better caloric support for infants, especially during the early months of life when rapid growth depends almost exclusively on breast milk.

Furthermore, the independence of crematocrit values from gestational age suggests that both preterm and term lactating mothers can enhance the quality of their milk through balanced diets. This finding supports the implementation of continuous nutritional guidance, particularly in milk banks and breastfeeding support programs serving food-insecure populations.

Conclusions

Our results extend this understanding by demonstrating that overall caloric and macronutrient balance can also be improved through personalized dietary counselling. Ultimately, this study emphasizes the integration of nutritional education as a core component of breastfeeding support programs.

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