



Breast Milk Fortification: To Add or Not to Add? That is the question

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Learning Objectives: Summarize Breast Milk composition Benefits of breastfeeding to both mothers and infants Compare options to Fortify Human Milk Describe age-appropriate modalities for fortification

Notes:

Nutricia North America supports the use of breast milk wherever possible.

Breast Milk Fortification: To Add or Not to Add? That is the question



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Disclosures Paid Speaker for Nutricia Does not pose any conflict of interest for presentation The opinions reflected in this presentation are those of the speaker and independent of Nutricia North America 2

Learning Objectives You will be able to Describe: 1. Summarize Breast Milk composition 2. Benefits of breastfeeding to both mothers and infants 3. Compare options to Fortify Human Milk 4. Describe age-appropriate modalities for fortification 5. Who founded Rome

Rome founded 753 BC

Romulus and Remus







Breast Milk Bar None best food for infants



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Breast Milk Composition

Breast Milk a living substance CONTAINS: Live cells (stem cells)

> Antibodies White Blood Cells Human Alpha-lactalbumin





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Mature Human Breast Milk:

Fat 3-5 % High palmitic and oleic acids

11 g fat per 8 ounces High palmitic and oleic acids



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Breast Milk Composition

Mature Human Breast Milk: FAT: 3-5% fat % of Fat Changes throughout the day and with infant's age Fat is determined by the fullness of the breast



Breast Milk Composition Mature Human Breast Milk:

FAT: Maternal diet : **Does not** have a strong impact on the quality of Breast Milk **Does change** fatty acid profile is affected by the immediate diet



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Breast Milk Composition

Mature Human Breast Milk: Protein: 0.8-0.9% Casein A2 Beta-casein Alpha-Lactalbumin Lactoferrin IGA Lysozyme Albumin



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Breast Milk Composition

Mature Human Breast Milk:

Carbohydrates: 6.9%-7.2% 2.1 gm/ounce

Lactose (most prominent) Oligosaccharides Fructose (second hand)





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Mature Human Breast Milk Mineral Content:

Sodium Potassium Calcium Magnesium Phosphorus



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Breast Milk Composition

Mature Human Breast Milk Lacks:

Vitamin D Iron Vitamin K Iodine varies according to maternal intake





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Mature Human Milk Bacteria:

Bifidobacterium Lactobacillus Streptococcus Staphylococcus Ralstonia Enterobacter Enterococcus



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Breast Milk Variations

Colostrum

Produced for 2-5 days postpartum Immune boosting High in protein Low in carbs and fat nutrients





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Breast Milk Variations

Mature Human Breast Milk

by 4 weeks postpartum high in fat nutrients



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Breast Milk Variations

Both are important to infant growth

Foremilk: mostly water + nutrients

Hindmilk: high in fat + nutrients







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Breast Milk Variations

Evening milk:

high in Tryptophan, and nucleotides

Melatonin rises in evenings, peaks around midnight



DINLC

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BENEFITS OF BREAST MILK

LOWER INFANT RISK OF: Asthma Obesity Type 1 Diabetes Severe Lower respiratory diseases Acute Otitis media Gastrointestinal infections SIDS Necrotizing Enterocolitis (preemies)





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FORTYFING BREAST MILK

PREMATURE INFANTS

- Breast Milk optimal food
- Breast Milk does not Meet all nutritional needs in VLBW .

Fortification with :

Protein

infant

- Calcium .
- Phosphate .

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FORTYFING BREAST MILK

NICU Use Only

- Preparation:
- Maternal Breast Milk Addition of HMF desired
- caloric load · 22-24-26 cal /oz

Fortify after tolerating 50-100 ml of solely Breast Milk

mendes-LUcDMFIdZgg-unsplash





DINLC



Powder Formulation Liquid Formulation

Lucas-mendes-LUcDMFldZgg-unsplash

Calcium Phosphorus

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FORTYFING BREAST MILK

TERM INFANTS Standard Formulas

- Addition of Powder to BM
- Ratio of BM to Powder

kett-GiP2H_SKh7E-un

- Gradually increase Caloric load
- 1 tsp powder standard formulas per 3 ounces of BM = 24 cal /oz

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DINLC



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Eiber-saliba-zuWUl24kf5Au

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References

DINLC

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