



Nutrition of Childhood

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Nutrition of Childhood

Good nutrition helps to prevent acute and chronic illness, to develop physical and mental potential, and to provide reserves for stress.



1. NUTRITIONAL REQUIREMENTS

- Energy
- Energy needs of children at different ages and under various conditions varies greatly.



Energy

Basal Metabolism 基础代谢

The Thermic Effect of Food (TEF) 食物特殊动力作用

Energy Required for growth and development 生长发育

Physical Activities 体力活动

Elimination 排泄损失



Energy

The average daily requirement is approximately 110 kcal/kg for the first year of life, with subsequent decreases of about 10 kcal/kg for each succeeding 3 years period.



Energy

- Generally, approximately 10%-15% of the calories are derived from protein;
- 50%-60% from carbohydrate;
- 35%-45% from fat.



- Vitamins
- Minerals
- Water

The normal infant's absolute requirement for water probably is 150 ml/kg/day is recommended.

- Dietary Fiber



THE FEEDING OF INFANTS

婴儿喂养





Breast Feeding

- Breast feeding provides optimal nutrition for the normal infant during the early months of life.





- (The first milk) colostrum 初乳
- The breast with five days after delivery is colostrum. The colostrum is a lemon-yellow color and alkaline. The total amount of colostrum secreted daily is 10 - 40 ml.



- Colostrum contains more proteins and more minerals, but lower in carbohydrate and fat. Human colostrum also contains some unique immunologic factors and high in globulins.



- The transitional milk 过度乳

Which is the secretion of the breast
from five days to 10 days after birth





- The mature Milk 成熟乳

Which is the secretion of the breast from 11 days after birth to 10 months.





Composition of Human Milk

母乳成分

- Human milk protein
- Milk lipids
- Carbohydrate
- Mineral content of human milk
- Vitamins





Advantages of Breast Feeding

- Easy to be nursing
- Nutritional benefits
- Psychological benefits
- Improvement of immunity benefits
- Developmental benefits
- Benefits to Mothers



Management of Breast Feeding

- **Breast feeding should begin as soon after delivery as the condition of the mother and of the baby permits, preferably within the first hours. Infants should be brought to the mother for feeding about every 3 hours during the day and every 4 hours during night.**



Weaning of Breast Feeding

- **Praise, loving attention, cuddling, and selection of appropriate time (about 10 months of ages) are vital to successful weaning. Avoid weaning in hot weather or when infant is sick.**



Combined Feeding

混合喂养

- Combined feeding means that the infant is receiving both breast milk and artificial milk feeds.

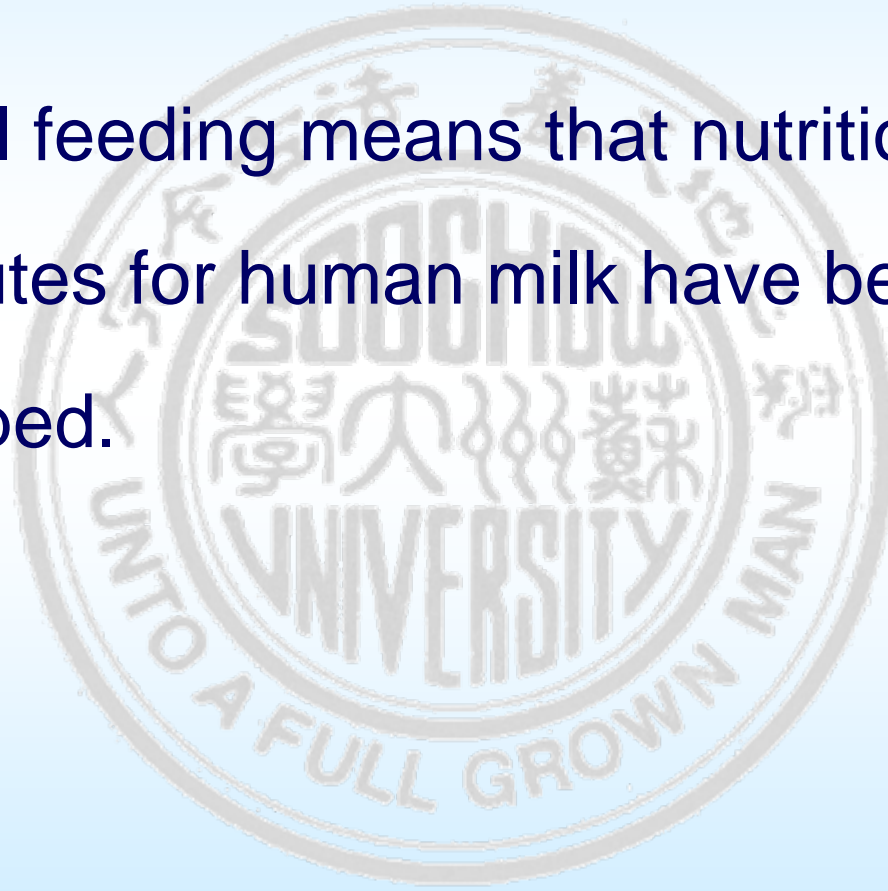




Artificial Feeding

人工喂养

- Artificial feeding means that nutritious substitutes for human milk have been developed.





Calculation for the amount of cow's milk required by infant (嬰兒的奶量計算)

- If an infant is fed by 8% sugared-milk, the total energy and the amount of milk and liquid need to be calculated.
- For example, one 3-months infant, weight 5 kg:



Calculation for the amount of cow's milk

- The amount of energy provided by whole cow's milk is 68 kcal /100 ml
- The amount of energy provided by sugar is 4 kcal /g
- Energy provided by 100ml 8 % sugared-milk: 68 kcal + 4kcal/g \times 8g = 100 kcal
- Energy provided by 1 ml 8 % sugared-milk is 1 kcal



- Total daily energy need: $110\text{kcal/kg} \times 5 = 550 \text{ kcal}$
- The amount of daily milk required: $550 \times 100/100 = 550\text{ml}$
- The amount of daily sugar required: $8/100 \times 550 = 44 \text{ g}$
- The amount of daily liquid required: $150 \times 5 = 750 \text{ ml}$
- Supply liquid besides milk: $750 - 550 = 200\text{ml}$
- The above amount is divided into 5 - 6 times per day



Artificial Feeding

人工喂养

- Dried Whole Milk 奶粉
- Warm water is added to make whole milk,
- with the ratio of 1:8 by weight (1 g dried whole milk add 8 g water)
- or 1:4 by volume (1 spoon of dried whole milk add 4 spoons of water).



Complementary Solid Food (辅食添加)





Objects of Complementary Solid Foods

- Weaning
- Improve growth and development
- Complementary nutriment





Schedule of Complementary Solid Food

Month	Complementary Food items
1-3	fruit juice
4-6	rice flour, egg yolk,
7-9	mashed noodle, fish,
10-12	rice, noodle,



谢谢

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