



# **MEDICAL UNIVERSITY - PLEVEN FACULTY OF MEDICINE**

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**Department of pediatrics**

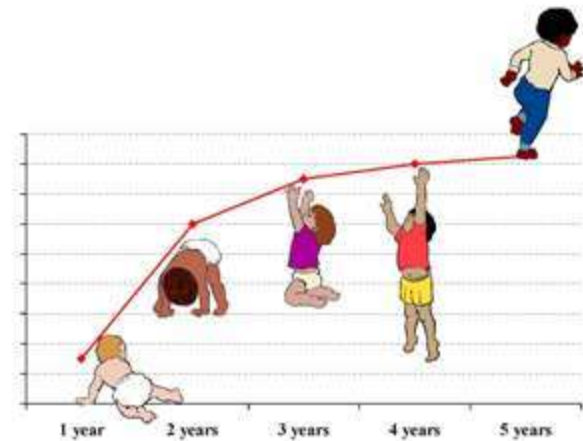
**Lecture № 5**

## **BREAST FEEDING**

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# INTRODUCTION

- Important role in growth, development and health
- Very rapid growth during early infancy requires ideal nutritional status
- Specific rules for infant feeding



- New trends in infant feeding (delaying introduction of **solid foods** and reducing **salt** intake)

# DEFINITION OF BREAST FEEDING

- **Human milk** is available for the infant up to 6 months of age and introduction of solid foods occurs after the 4-th month of age (4-6-th)
- **Solid food** – commercially prepared foods for infants



# HUMAN MILK AND ADVANTAGES OF BREAST FEEDING

- **The best** food for infants
- Always **sterile**
- With comfortable **temperature**
- Provides the infant with all necessary nutrients – **taurine, polyamines, nucleotides**
- Contains antibodies -s **IgA, Lysozyme, Lactoferrin (against E.coli)**
- All nutrients are **well balanced**



# HUMAN MILK AND ADVANTAGES OF BREAST FEEDING

- **Higher** sugar content (Lactose) - produces a softer curd to prevent constipation
- The **low** iron concentration, but with high bioavailability to meet the infant needs for the first 6 months of life
- Vitamin D may be **inadequate** (poor maternal intake or lack of exposure to the sun)
- Breast-fed infants have a **lower incidence** of common infections and allergic manifestations
- **Prophylaxis** of obesity, diabetes, atherosclerosis
- Psychological effect for mother and child

# FACTORS FOR SUCCESSFUL BREAST FEEDING

- Adequate **diet** of the mother
- Good **rest** of the mother
- **Emotional** well-being mother
- Frequent **nursing**

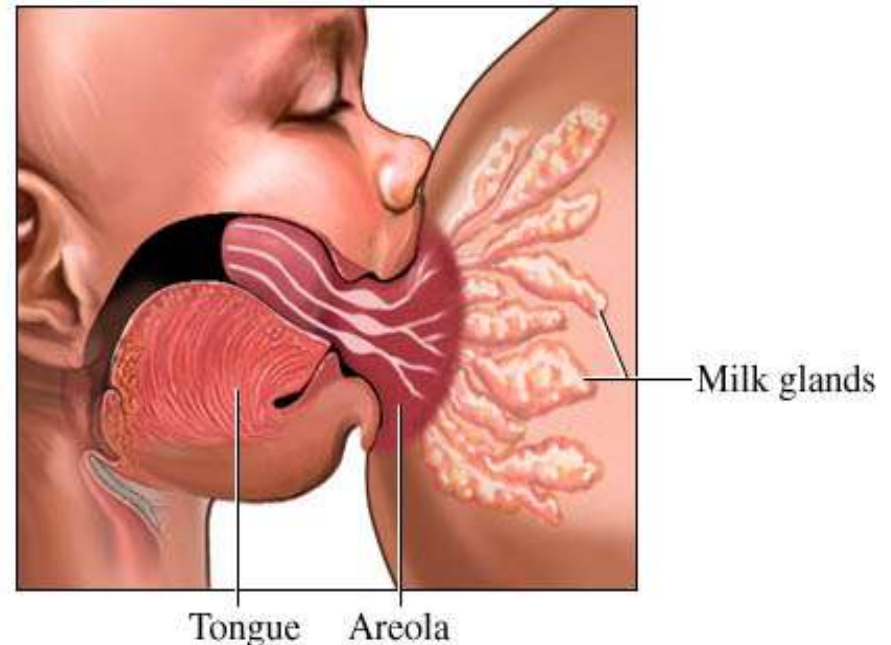


# NUTRITIONAL REQUIREMENTS

**WATER** – 120 - 140  
ml/kg/24

**ENERGY** – there is a need for **positive energy balance** for growth

- 1 – 3 month – 120 kcal/kg/24h
- 4 – 6 month – 110
- 7 – 9 month – 100
- 10 – 12 month – 90



# NUTRITIONAL REQUIREMENTS

## PROTEINS

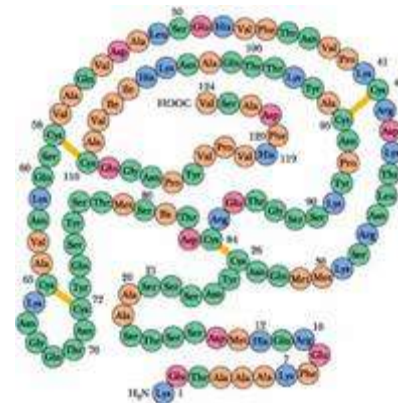
- **Essential amino acids** (for synthesis of structural **proteins**, **enzymes**, **antibodies**, **hormones**)

## FATS

- **Energy** source
- Carrier for the fat soluble vitamins (**A**, **D**, **E**, **K**)

## CARBOHYDRATES

- Major source of **energy**





# NUTRITIONAL REQUIREMENTS

## VITAMINS

- Essential **cofactors** for metabolism
- **Fat-soluble** – A, D, E, K
- **Water-soluble** – C, B (B1, B2, B6, B12)

## MINERALS

- Regulation of **body fluids** and **acid-base balance**

## PROTEIN-FAT-CARBOHYDRATE RATIO

- Infancy – **1:3:6**
- 1 – 3 year of age – **1:1:4**

# COMPOSITION OF BREAST MILK

(g/ 100 ml)

**Proteins – 1,2 g**

- Whey (albumins): casein ratio = 80:20

**Fats – 4,5 g**

- Unsaturated lipids (olein acid, arachidon acid)

**Carbohydrates – 7,0 g (Lactose)**

**Minerals – 0,21 g**

# THE FEEDING PROCESS

Age (months)	Number of feeding	Feeding interval (hours)	Average quantity of food (ml)
1	7	3	60-100
2	6	3	120
3	6	3	130
4	6	3	140
5	5	3,5	150
6	5	3,5	160
7	5	3,5	170
8	5	3,5	180
9	5	3,5	190
10	5	3,5	200
11	4	4	200
12	4	4	200

# INTRODUCTION OF SOLID FOODS

- 1 -4 month
  - **breast milk**
- after the 4-th month
  - **vegetable mash**
    - **cereal**
  - **kissel** (starchy fruit jelly)
  - **1/4 yolk** (every other day)
    - mash with **meat** (every other
  - **sops** (bread, cheese, butter,
- the 5-th month
- the 6-th month day)
- the 7-th month sugar, herb tea)
- the 8-th month
- the 9 – 12-th month
  - **soup** or bouillon
  - **transition food**

# CONTENTS OF THE FEEDING

- **The 1-st month** – breast milk (7 times)
- **The 2-nd month** - breast milk (6 times)
- **The 3-rd month** – breast milk (6 times)

# CONTENTS OF THE FEEDING

- **After the 4-th month** - breast milk (4 times)
  - vegetable mash
  - fruit juice or mash
- **After the 5-th month** - breast milk (3 times)
  - vegetable mash
  - cereal (kissel)
  - $\frac{1}{4}$  yolk
  - fruit juice or mash
- **After the 6-th month** - breast milk (3 times)
  - mash with meat
  - cereal (kissel)
  - $\frac{1}{4}$  yolk
  - fruit juice or mash

# CONTENTS OF THE FEEDING

- **After the 7-th month** – breast milk (2 times)
  - Sops
  - Mash with meat
  - cereal (kissel)
  - $\frac{1}{4}$  yolk
  - fruit juice or mash
- **After the 8-th month** – breast milk (2 times)
  - sops
  - soup (mash)
  - cereal (kissel)
  - $\frac{1}{2}$  yolk
  - fruit juice or mash
- **After the 9-th** – like in the 8-th month

# CONTENTS OF THE FEEDING

- **After the 10-th month**
  - **transition food** (forcemeat, chop of vegetables, fruits, rice, beans, peas, bread, milk 2 times).
  - feeding by spoon
- **After the 11-th month** – like in the 10 month
- **The 12-th month** – like in the 10 month



# CONTRAINDICATIONS TO BREAST FEEDING

## FROM THE SIDE OF MOTHER

- **Chronic** diseases
- **Infectious** diseases
- **Mentally** diseases
- **Pharmacotherapy**
- A mother who does **not desire** to feed her infant by breast

# CONTRAINDICATIONS TO BREAST FEEDING

## FROM THE SIDE OF CHILD

- Lack of the **sucking reflex**
- Infant who is **unable to suck** (cleft lip or palate, very premature or ill infant)
- **Respiratory distress syndrome**
- **Cerebro-cranial trauma**
- **Metabolic** diseases (galactosemia, lactose intolerance)

