



FEEDING PATTERNS

TUCOM

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OBJECTIVES:

- ◉ Why is Nutrition Important
- ◉ Monitoring Growth
- ◉ Feeding the Newborn
- ◉ Types of feeding in infants
- ◉ Feeding Skills Development



- **NUTRITION FOR
INFANTS, CHILDREN
AND ADOLESCENTS**

Why is Nutrition Important?

- ◉ Energy of daily living
- ◉ Maintenance of all body functions
- ◉ Vital to growth and development
- ◉ Therapeutic benefits
- ◉ Healing
- ◉ Prevention

Growth in Infants

- Rapid body growth and brain development during the first year:
- Weight increases 200%
- Body length increases 55%
- Head circumference increases 40%
- Brain weight doubles

Major Determinants of Caloric Needs

- Basal metabolic rate (BMR)
- Activity level
- Growth (2x BMR during first year)
- Stress (infection, surgery, illness)
- Misc. (thermic effect of food)

Monitoring Growth

- Use updated growth charts
- Monitor trends in growth not one value using wt, ht, HC (< 2 yrs), BMI.
- In general, normals fall within 5th-95th%ile.
- Evaluate changes in %iles.
- Malnutrition results in:
- Decreased weight (acute), then height, then head circumference (chronic).

Feeding the Newborn

- What are the options?
- Breast feeding
- The American Academy of Pediatrics recommends exclusive breast feeding for 6 months.
- Formula feeding

Breast Feeding

Advantages to Infants

- Immunologic benefits (>100 components)
- Decreased incidence of ear infections, UTI, gastroenteritis, respiratory illnesses, and bacteremia.
- Convenient and ready to eat.
- Reduced chance of overfeeding?
- Fosters mother-infant bonding.

○ **Conditions for Which Human Milk Has Been Suggested to Possibly Have a Protective Effect**

- Diarrhea
- Urinary tract infection
- Necrotizing enterocolitis
- Septicemia
- Infant botulism
- Insulin-dependent diabetes mellitus
- Celiac disease
- Crohn disease
- Childhood cancer
- Lymphoma
- Leukemia
- Recurrent otitis media
- Allergy
- Obesity and overweight
- Hospitalizations
- Infant mortality

Breast Feeding Advantages to Mothers

- ◉ May delay return of ovulation.
- ◉ Loss of pregnancy-associated adipose tissue and weight gain.
- ◉ Suppresses post-partum bleeding.
- ◉ Decreased breast cancer rate.

Assessment of Breast Feeding

Weight pattern - consistent weight gain.

Voiding - # wet diapers/day, soaked?

Stooling - generally more stools than formula.

Feed-on-demand ~ every 2-3 hours.

Duration of feedings - generally 10-20 min/side.

Need for high fat hind milk.

Activity and vigor of infant.

Supporting Breast Feeding

- Ask patients if they plan to breast feed.
- Give prenatal guidance, materials and support numbers.
- Support hospital initiatives to encourage breast feeding, such as lactation counselors.
- Ask about breast feeding support available to mother.
- Become familiar with how to manage common problems such as mastitis and inverted nipples.
- Understand issues related to pumping and helping moms return to work or wean the infant.

○ Contraidication of breast feeding

- MATERNAL HEALTH CONDITION
- HIV and HTLV infection In the United States, breastfeeding is
- contraindicated
- Tuberculosis infection Breastfeeding is contraindicated until
- completion of approximately 2 wk of
- appropriate maternal therapy
- Varicella-zoster infection
- Herpes simplex

- Breastfeeding is contraindicated with active herpetic lesions of the breast
- CMV infection May be found in milk of mothers who are CMV seropositive
- Hepatitis B infection Infants routinely receive hepatitis B immune globulin and hepatitis B vaccine if mother is HbsAg positive No delay in initiation of breastfeeding is required
- Hepatitis C infection Breast-feeding is not contraindicated.
- Cigarette smoking Discourage cigarette smoking, but smoking is not a contraindication to breastfeeding
- Chemotherapy, Radiopharmaceuticals Breastfeeding is generally contraindicated

Infant Formula

- 3 Forms:
- Ready to feed - most expensive, does not require water.
- Concentrate - requires mixing with water in equal parts.
- Powder - requires mixing with water.

Composition of Standard Infant Formula

- ◉ Caloric density: standard formulas contain 20 calories/oz (0.67 calories/cc).
- ◉ Protein content: ratio of whey to casein varies- most are 60:40 similar to human milk.
- ◉ Fat: most provide ~50% of calories from fat from saturated and polyunsaturated fatty acids.
- ◉ Carbohydrate: lactose, beneficial effect on mineral absorption (Ca, Zn, Mg), and on colonic flora.
- ◉ Micronutrients: Higher vitamin and mineral content than human milk to cover 97% of the population.

Special Formulas

- Soy: used for vegetarians, lactase deficiency, galactosemia.
- Lactose free: cow's milk-based formula.
- Protein hydrolysate: infants who can not digest or are allergic to intact protein.
- Free amino acids.
- Pre-term infant: unique for premies, predominant whey protein, cow's milk based, higher protein and calcium.
- Pre-term follow up

Feeding Skills Development

- 4-6 mos - experience new tastes.
- Give rice cereal with iron.
- 6-7 mos - sits with minimal support.
- Add fruits and vegetables.
- 8-9 mos - improved pincer grasp.
- Add protein foods and finger foods.
- 10-12 mos - pulls to stand, reaches for food.
- Add soft table food, allow to self-feed.

- 12-18 mos - increased independence.
- Stop bottle, practice eating from a spoon.
- 18 mos -2 yrs - growth slows, less interest in eating.
- Encourage self-feeding with utensils.
- 2-3 yrs - intake varies, exerts control.

Pre-school (1 to 6 Years)

- 1-2 years: on average, grows 12 cm, gains 3.5 kg.
- Rate of growth slows by 4 years.
- 6-8 cm/year
- 2-4 kg/year
- Brain growth triples by 6 years.

Adolescent Growth Spurt

- Physiological growth stage (Tanner staging) rather than chronological age, is the best indicator for establishing requirements or evaluating intake.
- Females: 11-14 years:
 - Grow 8.4 - 9.0 cm/year.
 - Girls deposit more total body fat.
- Males: 13-16 years:
 - Grow 9.5 - 10.3 cm/year.
 - Boys deposit more muscle mass.
- Boys tend to gain more weight at a faster rate and skeletal growth continues longer than girls.

Developing Healthy Habits

- Offer a variety of healthy foods and snacks.
- Encourage fruit and vegetable intake.
- No junk food snacking.
- Limit intake of juices (4 oz per day).
- Increase intake of water (no soda).
- Encourage low fat dairy products (3-4 servings/day).
- Make fun physical activity a habit.
- Limit TV to no more than 1 to 2 hours per day.
- Track growth and development carefully.
- Be a good role model.

**THANK
YOU**