Tishk International University
Faculty of Applied Science
Nutrition and Dietetics Department
Maternal and Child Nutrition – 2nd Grade

Infant Feeding, Complementary Feeding and Nutritional Assessment



Lecture: 7th

2025-2026

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Lactation and Gestational Diabetes

Previous Lecture

Contents:

Learning Outcome

Explain recommended practices for infant and complementary feeding.

Conduct basic nutritional assessments for infants and young children.

Recognize and propose solutions for common feeding and nutrition-related challenges.

What Are Infant Feeding Practices (0–6 Months)?

Infant feeding practices (0–6 months) refer to the **methods, timing, and quality of feeding provided to infants from birth until the completion of six months**, including:

- Exclusive breastfeeding
- Feeding expressed breast milk
- Appropriate use of infant formula when breastfeeding is not possible
- Avoidance of complementary foods, water, and other liquids

🎯 Primary Recommended Practice:

According to the **World Health Organization (WHO)** and **UNICEF**:

"**Exclusive breastfeeding** for the first six months is the gold standard."
This means:

- **Only breast milk** — no water, other liquids, or solid food
- **Breast milk on demand**, day and night
- No bottles, pacifiers, herbal drinks, or prelacteal feeds

👶 Alternative Feeding:

If exclusive breastfeeding is not possible (due to maternal illness, absence, or insufficient milk), **infant formula** is used as a substitute — ideally under guidance from a health professional.

WHO Recommendation:

Initiation of breastfeeding within **the first hour of birth**

Exclusive breastfeeding for **the first 6 months**

Breastfeeding on demand, day and night

Nutritional Adequacy of Breast Milk

- Breast milk is uniquely designed to meet all the nutritional needs of infants during the first six months:
- **Macronutrients:** optimal balance of carbohydrates (lactose), fats, and proteins
- **Micronutrients:** sufficient vitamins and minerals for early life
- **Bioactive components:** antibodies (IgA), enzymes, hormones, and growth factors

Breast milk composition adapts to:

- Infant age
- Feeding frequency
- Maternal health and nutrition

Benefits of Exclusive Breastfeeding

For the Infant

- Reduced risk of diarrhea, pneumonia, and infections
- Enhanced immune system development
- Lower risk of obesity and non-communicable diseases later in life
- Improved cognitive development

For the Mother

- Reduced postpartum bleeding
- Natural child-spacing effect (lactational amenorrhea)
- Lower risk of breast and ovarian cancers
- Enhanced mother–infant bonding

Feeding Frequency and Responsive Feeding

- Newborns typically feed **8–12 times per 24 hours**
- Feeding should be **responsive**, based on early hunger cues such as:
  - Rooting
  - Sucking movements
  - Hand-to-mouth actions
- Crying is a **late sign of hunger** and should be avoided as the primary cue

Common Inappropriate Practices (To Be Avoided)

- Giving water, herbal teas, or sugar water
- Early introduction of solid or semi-solid foods
- Bottle feeding when breastfeeding is possible
- Prelacteal feeds (e.g., honey, glucose water)

These practices increase the risk of:

- Infections
- Malnutrition
- Reduced breast milk intake

When Breastfeeding Is Not Possible

In cases such as maternal illness or contraindicated medications:

Expressed breast milk is the first alternative

Infant formula may be used under medical supervision

Safe preparation, hygiene, and correct dilution are essential

Role of Health Professionals

Health professionals play a vital role in:

Educating mothers and families

Supporting early initiation of breastfeeding

Addressing myths and cultural misconceptions

Monitoring infant growth and feeding adequacy

Complementary Feeding (6–24 Months)

Complementary feeding refers to the process of **introducing solid, semi-solid, and soft foods alongside continued breastfeeding** starting at six months of age. At this stage, breast milk alone is no longer sufficient to meet the increasing **energy and nutrient requirements** of the growing infant. Appropriate complementary feeding is essential to prevent malnutrition, micronutrient deficiencies, growth faltering, and increased susceptibility to infections.

Complementary Feeding (6–24 Months)

FeedingComplementary feeding is defined as:

The timely introduction of safe, nutritionally adequate, and age-appropriate foods at six months of age, while continuing breastfeeding up to two years of age or beyond.

This period (6–24 months) is considered a critical window for child growth and development, as poor feeding practices during this stage may lead to irreversible outcomes such as stunting.

Timing of Introduction

Complementary foods should be introduced **at exactly 6 months (180 days)**

Introduction **before 6 months** increases the risk of infections and reduced breast milk intake

Delayed introduction **after 6 months** may result in energy and micronutrient deficiencies, especially iron and zinc

Principles of Appropriate Complementary Feeding

According to WHO and UNICEF, complementary feeding should be:

a. Timely

- Introduced at 6 months
- Gradually increased in quantity and frequency

b. Adequate

- Provide sufficient energy, protein, and micronutrients
- Include a variety of food groups

c. Safe

- Prepared and stored hygienically
- Fed using clean utensils (avoid bottles when possible)

d. Properly Fed

- Responsive feeding based on hunger and satiety cues
- Age-appropriate texture and consistency

Food Consistency and Texture Progression:

- The texture of complementary foods should change with age to support oral motor development:
- **6–8 months:** Pureed, mashed, or semi-solid foods
- **9–11 months:** Finely chopped or mashed foods
- **12–24 months:** Family foods with appropriate modification
- Delayed progression in texture may lead to **feeding difficulties and poor dietary intake**.

Meal Frequency and Feeding Amount

- Recommended feeding frequency (in addition to breast milk):

- **6–8 months:** 2–3 meals per day + 1–2 snacks if needed
- **9–11 months:** 3–4 meals per day + 1–2 snacks
- **12–24 months:** 3–4 meals per day + 1–2 nutritious snacks
- Portion sizes should gradually increase according to the child's appetite and growth needs.

Responsive Feeding:

Responsive feeding emphasizes **active caregiver–child interaction**:

- Encourage the child patiently
- Feed slowly and attentively
- Do not force feed
- Minimize distractions during meals
- This approach supports healthy eating behaviors and psychosocial development.

Common Inappropriate Practices

Introducing sugary, salty, or ultra-processed foods

Low meal frequency

Thin, watery foods with low energy density

Feeding during illness without increasing frequency afterward

Such practices increase the risk of **undernutrition, anemia, and growth faltering**.

Continued Breastfeeding

•Breastfeeding should continue **up to 2 years or beyond**

•Breast milk remains an important source of:

- Energy
- High-quality protein
- Immune protection

Complementary foods **supplement** breast milk; they do not replace it.

Growth Monitoring and Nutritional Assessment

Growth monitoring and nutritional assessment are essential components of **child health and nutrition programs**, particularly during infancy and early childhood. Regular assessment allows for the **early detection of growth faltering, undernutrition, and overweight**, enabling timely intervention to improve health outcomes and prevent long-term developmental consequences.

Growth Monitoring refers to the **regular measurement and interpretation of physical growth parameters** (e.g., weight, length/height, head circumference) over time.

Nutritional Assessment is a **systematic process** used to evaluate the nutritional status of an individual through anthropometric, biochemical, clinical, and dietary methods.

Together, these processes provide a comprehensive understanding of a child's growth pattern and nutritional well-being.

Importance of Growth Monitoring

Growth monitoring is important because it:

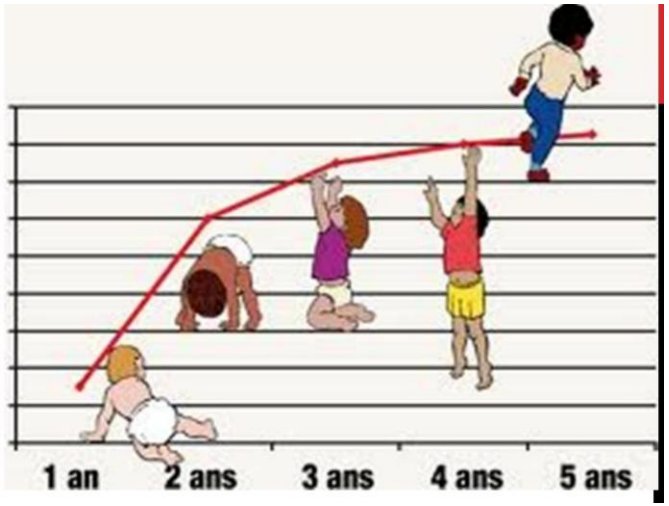
- Detects **early growth deviations** before clinical symptoms appear
- Identifies children at risk of **stunting, wasting, underweight, or overweight**
- Supports **nutrition counseling and feeding guidance**
- Evaluates the effectiveness of nutrition and health interventions

Anthropometric Measurements

Anthropometry is the **core component** of growth monitoring in children.

Key Measurements

- **Weight:** reflects current nutritional status
- **Length/Height:** indicates linear growth
- **Weight-for-Length / BMI-for-Age:** assesses wasting or overweight
- **Head Circumference** reflects brain growth in infants
- **Mid-Upper Arm Circumference (MUAC):** rapid screening for acute malnutrition
- Accurate measurement techniques and standardized equipment are critical for reliable results.



Growth Standards and Indicators

The **WHO Child Growth Standards** are used internationally for children aged 0–5 years.

Common Growth Indicators

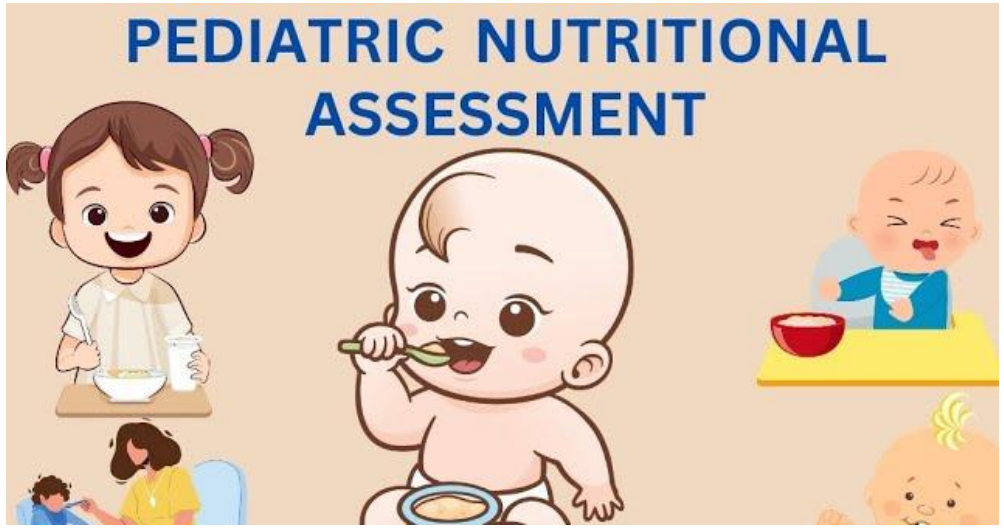
- **Weight-for-Age (WFA):** underweight
- **Length/Height-for-Age (HFA):** stunting
- **Weight-for-Length (WFL):** wasting or overweight
- **BMI-for-Age:** thinness or obesity
- Growth indicators are interpreted using **Z-scores** to compare a child's measurements with reference populations.

Nutritional Assessment Methods

(ABCD Approach)

Nutritional assessment uses four complementary components:

- **A – Anthropometric:** body measurements
- **B – Biochemical:** laboratory tests (e.g., hemoglobin, serum ferritin)
- **C – Clinical:** physical signs of nutrient deficiencies or excess
- **D – Dietary:** food intake patterns, feeding practices, and dietary diversity
- Using multiple methods improves diagnostic accuracy.



Interpretation of Findings:

Normal growth: consistent tracking along growth curves

Growth faltering: flattening or downward crossing of growth percentiles

Acute malnutrition: low weight-for-length or MUAC

Chronic malnutrition: low height-for-age

Interpretation must consider:

- Age and sex
- Feeding practices
- Illness and infection
- Socioeconomic and environmental factors

Frequency of Growth Monitoring

- **0–6 months:** monthly
- **6–24 months:** every 2–3 months
- **2–5 years:** at least twice per year
- More frequent monitoring is required for high-risk children.

Role of Health and Nutrition Professionals:

Professionals are responsible for:

- Accurate measurement and documentation
- Growth chart interpretation
- Counseling caregivers on nutrition and feeding
- Referral and follow-up of at-risk children
- Effective communication with caregivers is essential to ensure understanding and compliance.


Thank
You