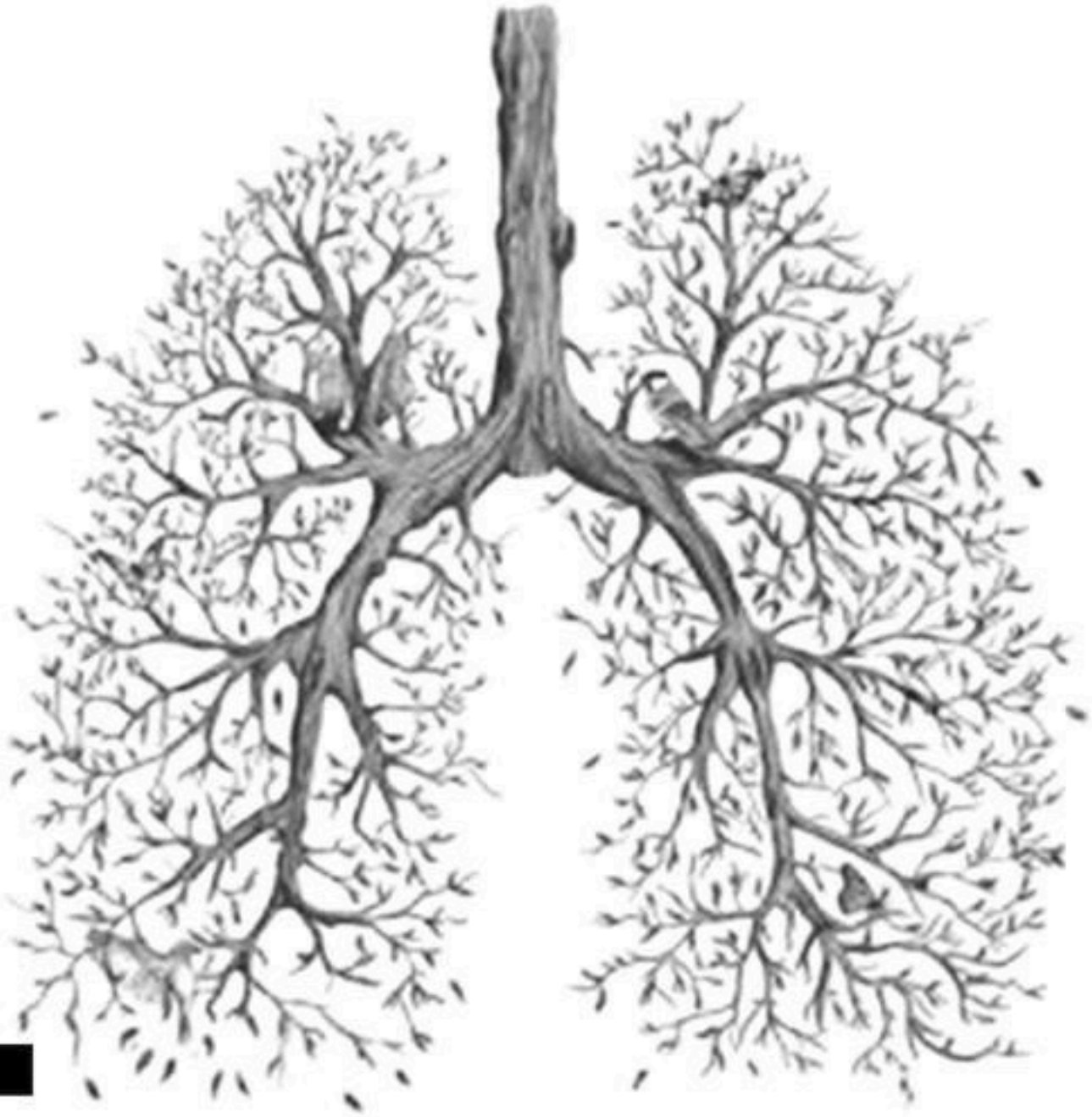




Community Medicine



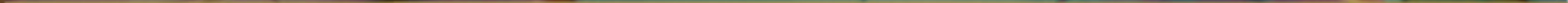
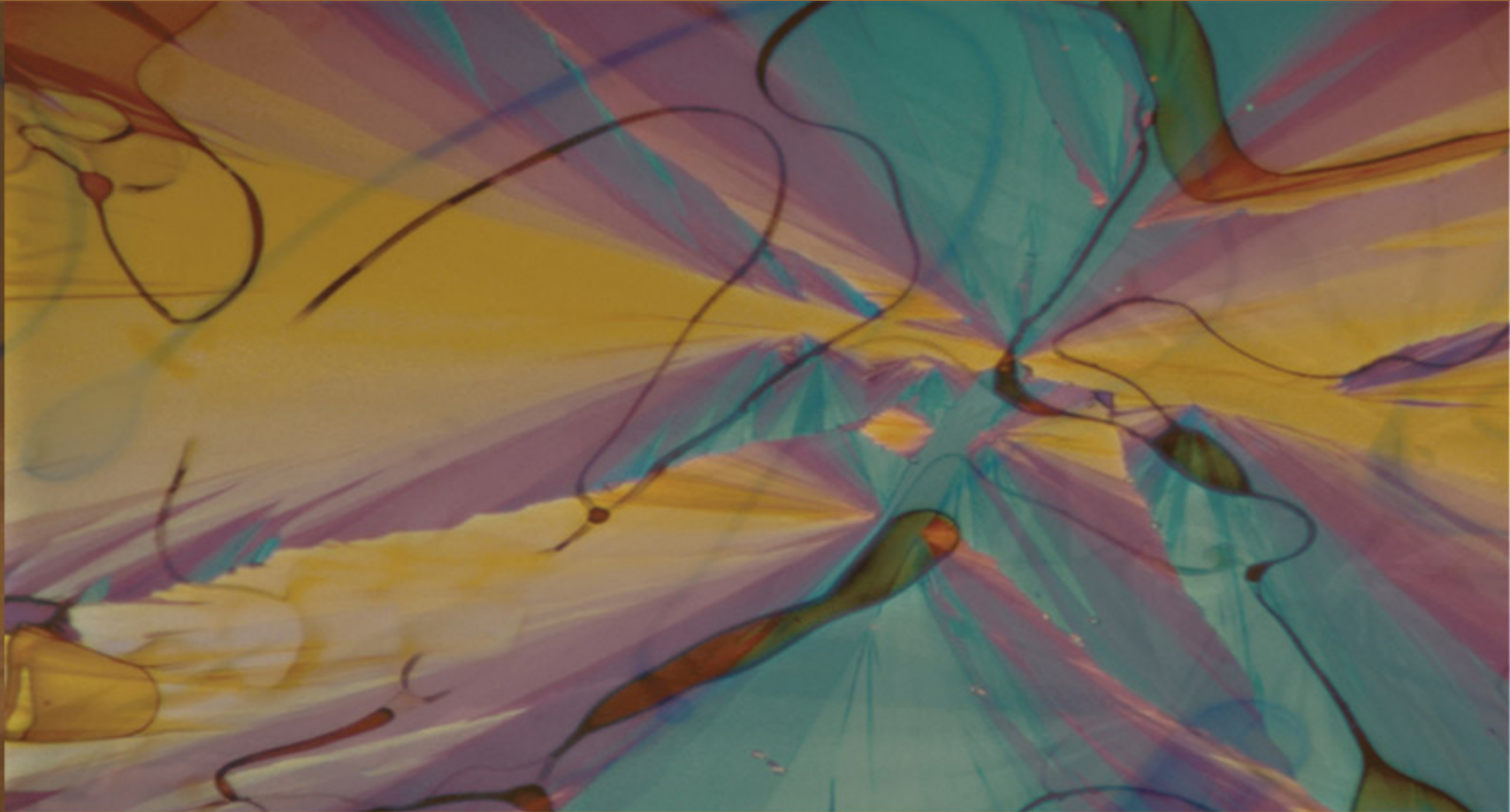
Slides

Sheet

Slide #: 10

Doctor: *Ahmad Al-Bataineh*

Date:



Krause's *Food & Nutrition Therapy*

Chapter 6

Nutrition during Infancy

Krause's *Food
& Nutrition Therapy*

Physiologic Development

- n** Length of gestation, the mother's pre-pregnancy weight, and the mother's weight gain during gestation determine an infant's birth weight
- n** After birth, the infant's growth is influenced by genetics and nourishment

Low–Birth-Weight Infant–cont’d

- n** Infancy: birth to 1 year of age
- n** Term infant: born 37 to 42 weeks’ gestation
- n** Premature: an infant born before 37 weeks’ gestation

Low–Birth-Weight Infant

- n** Low birth weight: an infant who weighs less than 2500 g (5½ lb) at birth
- n** Very low birth weight: an infant who weighs less than 1500 g (3⅓ lb) at birth
- n** Extremely low birth weight: an infant who weighs less than 1000 g (2¼ lb) at birth

Low–Birth-Weight Infant–cont'd

- n** Gestational age: the age of the infant at birth, determined by length of pregnancy
- n** Small for gestational age (SGA): weight <10th percentile of standard weight for gestational age
 - Intrauterine growth restriction (IUGR)
- n** Appropriate for gestational age (AGA): weight 10th to 90th percentile
- n** Large for gestational age (LGA): weight > 90th percentile

Prematurity



Energy Requirements

- n** Infants adjust intake to meet energy needs
- n** Sensitivity to hunger and satiety cues
- n** Monitor gains in weight and length over time
- n** Formula-fed infants consume more kcals than breast-fed infants

Protein Requirements

- n** Higher per kg weight than for adults because of rapid growth
- n** Recommendations based on composition of human milk
- n** Require large percentage of essential amino acids than adults
- n** Human milk or infant formula; supplemental protein sources after age 6 months

Lipid Requirements

- n** Minimum of 30 g fat per day
- n** Essential fatty acid content of human milk vs infant formula: linoleic and linolenic acids, as well as longer chain arachidonic and docosahexaenoic acids
- n** Linoleic acid should provide 3% of total kcals
- n** Long-chain polyunsaturated fatty acids; visual acuity and neural development

Carbohydrate Requirements

- n** 30% to 60% of energy intake
- n** Lactose tolerance
- n** Avoid honey and corn syrup; source of botulism spores

Water Requirements

- n** 0.7 L/day up to age 6 months; 0.8 L/day for age 7 to 12 months
- n** Renal concentrating capacity may be less than for adults
- n** May require additional water in hot, humid environments
- n** Hypernatremic dehydration; neural consequences

Mineral Requirements

- n** Calcium: more is retained from breast milk than from infant formula
- n** Iron: supplement with iron-fortified cereal or fortified infant formula by 4 to 6 months; deficiency has cognitive effects
- n** Zinc
- n** Fluoride

Vitamin Requirements

- n** Vitamin D: Supplements recommended for breast-fed infants, especially those with dark skin
- n** Vitamin B₁₂: Depends on maternal diet and status
- n** Vitamin K: Hemorrhagic disease of the newborn; preventive injection at birth or supplements
- n** Supplementation issues

Human Milk

- n Food of choice for infants
- n Provides appropriate energy and nutrients
- n Specific and nonspecific immune factors
- n Prevents diarrhea and otitis media
- n Allergic reactions are rare
- n Attachment and bonding
- n Maternal health benefits

Support for Breast-Feeding

- n** Benefits for cognitive development, prevention of asthma and overweight
- n** ADA and AAP support exclusive breast-feeding for 6 months and breast-feeding plus weaning foods for the next 6 months
- n** Contraindications to breast-feeding: certain maternal infections (e.g., HIV), maternal use of psychotropic or some other drugs

Human vs Cow's Milk

- n** Amount and type of protein affects digestibility
- n** Lactose content
- n** Essential fatty acids, cholesterol, lipase
- n** Vitamins and minerals
- n** Renal solute load (protein, sodium, potassium)

Antiinfective Factors in Human Milk and Colostrum

- n Antibodies and antiinfective factors
- n Secretory immunoglobulin A (sIgA)
- n Lactoferrin
- n Lysozymes
- n Enhances growth of *Lactobacillus bifidus*

Formulas

- n** Based on cow's milk or soy products
- n** Regulated by FDA through the Infant Formula Act, 1985
- n** Decrease in anemia with use of iron-fortified formulas
- n** Questions associated with soy-based formulas
- n** Special needs formulas

Other Milk Issues

- n** Fresh cow's milk and imitation milks not recommended before age 1 year
- n** Formula preparation: cleanliness, refrigeration, warming, discarding used formula

Infant Foods

- n** Dry cereal fortified with electrolytically reduced iron
- n** Jars for fruits and vegetables provide carbohydrates and vitamins A and C
- n** Issues with mixed foods and desserts
- n** Home-prepared infant food: avoid added salt and sugar

Feeding

- n** Early feeding patterns
- n** Development of feeding skills
- n** Addition of semisolid foods
- n** Weaning from breast or bottle to cup
- n** Early childhood caries
- n** Feeding older infants: type of food, serving size, forced feeding, environment

Focal Points

- n** Basic concepts of infant growth, development and nourishment are related.
- n** Nutrient needs of infants reflect rates of growth, energy expended in activity, basal metabolic needs, and the interaction of nutrients consumed.
- n** Infants grow rapidly in the first year of life; thus the types of infant feedings (human milk or formula), the composition of feedings, and the addition of solids to infants' diets are important considerations.
- n** Human milk is the food of choice for infants; commercially prepared infant formulas, manufactured to approximate human milk, also promote typical growth and development.
- n** The use of solid foods (with thought given to the types of foods and portion sizes served) to support nourishment and developmental progress sets the stage for lifelong food habits.