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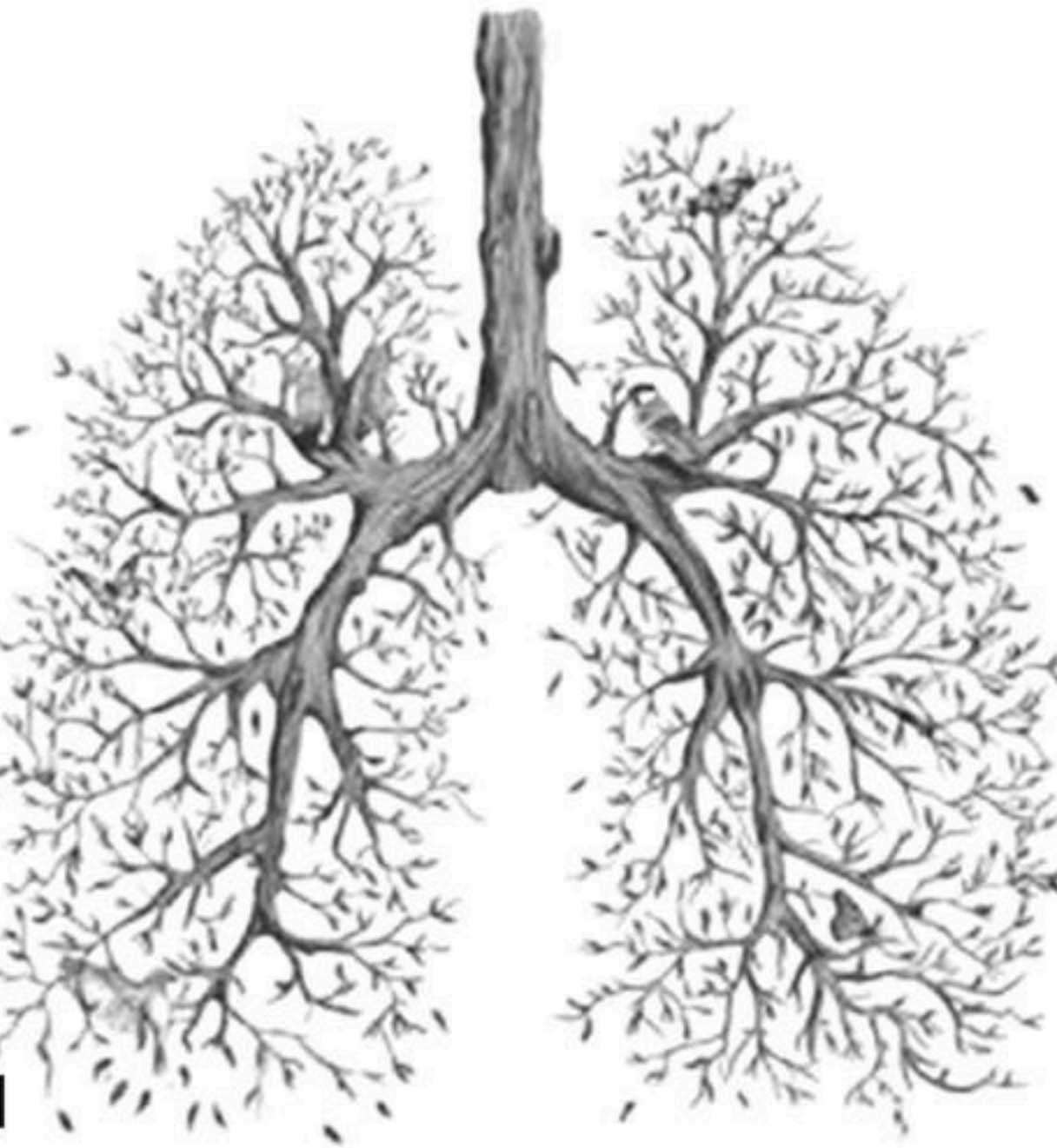
Community Medicine



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Doctor: Ahmad Al-Bataineh

Date:

Chapter 7

Nutrition in Childhood

Krause's *Food & Nutrition Therapy*

Childhood

- Toddlers 1-3 years
- Preschool children 3-5 years
- School- age children 5-12 years
- Adolescence 12-18 years

Nutrition in childhood

- Nutrition requirements are affected by a generally slowed and erratic growth rate between infancy and adolescence and a child individual needs.
- A child food choices are determined by numerous family and community factors.
- Nutrition intake and developing food patterns in young children are governed by food availability and food choices.
- Consideration in feeding young children are guided by meeting physical and psychosocial needs.
- Nutrition concerns during childhood relate to growth and development needs for positive health.

Childhood Growth and Development

- Growth patterns: growth spurts, appetite
- Catch-up growth: after illness or undernutrition
- Assessing growth: CDC growth charts, growth channels

Physical growth during childhood

- Growth Rate: The rapid rate of growth during infancy is followed by a deceleration during the preschool and school-age years.
- Weight gain approximately 1.8 to 2.7 kg per year.
- Length increases approximately 7.6 cm per year between 1 year and 8 years of age, then increases 5.1 cm per year until the pubertal growth spurt.
- Between 6 years of age and the adolescent growth spurt, gender differences can be noted.
- At age 6 boys are taller and heavier than girls. By age 9 the height of the average female is the same as that of the 9-year-old male and her

Growth charts:

- The infants growth charts are constructed to 36 months of age and should be used until the child is at least 24 months old.
- Growth channel: the progressive regular growth pattern of children, guided along individual genetically controlled channels, influenced by nutritional and health status.

Energy and Protein

- Energy needs determined on the basis of basal metabolism, rate of growth, and energy expenditure
- The need for protein per kilogram of body weight decreases from approximately 1.1 g in early childhood to 0.95 g in late childhood

Recommended energy intakes for children

- At age 1-3 years 102 kcal/kg/day (1300 kcal/day).

At age 4-6 years 90 kcal/kg/day (1800 kcal/day).

At age 7-10 years 70 kcal/kg/day (2000 kcal/day).

Minerals and Vitamins

- Children between 1and 3 years of age are at high risk for iron deficiency
- Calcium is needed for adequate mineralization and maintenance of growing bone
- Zinc is essential for growth.
- Vitamin D is needed for calcium absorption and deposition in bone

Malnutrition in children

*Protein-Energy Malnutrition (PEM):

a. Kwashirchoire

b. Marasmus

*Vitamin A deficiency

*Vitamin D deficiency

*Iron deficiency anemia

*Zinc deficiency

*Lead toxicity

Standards for selected PEM indicators

- Serum total protein (g/dl) age 1-17 years deficiency is <5.5
- Serum albumin (g/dl) age 1-17 years deficiency is <2.8
- Total lymphocyte count (mm3) all ages deficiency is <1500
- Creatinine-height index 3 months to 17 years deficiency is <0.5

Vitamin-Mineral Supplements

- Fluoride and dental caries
- At-risk groups: deprived families, parental neglect or abuse, anorexia or fad diets, chronic disease, weight-loss diets
- Avoid megadoses
- Complementary nutrition therapies

Intake Patterns

- Changes in food patterns over time
- Family environment
- Societal trends
- Media messages
- Peer influence
- Illness or disease

Feeding Preschool Children

- Developmental progress
- Growth rate slows
- Parents control foods offered and set limits on inappropriate behaviors
- Importance of snacks
- Portion sizes

Feeding Preschool Children–cont'd

- Sensory factors
- Physical environment
- Excessive intake of fruit juice
- Meals and snacks in day-care
- Peer influence

Feeding School-Aged Children

- Slow steady growth
- Influence of peers and significant adults
- School lunch program
- Special diets
- Home-packed lunches
- Importance of breakfast
- Snacks

Overweight/Obesity

- Increasing prevalence
- Influence of access to food, eating tied to leisure activities, children making food decisions, portion sizes, and inactivity
- Consequences: discrimination, negative self-image, depression, decreased socialization
- Increases cardiovascular risk factors (hyperlipidemia, hypertension, and hyperinsulinemia) and type 2 diabetes

Interventions for Childhood Obesity

- Family involvement
- Dietary modifications
- Nutrition information
- Physical activity
- Behavioral strategies
- Prevention

Iron Deficiency

- One of the most common nutrient disorders of childhood
- Affects approximately 9% of toddlers
- Linked to lower test scores
- Dietary factors

Dental Caries

- Composition of the diet and an individual's eating habits are significant factors in developing dental caries
- Frequent use of sweetened drinks in bottles
- Fewer cariogenic snacks should be emphasized
- Protein foods such as cheese, nuts, and meat should be eaten with sticky foods
- Dental hygiene and fluoride

Allergies

- Food allergies usually manifest in infancy and childhood
- Allergic responses include respiratory or gastrointestinal symptoms, skin reactions, fatigue, or behavior changes

Attention Deficit Hyperactivity Disorder

- Dietary factors have been suggested as causes of ADHD
- Various dietary treatments include Feingold diet, omission of sugar, allergy elimination diets, and megavitamin therapy
- Little evidence to support these interventions

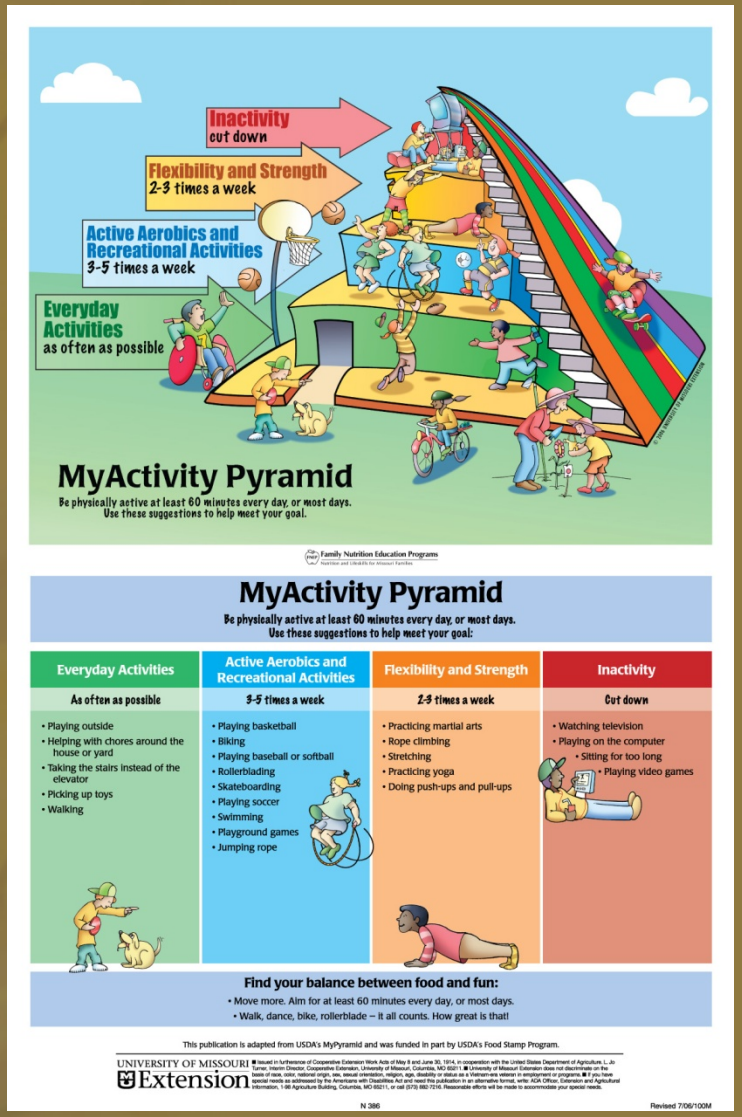
Autism Spectrum Disorders

- Affect 1 in 166 children
- Affects children's nutrition and feeding, with very restricted food acceptance, hypersensitivities, and difficulty in making transitions: behavioral interventions may be helpful
- Little success with elimination diets, essential fatty acid supplements, megadoses of vitamins, other alternative therapies

Preventing Chronic Disease

- Roots of chronic diseases in adults, such as heart disease, cancer, diabetes, and obesity are often based in childhood
- Dietary fat and cardiovascular disease
- Calcium and bone health and obesity
- Fiber
- Physical activity

MyActivity Pyramid



Focal Points

- Children's diets should provide enough energy to support optimal growth and development without causing excessive weight gain.
- For children's diets emphasis should be placed on fruits and vegetables, whole-grain products, low-fat dairy products, legumes, and lean meat, fish, and poultry.
- Fermentable carbohydrate intake should be controlled for good dental health.
- Adherence to general food guidelines is beneficial for children because their total fat intake decreases and their food fiber and micronutrient intake increases, resulting in a more nutrient-dense diet.
- Physical changes in the years between infancy and adolescence happen at a slower and steadier pace, and the cognitive, physical, and socioemotional growth is significant.
- Nutrition education and resources for families and children can help establish healthy, positive eating and activity patterns that carry through during adolescence and adulthood.