Chapter 18
Nutrition and Disease

Learning Objectives (1 of 2)
• What are the major nutrients needed by the body? What are their functions?
• What are the essential components of a well balanced diet?
• Understand the main causes of malnutrition and the persons at risk.

Learning Objectives (2 of 2)
• Understand the difference between kwashiorkor and marasmus. Why do children with kwashiorkor become edematous?
• What are the causes and effects of the following vitamin deficiencies: vitamin D, vitamin K, vitamin B12, folic acid, and citric acid?
• Name five minerals required by the body. What are their functions?

Nutrients and their functions
• Food provides calories
• Vitamins are organic compounds that convert food into energy
  – Fat soluble vitamins A, D, E, and K require fat for absorption
  – Water soluble vitamins B, C, and folic acid readily absorbed

Food Groups and Food Guides
• Promote proper food selection to achieve a balanced diet
• Appropriate quantities selected from each food group

Causes of Malnutrition
• Not enough available food
• Disease interferes with food intake, absorption, or utilization; or increases requirements for nutrients
• Drugs given to treat disease may have side effects that interfere with food intake or utilization
• Age-related conditions may hamper food intake or utilization
Alcohol: Its Role in Malnutrition
• Modest intake socially acceptable and provides health benefits
• Excess intake leads to replacing “empty calories” of alcohol for nutrients
• Alcoholism is a common cause of malnutrition

Manifestations of Protein-energy Malnutrition (PEM)
• In children: inadequate food causes kwashiorkor and marasmus. Treated by supplying nutrients
• In adults: often caused by diseases that cause poor absorption of nutrients, or increase need for nutrient
• Usually requires treatment of underlying disease or condition

Evaluation and Treatment of PEM
• Suspect PEM if weight loss detected in high risk patient (having a disease likely to be associated with malnutrition)
• Clinical evaluation and lab tests assess extent of organ damage
• Correct physiologic disturbances and gradually increase food intake

Vitamin Deficiencies (1 of 2)
• Vitamin A causes night blindness. Advanced cases may have serious eye damage
• Vitamin D causes rickets and osteomalacia
• Vitamin K causes blood coagulation disturbances and hemorrhagic disease in newborns

Vitamin Deficiencies (2 of 2)
• Vitamin B group involved in energy-generating chemical reactions. Deficiencies cause peripheral neuritis and brain degeneration manifestations; B12 deficiency causes anemia
• Folic acid deficiency causes macrocytic anemia and predisposes to neural tube defects
• Minerals perform many functions necessary for proper functioning of body cells

Discussion
• What conditions cause malnutrition?
• What is the difference between marasmus and kwashiorkor? Why do children with kwashiorkor become edematous?
• How is alcoholism responsible for malnutrition? What diseases or conditions may result from alcohol-related malnutrition?