



Chapter 21

Basic Nutrition and Nutrition Therapy

nutrition and Nutritional

- “ Nutrition is the total of all processes involved in the taking in and utilization of food substances for proper growth, functioning, and maintenance of health.
- “ Nutrition plays a role directly or indirectly in all body processes.

the Nurse in Promoting Nutrition

- “ The nurse can promote good nutrition by
- Helping the patient understand the importance of the diet and encouraging dietary compliance
 - Serving meal trays to patients in a prompt and positive manner
 - Assisting some patients with the eating process
 - Taking and recording patient weight
 - Recording patient intake
 - Observing clinical signs of poor nutrition and reporting them
 - Serving as a communication link

utrition

“ Diet Planning Guides

- MyPyramid

- “ Bread, cereal, rice, and pasta group

- “ Vegetable group

- “ Fruit group

- “ Milk, yogurt, and cheese group

- “ Meat, poultry, fish, dried beans, eggs, and nuts group

- “ Fats, oils, and sweets



(From US Department of Agriculture, Washington, DC, 2005, US Government Printing Office.)

MyPyramid, a personalized guide to daily food choices and number of servings.

“ Diet Planning Guides (continued)

- MyPyramid (continued)

- “ Symbolizes a personalized approach to healthy eating and physical activity
- “ Emphasizes key concepts regarding activity and eating
 - Activity
 - Moderation
 - Variety
 - Proportionality

size:



utrition

“ Diet Planning Guides (continued)

- Dietary Guidelines for Americans

- “ These guidelines form the foundation of U.S. federal nutrition policy and directly affect federal nutrition programs such as food stamps, school breakfast and lunch programs, and the Special Supplemental Program for Women, Infants, and Children (WIC).

- “ These guidelines have been developed to address the importance of adequate nutrition, as well as the prevention of overnutrition and disease.

utrition

- “ Diet Planning Guides (continued)
 - Dietary Reference Intakes (DRIs)
 - “ This is a set of nutrient-based values that can be used for both assessing and planning diets.
 - “ They form the basis for daily values used in the Nutrition Facts labels on foods.
 - “ The DRIs are intended to help individuals optimize their health, prevent disease, and avoid consuming too much of a nutrient.

utrition

“ Essential Nutrients

- Basic Functions

- “ Essential nutrients are those that our bodies cannot make in amounts necessary for good health.
- “ The six classes of essential nutrients are carbohydrates, fats, proteins, vitamins, minerals, and water.

“ Essential Nutrients (continued)

- Basic functions

- “ Provide energy

- Carbohydrates and proteins: 4 kcal/g
- Fat: 9 kcal/g

- “ Build and repair tissue

- Protein, calcium, phosphorus, iron, and fat

- “ Regulate body processes

- Metabolism: the combination of all chemical processes that take place in living organisms

utrition

“ Essential Nutrients (continued)

- Carbohydrates

- “ Main function of carbohydrates is to provide energy.

- “ Simple carbohydrates

- Simple sugars: monosaccharides and disaccharides
- Found naturally in many nutritious foods such as milk and fruit

- “ Complex carbohydrates

- Polysaccharides
- Starch, glycogen, and dietary fiber

“ Essential Nutrients (continued)

- Carbohydrates (continued)

- “ Digestion and metabolism of carbohydrates

- All carbohydrates except fiber are broken down in the digestive tract into monosaccharides (simple sugar units).
- They then are absorbed and eventually converted to glucose.
- Glucose circulates in the bloodstream and is used by the cells for energy.

utrition

“ Essential Nutrients (continued)

- Carbohydrates (continued)

- “ Digestion and metabolism of carbohydrate

- If energy needs are met, carbohydrates will be stored as glycogen.
- Once glycogen stores are full, further excesses of carbohydrates will be converted to fat and stored as adipose tissue.





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“ Essential Nutrients (continued)

- Fats (lipids)

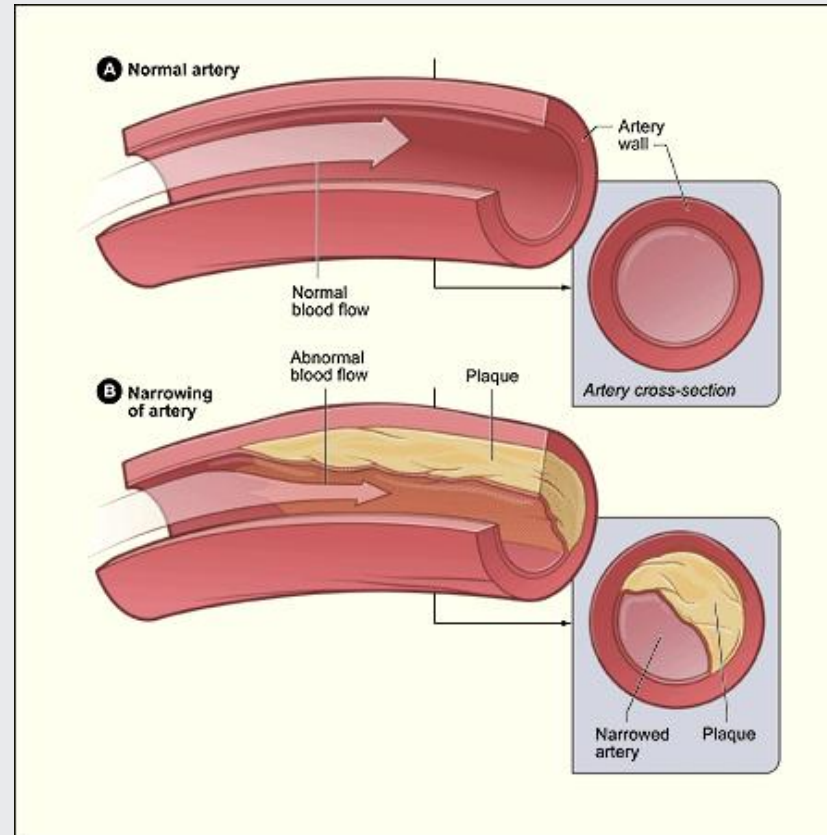
- “ These are a group of organic substances of a fatty nature that are insoluble in water and that are necessary in the body for good health.
- “ Both fats and cholesterol are lipids.
- “ Adipose tissue is the body's storage form of fat; it helps insulate the body from temperature extremes and serves as a cushion to protect organs and other tissues.
- “ Fat provides satiety; it adds flavor and aroma to foods.

“ Essential Nutrients (continued)

- Fats (lipids) (continued)

- “ Saturated fatty acids

- Chemical bonds are completely filled or saturated with hydrogen.
 - These are generally of animal origin and solid at room temperature.
 - They increase blood cholesterol levels and the risk of atherosclerosis.



“ Essential Nutrients (continued)

- Fats (lipids) (continued)

- “ Unsaturated fatty acids

- There is one or more places on its chemical chain where hydrogen is missing.
- They can be monounsaturated or polyunsaturated.
- They usually have plant sources and are liquid at room temperature.
- They are thought to have a blood cholesterol–lowering effect at moderate levels of intake.

“ Essential Nutrients (continued)

- Fats (lipids) (continued)

- “ Trans-fatty acids

- These are unsaturated fatty acids that vary slightly in their chemical configuration from naturally occurring unsaturated fatty acids.
- They are produced during hydrogenation.
- They are found in foods containing partially hydrogenated vegetable oils.
- They tend to increase blood cholesterol levels, but not as much as saturated fats.

“ Essential Nutrients (continued)

- Fats (lipids) (continued)

- “ Cholesterol

- It performs specific functions in the body but provides no energy.
- It is synthesized in the liver and is found in foods of animal origin.
- Dietary cholesterol is highest in organ meats and egg yolks.
- Intake of dietary cholesterol should average no more than 300 mg per day.

“ Essential Nutrients (continued)

- Fats (lipids) (continued)

- “ Digestion and metabolism of fats

- Fats must be emulsified by bile to be digested.
- Once emulsified, fats can be broken down and absorbed.
- Excess dietary fat will be stored as adipose tissue.
- Lipoproteins facilitate the transport of lipids in the bloodstream: high-density (HDL) and low-density (LDL) lipoproteins.

“ Essential Nutrients (continued)

- Protein

- “ Protein makes up the bulk of the body's lean tissues and organs.
- “ It is necessary for tissue growth and repair and wound healing.
- “ Protein is made of smaller units called amino acids.
- “ There are 22 amino acids, but only nine of them are considered essential amino acids.
- “ The nine essential amino acids must be obtained from the diet.

utrition

“ Essential Nutrients (continued)

- Protein (continued)

- “ Complete proteins

- One that contains all nine essential amino acids in sufficient quantity and ratio for the body's needs
- Generally of animal origin; found in foods such as meat, poultry, fish, milk, cheese, and eggs

- “ Incomplete proteins

- Lacking in one or more of the essential amino acids
- Plant origin; include grains, legumes, nuts, and seeds

“ Essential Nutrients (continued)

- Protein (continued)

- “ Vegetarian diets

- They are made up of mainly plant foods; some may include dairy products or eggs as well.
- Lactovegetarian diet includes fruits, vegetables, grains, and milk and dairy products.
- Lacto-ovo-vegetarian diet also includes eggs.
- Protein needs can be met with a vegetarian diet; a wide variety of plant foods must be included.

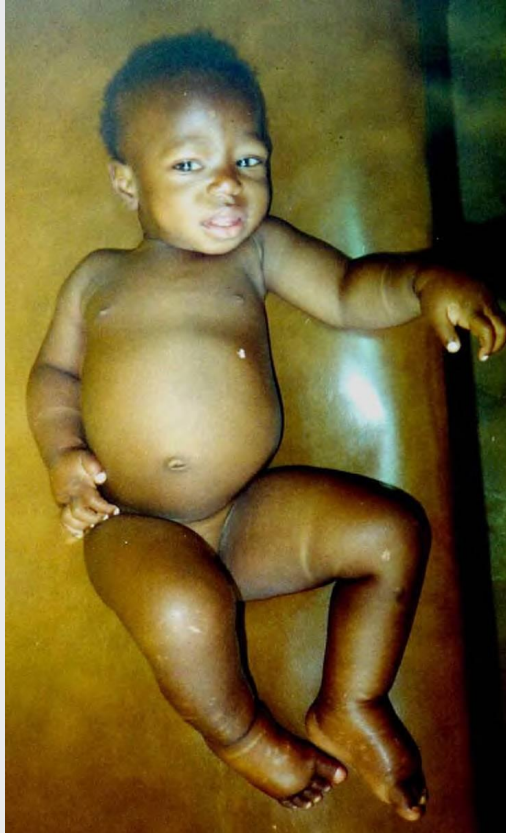
utrition

“ Essential Nutrients (continued)

- Protein (continued)

- “ Protein-kilocalorie malnutrition

- Individuals suffering from a lack of kilocalories or protein; body breaks down its own protein stores for energy
- Kwashiorkor: Malnutrition caused by severe protein deficiency; may occur in the presence of adequate kilocalories
- Marasmus: Condition of extreme malnutrition and emaciation due to inadequate kilocalories and protein





- “ Catabolism =the body loses more nitrogen than it is consuming. Negative nitrogen balance.
- “ Anabolism = the amount of nitrogen consumed is greater than the amount excreted. Positive nitrogen balance.

utrition

- “ Essential Nutrients (continued)
 - Vitamins and minerals
 - “ They are needed in small amounts; toxicity may occur with overconsumption.
 - “ They are best received from a balanced, varied diet.
 - “ Vitamins can be destroyed by heat, light, and exposure to air.
 - “ Minerals cannot be destroyed because they are single elements rather than compounds.
 - “ Both vitamins and minerals can be lost when foods are cooked in water.

“ Essential Nutrients (continued)

- Vitamins and minerals (continued)

- “ Vitamins

- Fat soluble

- A, D, E, and K
- Usually carried in the fatty portion of food
- Can be stored by the body

- Water soluble

- B vitamins and C
- Not stored in the body; excesses excreted in the urine

“ Essential Nutrients (continued)

- Vitamins and minerals (continued)

- “ Vitamins (continued)

- Antioxidant vitamins

- Vitamins E and C; previtamin form of A (beta-carotene)
- Possible link to reduced risks of certain cancers and heart disease
- Function by delaying or preventing the destruction or breakdown of cell membranes in the presence of oxygen

“ Essential Nutrients (continued)

- Vitamins and minerals (continued)

- “ Vitamins (continued)

- Vitamin C

- Adequate amounts are necessary for proper immune function.

- Vitamin D

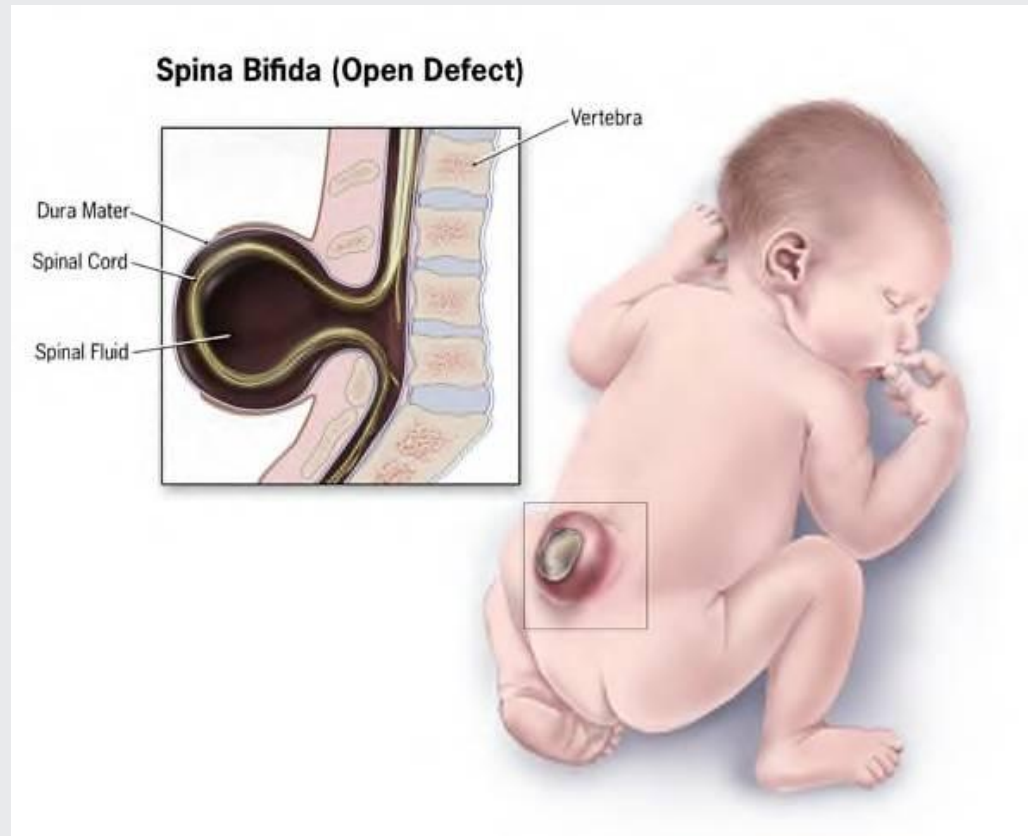
- Most common dietary sources include fortified milk and milk products.
- The body can also make vitamin D from exposure to sunlight.

“ Essential Nutrients (continued)

- Vitamins and minerals (continued)

- “ Vitamins (continued)

- Vitamin K
 - It plays a role in blood clotting.
 - A large fluctuation in vitamin K intake may alter the effects of anticoagulation drugs.
- Folate (folic acid)
 - Before and during pregnancy, it may play a role in reducing the risk of neural tube defects in the infant.



“ Essential Nutrients (continued)

- Vitamins and minerals (continued)

- “ Vitamins (continued)

- Vitamin B₁₂

- It is primarily found in foods of animal origin.
- It requires a special intrinsic factor produced in the stomach for absorption.
- Pernicious anemia may result with inadequate amounts of intrinsic factor because B₁₂ is not absorbed.

“ Essential Nutrients (continued)

- Vitamins and minerals (continued)

- “ Minerals

- Major minerals are those needed in amounts greater than 100 mg per day: calcium, phosphorus, magnesium, sulfur, sodium, potassium, and chloride.
- Trace minerals are needed in much smaller amounts: iron, zinc, iodine, selenium, copper, fluoride, chromium, and molybdenum.

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“ Essential Nutrients (continued)

- Vitamins and minerals (continued)

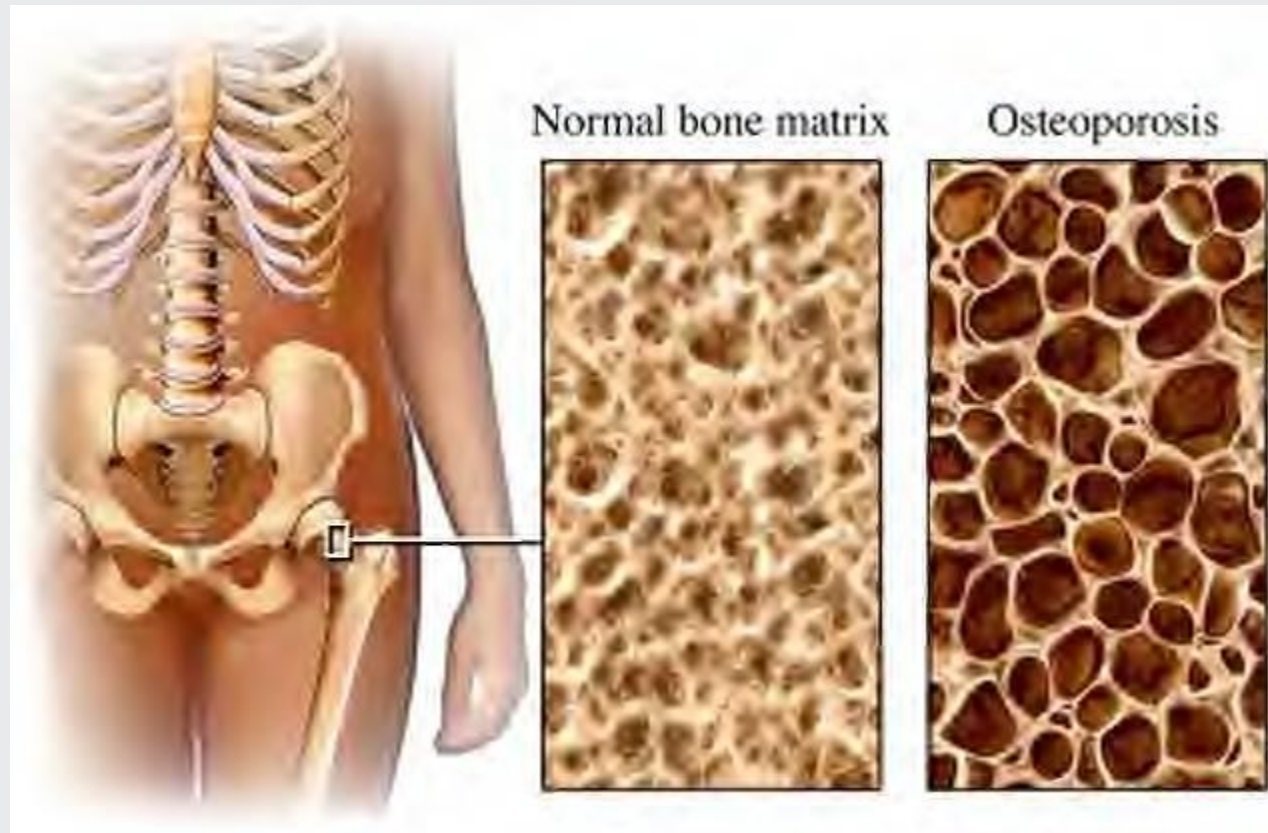
- “ Minerals (continued)

- Calcium

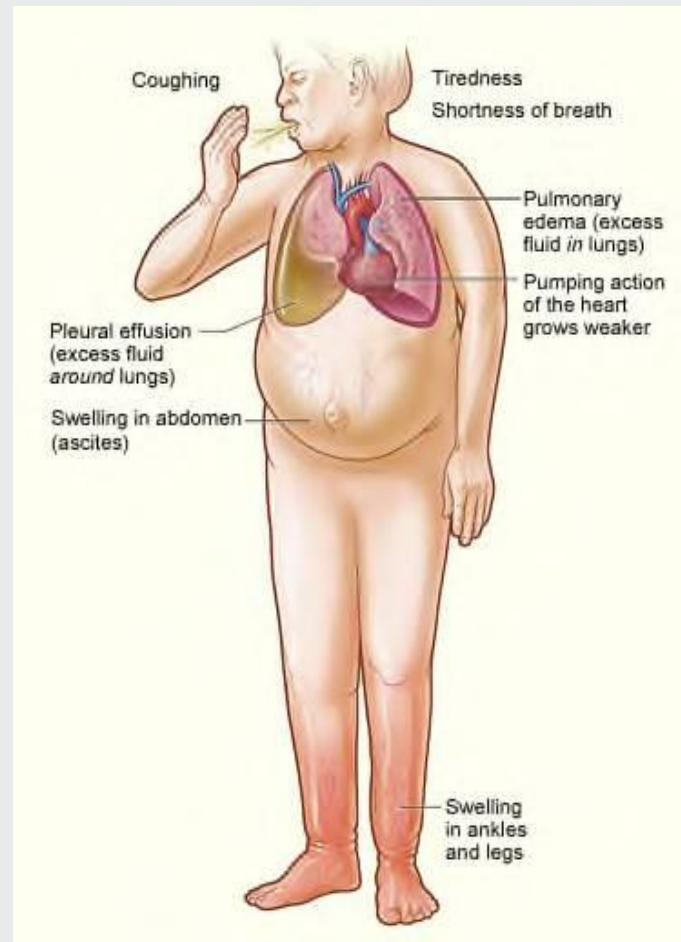
- Protective effect against osteoporosis and hypertension
- 1000 to 1200 mg per day

- Sodium

- Functions as an electrolyte
- Less than 2400 mg per day
- Salt is a major dietary source







“ Essential Nutrients (continued)

- Vitamins and minerals (continued)

- “ Minerals (continued)

- Potassium

- An electrolyte; may have a protective effect against hypertension
- 2000 mg per day

- Iron

- Part of hemoglobin, which is part of the red blood cell and carries oxygen to the cells
- 8 to 15 mg per day; 30 mg per day for pregnant women

utrition

“ Essential Nutrients (continued)

- Water

- “ Nutrient most vital to life
- “ Makes up approximately 60% of adult body weight and 80% of infant weight
- “ Provides form and structure to body tissues
- “ Acts as a solvent; necessary for most chemical processes
- “ Transports nutrients and other substances
- “ Lubricates and protects moving parts of the body
- “ Lubricates food and aids in digestion
- “ Regulates body temperature



Female Nutrition

“ Pregnancy and Lactation

- Concerns in pregnancy

- “ Weight gain

- Normal-weight women should gain between 25 and 35 lb.

- “ Discomforts and complications

- Pregnancy-induced hypertension (PIH)

- Proper nutrition may help avert this condition; salt should not be restricted in most cases.

Female Nutrition

- “ Pregnancy and Lactation (continued)
 - Concerns in pregnancy (continued)
 - “ Discomforts and complications (continued)
 - Gestational diabetes
 - Diabetes mellitus that occurs only during pregnancy; diet major part of therapy
 - Anemia
 - Iron deficiency and folacin deficiency
 - Adequate diet including meats, poultry, and fish; green leafy vegetables; and variety of fruits

Child Nutrition

- “ Pregnancy and Lactation (continued)
 - Concerns in pregnancy (continued)
 - “ Practices to avoid
 - Alcohol consumption
 - Caffeine consumption; less than 300 mg per day
 - Smoking
 - Lactation
 - “ Additional 500 kcal per day is recommended; increased fluid needs
 - “ Adequate nutrition vital

Infant Nutrition

“ Infancy

- Breast milk or iron-fortified infant formula is generally recommended for the first year.
- Breastfeeding should be encouraged.
- Regular cow's milk is inappropriate during the first year.
- Introducing solid foods too early may increase the risk for food allergies and choking.
- Most infants are not developmentally or physiologically ready to handle solid foods before 6 months of age.
- At 4 to 6 months of age, single-ingredient foods should be chosen and introduced one at a time at weekly intervals.

Child Nutrition

“ Childhood

- This is a critical time for instilling good dietary habits.
- If children are offered nutritious foods in pleasant surroundings and in nonthreatening ways, they will most likely be adequately nourished.
- The parents should decide which foods to serve at what time; the child should be able to decide what and how much to eat.

Child Nutrition

“ Adolescence

- Diets are often filled with kilocalorie-rich and nutrient-poor snack foods.
- Common dietary inadequacies include iron and calcium.
- Many teenagers experiment with alcohol and drugs, which have detrimental effects on nutrition.
- Obesity is a common problem; weight reduction diets should be attempted only under the advice of a physician and with the guidance of a dietitian.

Adult Nutrition

“ Adulthood

- The combined effects of decreased energy needs and reduced physical activity often result in weight gain.
- It is important to use nutrient-dense foods and thereby receive adequate nutrition and fewer kilocalories.
- With age comes the increasing likelihood of age-related illness; nutrient needs vary greatly from individual to individual.

Adult Nutrition

“ Adulthood (continued)

- Nutritional concerns of adults in long-term care facilities
 - “ Malnutrition is a common problem among nursing home residents and profoundly influences physical health and quality of life.
 - “ Residents should be offered familiar foods that taste good.
 - “ Fluids should be offered to residents at all meals and between meals.
 - “ Nurses must understand the value of mealtime as a pleasant, social experience.

Adult Nutrition

“ Adulthood (continued)

- Nutrient-drug Interactions

- “ Drugs may alter food intake by either increasing or decreasing appetite or the ability to eat.
- “ They may also affect the absorption, metabolism, and excretion of certain nutrients.
- “ Food intake and vitamin/mineral supplementation may affect the absorption, distribution, metabolism, and action of some medications.

Adult Nutrition

“ Adulthood (continued)

- Caffeine

- “ Caffeine is a drug; it is a central nervous system stimulant and a diuretic.
- “ It can cause nervousness, irritability, anxiety, insomnia, and heart arrhythmias and palpitations; it may also affect blood pressure, circulation, and gastric acid secretion
- “ In children, caffeine may cause hyperactive behavior.
- “ Limit intake to less than 300 mg per day.

Nutrition Therapy and Therapeutic Diets

- “ Consistency, Texture, and Frequency Modifications
 - Liquid diets
 - “ Clear liquid diet is a nonirritating diet consisting of liquids that are easily digested and absorbed and leave little residue in the GI tract: bouillon, broth, gelatin, tea, coffee, ginger ale
 - “ Full liquid diet is more nutritionally complete than a clear liquid diet but is still lacking in some nutrients: strained cereals and soups, ice cream, puddings, milk/milkshakes, and fruit juices

Nutrition Therapy and Therapeutic Diets

- “ Consistency, Texture, and Frequency Modifications (continued)
 - Soft and low-residue diets
 - “ Soft diet is generally low in fiber; includes foods from all five food groups and is nutritionally adequate except for fiber.
 - “ Low-residue diet is similar to the soft diet but also includes restrictions on milk, because it leaves more residue in the colon.
 - “ Mechanical soft diet eliminates foods that are difficult to chew or swallow.

Nutrition Therapy and Therapeutic Diets

- “ Nutrition Therapy in Peptic Ulcer Disease
- Eat three regular meals per day, without snacks.
 - Avoid known gastric acid stimulants: coffee, caffeinated soft drinks, tea, hot chili peppers, and alcohol.
 - Individualize the diet according to patient tolerance, eliminating any specific food or spice that causes discomfort.
 - Avoid cigarette smoking, aspirin, and nonsteroidal anti-inflammatory drugs.



Nutrition Therapy and Therapeutic Diets

“ High-Fiber Diets

- This is a variation of the regular diet that doubles the intake of dietary fiber.
- Foods with high fiber should replace similar foods with little or no fiber.
- It is used for the treatment of some GI disorders.

“ Meal Frequency Modification

- Small, frequent meals may be used rather than three larger meals: six to eight small meals or snacks.
- This decreases workload on the GI tract and cardiovascular system.

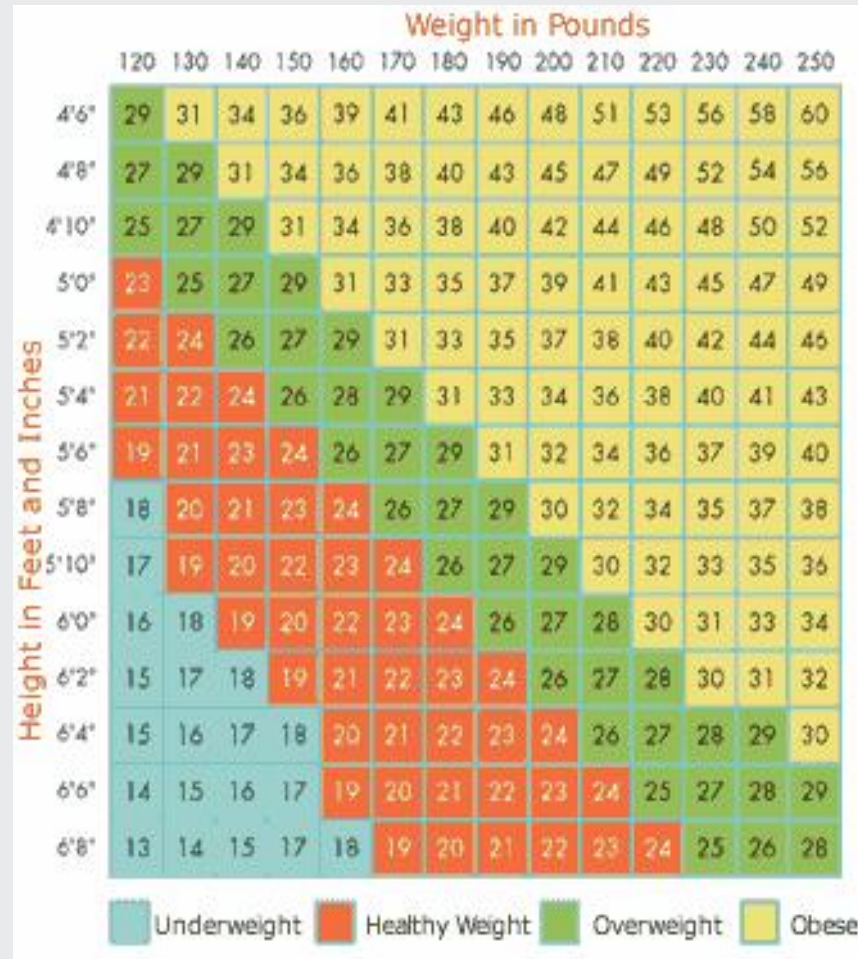
Nutrition Therapy and Therapeutic Diets

“ Kilocalorie Modifications

- High-kilocalorie and high-protein diets
 - “ During times of physiological stress, the body's energy and protein needs are increased.
 - “ Diet should provide increased amounts of kilocalories and protein in small volumes.
 - “ The diet should still provide a balance of foods from all of the food groups.
 - “ Nutritional support in the form of tube feedings or IV feedings may be considered.

Nutrition Therapy and Therapeutic Diets

- “ Kilocalorie Modifications (continued)
 - Kilocalorie-controlled and low-kilocalorie diets
 - “ Used in the treatment of obesity and in the prevention of excess weight gain
 - “ Measurements of obesity
 - Height and weight tables
 - Body mass index (BMI)
 - Body composition
 - Waist circumference



Nutrition Therapy and Therapeutic Diets

- “ Kilocalorie Modifications (continued)
 - Kilocalorie-controlled and low-kilocalorie diets
 - “ Treatment of obesity
 - It should involve both behavioral and psychological goals.
 - Diet should be low in fat and have an energy level that does not exceed expenditure.
 - Physical activity is an integral part of any weight management effort.

Nutrition Therapy and Therapeutic Diets

“ Eating Disorders

- Anorexia nervosa

- “ Self-imposed starvation

- “ Individuals have an intense drive for thinness, an intense fear of gaining weight or becoming fat, and a distorted body image.

- Bulimia nervosa

- “ Periods of binge eating followed by purging (self-induced vomiting, emetics, laxatives, enemas, or diuretics).

- “ Often normal weight or overweight



Nutrition Therapy and Therapeutic Diets

“ Eating Disorders (continued)

- Binge eating disorder

- “ Frequent, recurrent episodes of binge eating; eating larger amounts of food than normal during a short period of time and feeling a lack of control over eating during binge episodes

- “ Often obese; should consider treatment that focuses on binge eating behavior before attempting to lose weight

Nutrition Therapy and Therapeutic Diets

“ Carbohydrate-Modified Diets

- Diabetes mellitus

- “ Primary goals for medical nutrition therapy

- Improve metabolic control by achieving and maintaining optimal blood glucose
- Provide adequate energy for maintenance of a reasonable body weight.
- Prevent acute and chronic complications of diabetes
- Improve overall health through optimal nutrition

Nutrition Therapy and Therapeutic Diets

- “ Carbohydrate-Modified Diets (continued)
 - Diabetes mellitus (continued)
 - “ Carbohydrate intake should be monitored and controlled.
 - “ Diabetic diet tools
 - Exchange lists for meal planning
 - Carbohydrate counting
 - “ Other nutritional considerations
 - Hypoglycemia: consumption of inadequate carbohydrates causes the blood sugar to drop.

Nutrition Therapy and Therapeutic Diets

- “ Carbohydrate-Modified Diets (continued)
 - Dumping syndrome
 - “ It may occur after surgery in which a portion or all of the stomach is removed.
 - “ The stomach contents may empty too rapidly into the jejunum; the body reacts by sending water to the intestinal tract, thus reducing blood pressure.
 - “ The load in the intestinal tract increases peristalsis, leading to diarrhea.
 - “ Diet therapy involves giving small frequent meals that are higher in protein and fat and lower in carbohydrates.

Nutrition Therapy and Therapeutic Diets

- “ Carbohydrate-Modified Diets (continued)
 - Lactose intolerance
 - “ Intolerance occurs as a result of a lack of the digestive enzyme lactase.
 - “ The GI tract is unable to break down lactose.
 - “ Symptoms occur after the ingestion of milk products and include nausea, cramps, bloating, flatulence, and diarrhea.
 - “ Diet for lactose intolerance excludes milk and milk products; foods with milk added may need to be avoided as well.

Nutrition Therapy and Therapeutic Diets

“ Fat-Modified Diets

- Fat-controlled diets

- “ To prevent and treat atherosclerosis, heart disease, and hyperlipidemia
- “ Limits total fat, saturated fat, and trans-fatty acids
- “ Rather than totally eliminating high-fat foods, encourages moderation

- Low-fat diets

- “ All fats limited, regardless of saturation
- “ Used for diseases that involve malabsorption of fat

Nutrition Therapy and Therapeutic Diets

- “ Protein, Electrolyte, and Fluid Modified
 - Protein-restricted diet
 - “ In the presence of defects in protein metabolism or excretion, protein intake reduced or controlled; chronic renal failure and cirrhosis of the liver
 - Sodium-restricted diet
 - “ May be used to treat hypertension, water retention, edema, and congestive heart failure
 - “ Restrictions range from no added salt to as little as 500 mg sodium per day

Nutrition Therapy and Therapeutic Diets

- “ Protein, Electrolyte, and Fluid Modified (continued)
 - Potassium-modified diets
 - “ Increased intake may help with blood pressure control; encourage fruit, vegetables, and low-fat dairy products.
 - “ Intake may be restricted with end-stage renal disease and other kidney disease; blood levels could increase to the point of causing arrhythmias and sudden cardiac arrest.

Nutrition Therapy and Therapeutic Diets

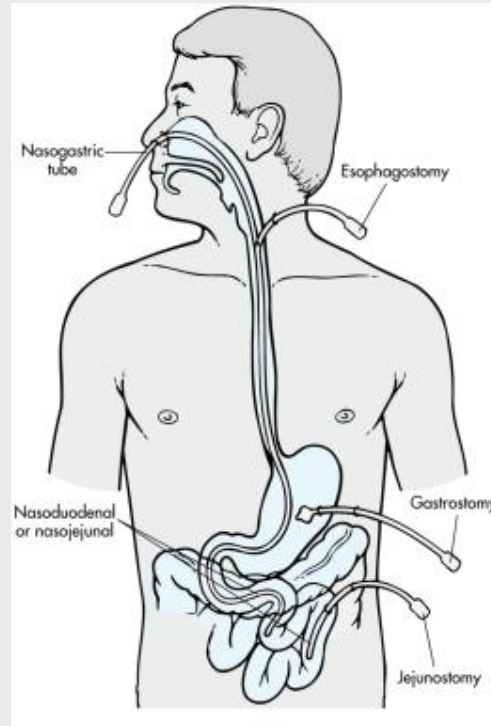
- “ Protein, Electrolyte, and Fluid Modified (continued)
 - Fluid-modified diets
 - “ Fluid is restricted to 500 to 750 mL per day plus an amount equal to daily urine output during end-stage renal disease.
 - “ Fluid restrictions may also be implemented during congestive heart failure, directly after a myocardial infarction, or in hepatic coma or ascites.
 - “ Patient may experience excessive thirst: rinse mouth with cold mouthwash, lemon in cold water, freezing fluids, cold fruits and vegetables, breath mints or hard candies, and brushing teeth.



nal Support

“ Tube Feedings

- Administration of nutritionally balanced liquefied foods or formula through a tube inserted into the stomach, duodenum, or jejunum by way of a nasogastric tube or a feeding ostomy
- Indicated when a patient is unable to chew or swallow, has no appetite, or refuses to eat
- Tube feeding used only when all or at least part of the GI tract is functioning
- Feeding given continuously or intermittently



(From Potter, P.A., Perry, A.G. [2005]. *Fundamentals of nursing*. [6th ed.]. St. Louis: Mosby.)

Tube feeding sites.

nal Support

“ Tube Feedings (continued)

- Nasogastric tube feedings

- “ Checking for placement of a feeding tube before administering medication or tube feeding is critical to safe patient care.
- “ Tube may be accidentally placed in the lung, esophagus, or even the stomach when it should be in the small bowel.
- “ To test, use chest x-ray, test pH of aspirated fluid, or use auscultatory method.

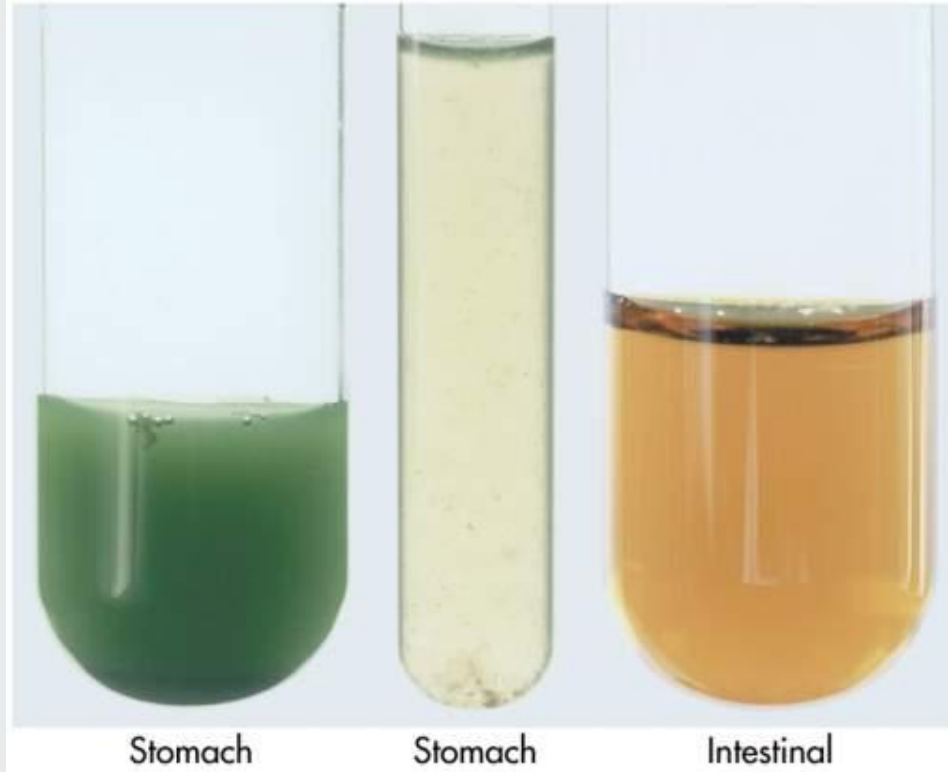
1: Step 10a(A)



(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. *Nursing interventions and clinical skills*. [3rd ed.]. St. Louis: Mosby.)

Administering nasogastric tube feedings.

1: Step 10a(B)



(From Potter, P.A., Perry, A.G. [2005]. *Fundamentals of nursing*. [6th ed.]. St. Louis: Mosby.)

Administering nasogastric tube feedings.

1: Step 10b



(From Potter, P.A., Perry, A.G. [2005]. *Fundamentals of nursing* [6th ed.]. St. Louis: Mosby.)

Administering nasogastric tube feedings.

1: Step 12a



(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. *Nursing interventions and clinical skills*. [3rd ed.].
St. Louis: Mosby.)

Administering nasogastric tube feedings.

1: Step 13a(3)



(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. *Nursing interventions and clinical skills*. [3rd ed.].
St. Louis: Mosby.)

Administering nasogastric tube feedings.

1: Step 13b(1)



(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. *Nursing interventions and clinical skills*. [3rd ed.]. St. Louis: Mosby.)

Administering nasogastric tube feedings.

1: Step 13c(1)



(From Elkin, M.K., Perry, A.G., Potter, P.A. [2004]. *Nursing interventions and clinical skills*. [3rd ed.]. St. Louis: Mosby.)

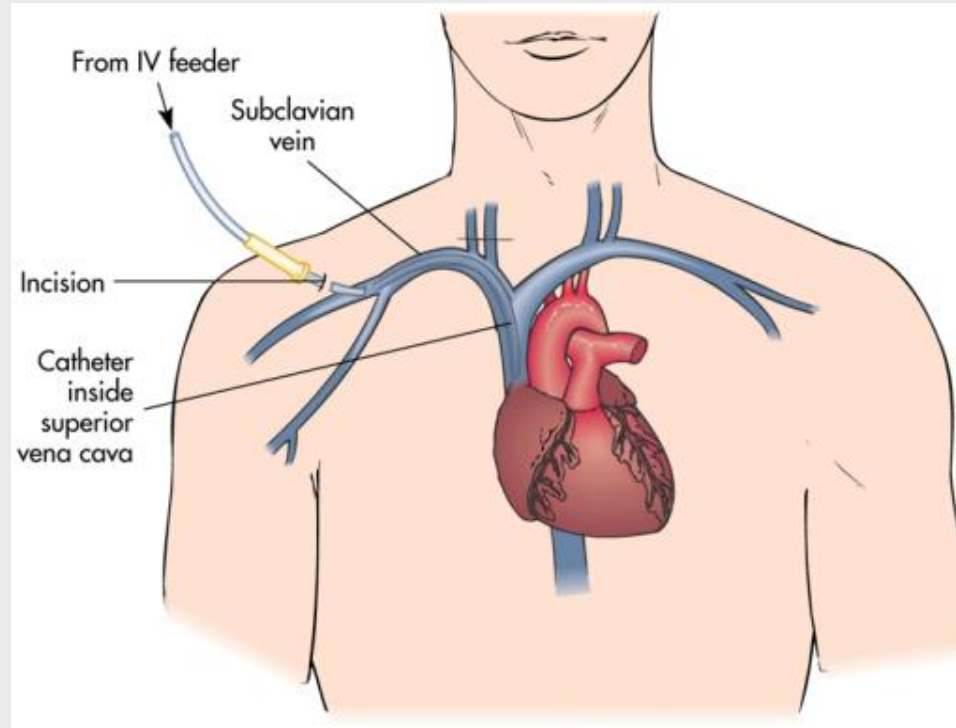
Administering nasogastric tube feedings.

Parenteral Nutrition Support

“ Parenteral Nutrition Support

- Parenteral nutrition (hyperalimentation)
 - “ Intravenous feedings
 - “ May be administered through peripheral veins
- Total parenteral nutrition (T PN)
 - “ Administration of hypertonic solution into a large central vein
- Composed of glucose, amino acids, vitamins, minerals, and electrolytes; fats also given as a supplement to the main formula
- Indicated for the patient with a nonfunctioning or dysfunctional GI tract

21-6



(Courtesy of Rolin Graphics.)

Central venous catheter placement during administration of
parenteral nutrition.

nal Support

“ Feeding the Patient

- Weakness, paralysis, casts, and other physical limitations may make self-feeding impossible; these patients are fed.
- Provide a relaxed mood; demonstrate caring and respect for the patient; ask the patient about the order in which to offer foods and fluids; use spoons, which are less likely than forks to cause injury.
- For visually impaired patients, identify foods and fluids and their location on the tray.

nal Support

“ Serving Meal Trays

- Weakness and illness can affect a patient's ability to eat.
- Bad odors, unpleasant equipment, an uncomfortable position, the need for oral hygiene, the need to void, and the presence of pain are some factors that affect appetite.
- Nursing staff members can control these factors by getting the patient ready for meals.
- Food is served in containers that keep hot and cold foods at the correct temperature; serve trays promptly.