

## Chapter 6- Nutrition

1. Fuel potential: body needs essential nutrients-water, carbs, proteins, fats, vitamins, and minerals.-body cannot manufacture them; must come from food or natural supplements

2. Water helps regulate body temperature, carries waste products out of the body, and lubricates our moving parts. \* water combined with a balanced diet replaces electrolytes(sodium, potassium, and chloride) lost daily through sweat.

3. the body uses protein to build and maintain muscles, bones, and other body tissues.

Also form enzymes that in turn facilitate chemical reactions

They're made of 20 different amino acids (9 essential amino acids the body cannot produce on its own)

-complete proteins: animal proteins(meat, fish, poultry, milk, cheese, and eggs)

-these proteins contain high amounts of essential amino acids

-incomplete proteins: vegetable proteins(grains, legumes, nuts, seeds, and vegetables)

-contain low amounts of essential amino acids

-mutual supplementation: eating the two types of proteins together provides all the essential amino acids.

4. Fats are a concentrated energy source and the principal form of stored energy in the body.

-play a role in the production of fatty acids and vitamin D

- provide the major material for cell membranes and for the myelin sheaths that surround nerve fibers.

-assist in the absorption of the fat-soluble vitamins( A,D,E, and K)

-affect texture, taste, and smell of foods

-provide emergency reserve when sick or food intake is diminished

1. Saturated Fats: remain stable (solid) at room temperature-found in animal sources

2. Monounsaturated Fats: liquid at room temperature but solidify somewhat when refrigerated.- found in plant sources: olive, safflower, peanut, canola oil, avocado, nuts

3. Polyunsaturated Fats: liquid both at room temperature and in the refrigerator. –found in plant sources: corn and soybean oils, fish like salmon, trout, anchovies

5.Carbs are the body's main source of energy. –fuel body's cells during daily activities; used by muscle cells during high-intensity exercise; only source of energy for brain cells, red blood cells.

1. Simple Carbohydrates: easily digestible carbs composed of one or two units of sugar. Six types: glucose, fructose, galactose, lactose, maltose, and sucrose.

-Glucose is the main source of energy for the brain and nervous system; it also travels to the liver and muscles where it is stored as glycogen(complex carb)

-large amounts of simple carbs can give you a sugar high

2. Complex Carbohydrates: composed of multiple sugar units and includes starches and dietary fiber. They must be broken down further before they can be used in the body.

- Starches: complex carbohydrates found in many plant foods: grains, vegetables, some fruits. Contain large portions of vitamins, minerals, proteins, and water.

3. Refined vs. Whole grain:

- a. Complex carbs found in whole grains are often refined (processed) to make them easier to digest and more appealing to consumer but this removes vitamins, minerals and other nutritious components.
- b. Refined carbs are white rice, white bread, pasta, sweet desserts
  - i. Like sugar, enter bloodstream quickly and leave quickly making you feel hungry again
- c. Whole grains: whole wheat, brown rice, oatmeal, corn. Provide more nutrients, slow the digestive process, make you feel full longer. Consumption of whole grains is associated with lowered risk of diabetes, obesity, heart disease, and some forms of cancer.

6. Vitamins are organic substances needed by the body in small amounts. Serve as catalysts for releasing energy from carbs, proteins, and fats; they aid chemical reactions in the body; and help maintain component of the immune, nervous, and skeletal system.

1. Essential Vitamins: A, C, D, E, K, and the B-complex vitamins—thiamine(B1), riboflavin(B2), niacin, B6, folic acid, and B12.

2. Fat Soluble: A, D, E, K; can be stored in the liver or body fat and if consume large amounts can be toxic over time

-Water Soluble: rest of the vitamins; excess of this vitamin are excreted in the urine and must be consumer more than fat-soluble .; most don't cause toxicity; except for B6 and C

7. Minerals are naturally occurring inorganic substances that are needed by the body in relatively small amounts; important in building strong bones and teeth; helps vitamins and enzymes carry out many metabolic processes, and maintains proper functioning of most body systems.

-bodies need 20 essential minerals; more than then 100 milligrams daily of each of the sis macrominerals: magnesium, phosphorus, potassium, and sodium.

- we need less than 100 milligrams daily of each of the microminerals(trace minerals): chromium, cobalt, copper, fluorine, iodine, iron, manganese, molybdenum, nickel, selenium, silicon, tin, vanadium, and zinc.

- mineral supplements are not recommended for most people bc these insoluble elements can build up in the body and become toxic if consumed in excessive amounts.

8. Phytochemicals are substances that are naturally produced by plants. May keep body cells healthy, slow down tissue degeneration, prevent the formation of carcinogens, reduce cholesterol levels, protect the heart, maintain hormone balance, and keep bones strong.

1. **Antioxidants:** substances found in foods that neutralize the effects of free radicals (unstable molecules that are produced when oxygen is metabolized and that damage cell structures and DNA). Found in fruits and vegetables (especially yellow, orange and dark green), green tea, blackberries, walnuts, strawberries, artichokes, cranberries, brewed coffee, raspberries, pecans, blueberries, cloves, grape juice, unsweetened baking chocolate, sour cherries, and red wine.
2. **Phytoestrogens:** plant hormones similar to human estrogens but less potent. May lower cholesterol and reduce risk of heart disease, osteoporosis, and menopausal symptoms. Found in 300 plants like broccoli, cauliflower, plants containing lignins(woody substances) like rye, wheat, sesame seed, linseed, flaxseed, soybeans. Not established safety in supplements.
3. **Phytonutrients:** substances extracted from vegetables and other plant foods and used in supplements. Group called bioflavonoid are believed to have a beneficial effect on the cardiovascular system. Not recommended to take these supplements and FDA is not allowed to labeled or marketed if these agents prevent disease. Help prevent cancer, heart disease, blindness, premature aging, and dementia.

#### Chapter 7- Fitness:

1. **Physical activity:** requires any type of movement.  
**Exercise:** structured, planned physical activity, often carried out to improve fitness  
**Physical fitness:** the ability of the body to respond to the physical demands placed upon it.
  1. **Skill-related fitness:** the ability to perform specific skills associated with various leisure activities or sports; agility, speed, power, balance, coordination, and reaction time.
  2. **Health-related fitness:** the ability to perform daily living activities(like grocery shopping) and other activities with vigor; cardio respiratory fitness, musculoskeletal fitness(results in muscular strength, endurance and flexibility), and body composition.
2. **Physical Benefits of Exercise:** longer lifespan, improved functioning in every body system,  
**Cognitive Benefits:** fit individuals process info more quickly; aerobic fitness may prevent or slow down the loss of cognitive functions associated with old age  
**Psychological and Emotional Benefits:** influence mood, decrease risk of depression and anxiety, relieve stress, and improve overall quality of life, improved self-esteem, improved quality of sleep, more social opportunities, better response to stress. Can be a distraction or provide a sense of success  
**Spiritual Benefits:** connect with yourself, other people, and with nature in deep and immediate ways. Feel refreshed and reinvigorated.

#### Components of Health-related fitness:

1. **Cardiorespiratory fitness:** ability of the heart and lungs to efficiently deliver oxygen and nutrients to the body's muscles and cells via the bloodstream.