

Nutrition



FOOD

Any substance used for energy, physical growth, development and repair or rebuilding in the body can be termed as food.

FUNCTIONS OF FOOD

- Physical growth and development
- Production of energy and power
- Enhancement of tissue working capacity
- Protection against diseases

What is Nutrition

-Nutrient: A chemical substance in food that helps maintain the body.

Some provide energy. All help build cells and tissues, regulate bodily processes such as breathing. No single food supplies all the nutrients the body needs to function.

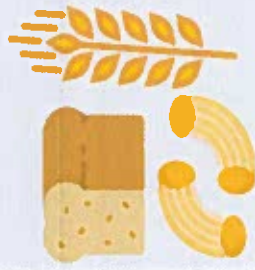
-Nutrition: The study of how your body uses the food that you eat. Nutrition plays a role in healthy living and prevention of disease

-Malnutrition: is the lack of the right proportions of nutrients over an extended period

Deficiency Disease: the failure to meet your nutrient needs

SIX ESSENTIAL NUTRIENTS

Carbs



Protein



Fats



Water



Vitamins



Minerals



Macronutrients

Micronutrients

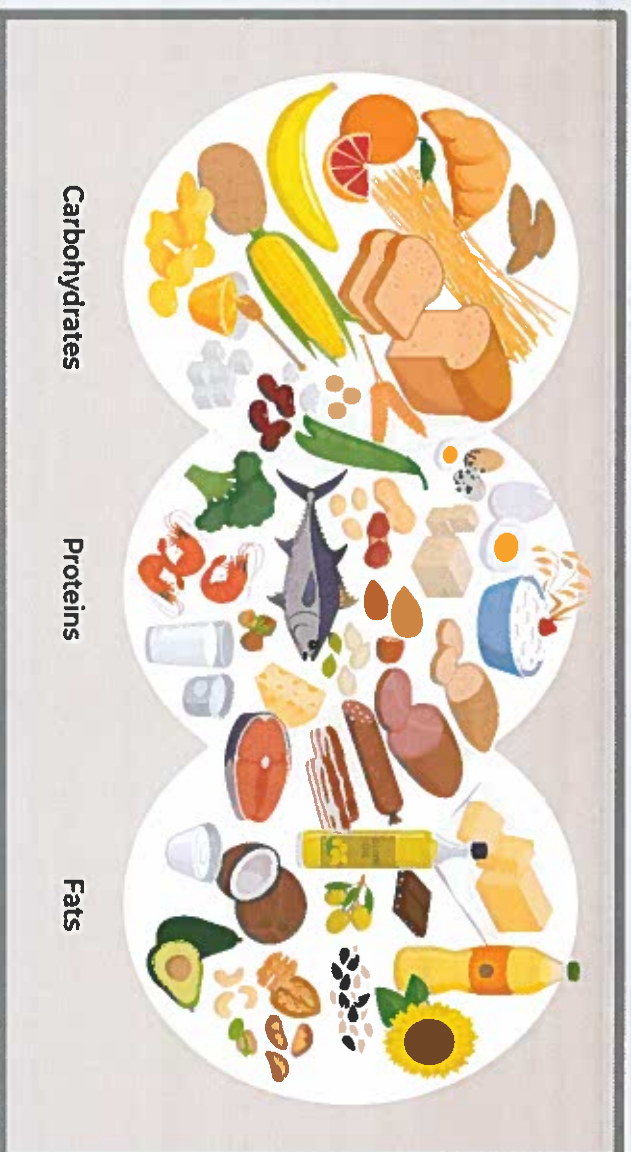
Macronutrients

Macronutrients are the essential nutrients that the body needs in large quantities to provide energy and support various bodily functions.

Carbohydrates: provide energy for cells and tissue

Proteins: build and repairs body tissue, hormones, and enzymes

Fats: provide energy, store vitamins, and regulate hormones



Micronutrients

Micronutrients are the vitamins and minerals the body needs in smaller amounts for proper growth, development, and health.

Vitamins: Are complex organic substances that promotes normal growth, maintenance, and reproduction. The body needs 13 vitamins A, C, D, E, K, B1, B2, B3, B5, B6, B7, B9, and B12

• **Fat-soluble vitamins:** carried in fatty parts of foods and dissolve in fats (body stores them in fat... build up can be dangerous) (Vitamins A,D,E,K)

• **Water-soluble vitamins:** dissolve in water (body does not store them) (Vitamin B-Complex, C

- –Thiamin (vitamin B1)
- –Riboflavin (vitamin B2)
- –Niacin (nicotinamide, nicotinic acid)
- –Vitamin B6 (pyridoxine, pyridoxal, pyridoxamine)
- –Folacin (folic acid)
- –Vitamin B12

Minerals: In addition to vitamins your body also needs 15 minerals that help regulate cell function and provide structure for cells. Major minerals, in terms of amount present, include calcium, phosphorus, and magnesium. In addition, your body needs smaller amounts of chromium, copper, fluoride, iodine, iron, manganese, molybdenum, selenium, zinc, chloride, potassium and sodium.

Amounts needed for most of these minerals is quite small and excessive amounts can be toxic to your body.

- **Calcium:** A mineral important for strong teeth and bones and for muscle and nerve function. The major mineral constituent of bone. **sources:** milk and milk products, fish with bones that are eaten, turnip and mustard greens, tofu, almonds and broccoli.
- **Chloride:** A mineral that regulates body fluid volume, concentration and acid-base balance. Balance intertwined with that of sodium
- **Chromium:** A mineral important in regulating blood glucose. **sources:** brewer's yeast, whole grains and meats
- **Copper:** A mineral that is important for nerve function, bone maintenance, growth, blood formation and utilization of glucose. **sources:** organ meats, sea foods, nuts and seeds
- **Fluoride:** A mineral that is important to dental and bone health. Greatly improves resistance to cavities **sources:** fluoridated water, foods cooked in or containing fluoridated water, fish with bones that are eaten, and tea

- **Phosphorus:** A mineral essential to bone formation and maintenance, energy metabolism, nerve function and acid balance. **sources:** meat, poultry, fish, eggs, dairy products and cereal products.
- **Potassium:** A mineral that is essential for nerve function, muscle contraction and maintenance of normal blood pressure. **sources:** fruits and vegetables.
- **Iodine:** A mineral essential for the production of thyroid hormones. **sources:** sea foods, iodized salt and foods containing iodized salt
- **Iron:** A mineral that is an essential constituent of blood and muscle and important for the transport of oxygen. Certain groups can be at risk of having low iron levels. These include young children and early teens, women with heavy menses, women with multiple pregnancies, and people with conditions that cause internal bleeding, such as ulcers or intestinal diseases. **sources:** liver, red meat, egg yolk, legumes, whole or enriched grains and dark green vegetables.
- **Magnesium:** A mineral found mainly inside muscles, soft tissues and bone. It functions in many enzyme processes. **sources:** nuts, legumes, whole grains and green vegetables

- **Manganese:** A mineral that is important for growth, reproduction, formation of bone, and carbohydrate metabolism. **sources:** whole grains, fruits, vegetables and tea.
- **Molybdenum:** A mineral involved in many enzyme processes, nerve function and protein metabolism. **sources:** milk, beans, breads and cereals.
- **Selenium:** A mineral associated with antioxidant properties and fat metabolism. It has been claimed to help prevent cancer and cardiovascular disease **sources:** seafoods and organ meats.
- **Sodium:** A mineral that regulates body fluid volume, concentration and acid-base **sources:** table salt (sodium chloride), foods processed with table salt, milk, milk products, eggs and seafoods
- **Zinc:** A mineral involved in wound healing, taste sensation, growth and sexual maturation and part of many enzymes regulating metabolism **sources:** meat, liver, eggs and seafood (oysters).
- **Electrolytes:** Are minerals that help maintain your body's fluid balance, nerve and muscle function, and blood pressure. You can get electrolytes from a variety of foods, including fruits, vegetables, lean meats, beans, whole grains, nuts, and seeds. Some beverages, like milk and coconut water, are also naturally high in electrolytes.

Fats

Fats are essential nutrients that provide energy, absorb fat-soluble vitamins (A, D, E, and K), and play a role in cell structure and function.

Saturated fats: Found in animal products (meat, dairy) and some plant oils (coconut, palm). They increase LDL ("bad") cholesterol levels. These fats are most often solid at room temperature. Foods like butter, palm and coconut oils, cheese, and red meat have high amounts of saturated fat.

Unsaturated fats: a type of healthy fat that are liquid at room temperature. They are found in a variety of plant-based foods. They can help reduce the levels of LDL (low-density lipoprotein) cholesterol, which is associated with an increased risk of heart disease. Found in foods like salmon, avocados, seeds, by-products, and olives.

Hydrogenation: the process of adding hydrogen to unsaturated fats and oils to make them solid and saturated, process used to preserve and make it last longer

Trans fats: a type of unsaturated fatty acid that have an unnatural shape. They are created during a process called partial hydrogenation. Trans fats have been linked to an increased risk of heart disease, stroke, type 2 diabetes, and obesity. Foods like processed foods, fried foods, margarine and vegetable shortening.

Cholesterol: a waxy, fat-like substance found in the blood and cells of all animals. It is an essential component of cell membranes and plays a role in the production of hormones and vitamin D. Your body needs cholesterol to build healthy cells, but high levels of cholesterol can increase your risk of heart disease. Found in foods like eggs meat, dairy, and seafood



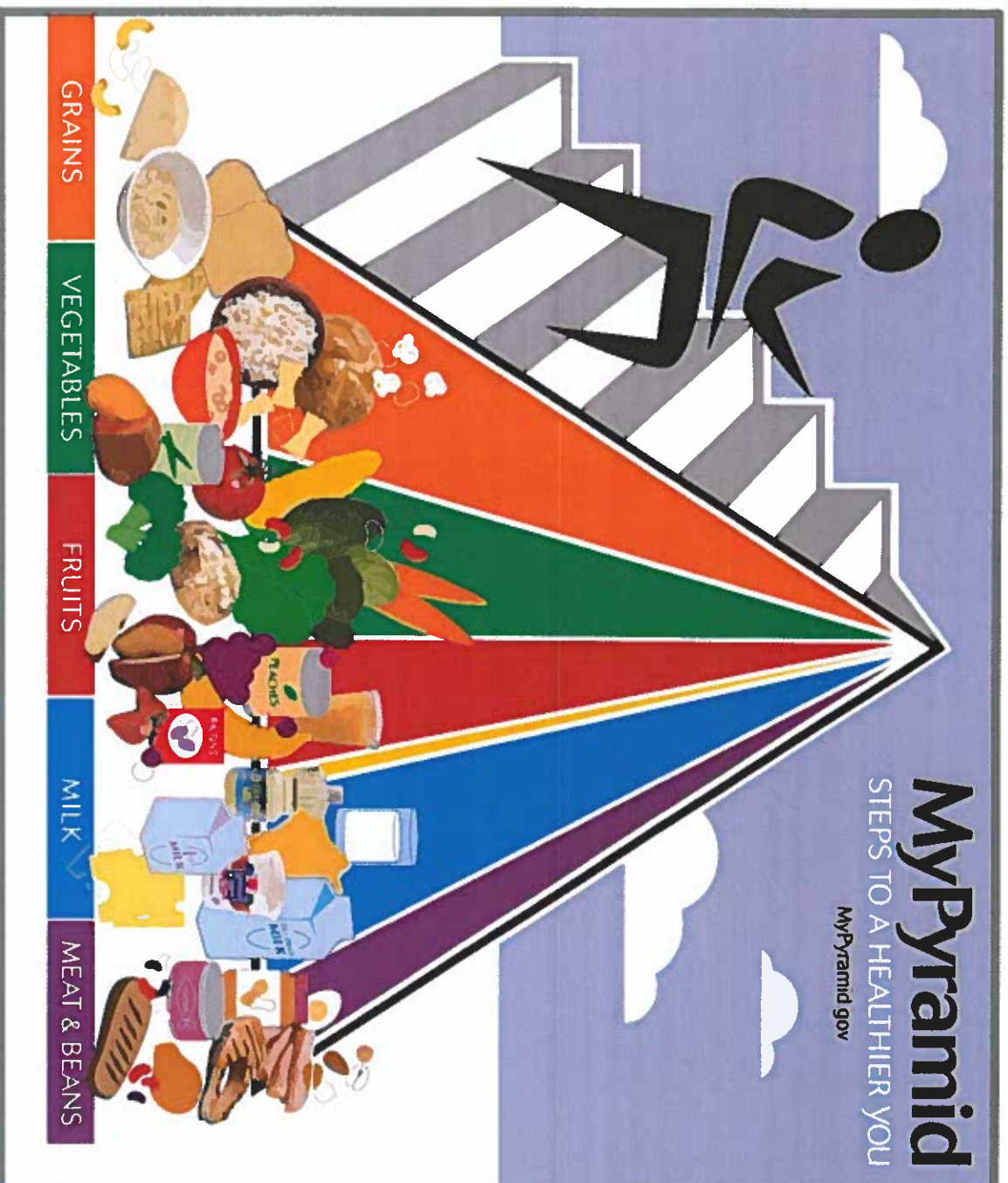
Proteins

Protein is an essential macronutrient that plays a crucial role in various bodily functions, including building and repairing tissues, producing enzymes and hormones, and supporting the immune system.

Protein is made up of small units called amino acids. There are 20 amino acids the body requires: 9 the body can't produce and 11 it can. The 9 amino acids are considered "essential" and must be obtained through diet: **histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine.**

Complete proteins are proteins that contain all nine essential amino acids in the proportions needed by the human body. They're considered high-quality proteins and essential for maintaining good health. Sources can be found in beef, chicken, and fish, as well as eggs, milk, and soy products.

Incomplete protein sources are mostly plant-based sources, including nuts, seeds, beans, legumes, whole grains, tofu, rice and vegetables. Incomplete proteins can be paired together at meals or throughout the day to make a complete protein.



Healthy Eating Pyramid

- **Fats:** Fats, oils, and sweets group (Not a food group. Limit your servings)
- **Proteins:** Meat, poultry, seafood, dry beans, eggs, and nuts (2-3 servings daily)
- **Dairy:** Milk, yogurt, and cheese group (2-3 serving daily)
- **Fruits:** (2-4 servings daily)
- **Vegetables:** Vegetables (3-5 serving daily)
- **Grains:** Bread, cereals, rice's, pasta, and starches (6-11 servings dairy)

Factors Affecting Nutrition

Income and member's feed

- Higher income can allow for healthier food options.
- The number of members being fed can positively or negatively affect the the quality or quantity of food purchased

Sex

- Nutrition and balanced diet is different in men and women.
- The nutritional requirement of males is greater than those of females.
- Pregnant women require a more nutritious diet

Religion

- Boycott of Beef by Hindus and Pork by Muslims
- Vegetarians getting more honor among Hindus
- Rejection of milk, curd, fruits, tubers and vegetables by Jainism and boycotting the night meals by the community
- Serving of liquor in festivals/ social gatherings by followers of Christianity.
- Prolonged fasting or dependance on a single diet.

Occupation

- Some occupations require hard physical labor while some, mental tension is more common
- A labor needs more protein and energy as compared to an office goer.

Cultural factors

- Cultural beliefs and tradition can affect eating habits
- Food habits, customs food fads have an important role in meal planning and nutrition.
- Celebrity diet, supplements

Age

- Age affects the normal diet.
- Children need more nutrients as compared to adults

Food availability

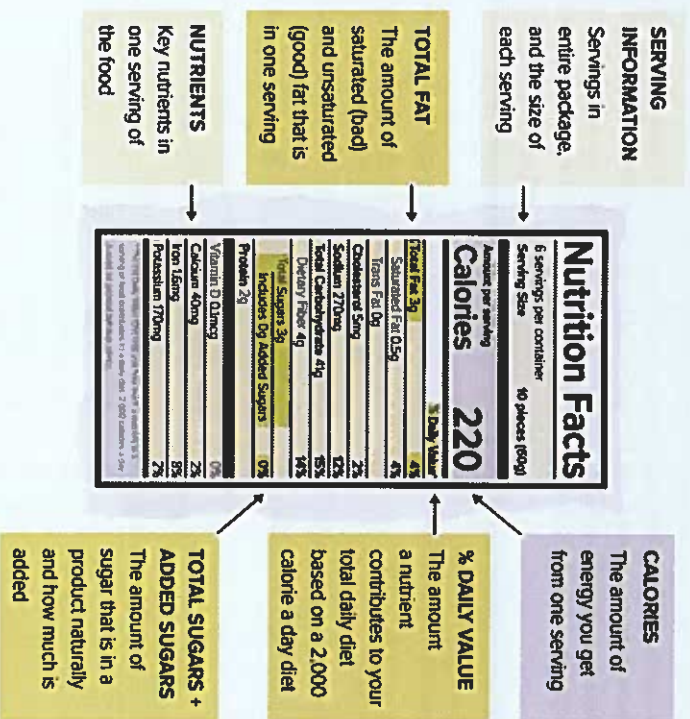
- If the resources are limited, crops are affected by plague, season, or disease
- Over population is a contributing factor in malnutrition

Food laws/ Safety

- Regulating what information consumers can access to about food products.
- Regulation unhealthy food practices

HOW TO READ A FOOD LABEL

If living with high cholesterol, pay close attention to the fat, sugar, and calorie lines



Nutrition Facts	
8 servings per container	
Serving size 2/3 cup (55g)	
Amount per serving	% Daily Value*
Calories 230	
Total Fat 8g	10%
Saturated Fat 1g	5%
Trans Fat 0g	0%
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	13%
Dietary Fiber 4g	14%
Total Sugars 12g	20%
Includes 10g Added Sugars	20%
Protein 3g	
Vitamin D 2mcg	10%
Calcium 280mg	20%
Iron 8mg	45%
Potassium 225mg	6%

Start here. The information on the Nutrition Facts label is tied to the serving size. If you eat more than the listed serving size, then you get more calories and other nutrients. Servings per container is especially helpful when looking at what appears to be "single-serving containers." Often what is sold as a single serving is actually 2 or more servings.

Check calories. This part of the label tells us how many calories are in one serving.

Quick guide to % Daily Value. If the Daily Value is 5% or less, then the food is low in that nutrient. If the Daily Value is 20% or more, then the food is a good source of that nutrient.

Limit these nutrients. Eating too much saturated fat, trans fat, cholesterol, sodium, or added sugar may increase your risk of certain chronic diseases. Note: Added sugar is not currently listed on all labels.

Get enough of these nutrients. Eating enough fiber, vitamin D, calcium, iron, and potassium can improve your overall health.

Footnote. At the bottom of the Nutrition Facts is a footnote that explains that the % Daily Value is intended to help consumers understand the nutrition information on the label in the context of a total daily diet of 2,000 calories.

Vitamins & what they do

- **Vitamin A:** Found in sweet potatoes, carrots, spinach, and fortified cereals. They are needed to support vision, the immune system and reproduction
- **Vitamin B1:** (thiamine) Found in whole grains, enriched, fortified products like bread and cereals. Helps the body process carbs and some proteins.
- **Vitamin B2:** (riboflavin) Found in Milk, bread products, and fortified cereals. Helps convert food into energy, helps make red blood cells.
- **Vitamin B3:** (niacin) Found in meat, fish, poultry, enriched and whole-grain breads, and fortified cereals. Helps with digestion and with making cholesterol.
- **Vitamin B5:** (pantothenic acid) Found in chicken, beef, potatoes, oats, cereals and tomatoes. Helps turn proteins, carbs and fat into energy.
- **Vitamin B6:** Found in fortified cereals, fortified soy products, chickpeas, potatoes, and organ meat. Helps with metabolism, the immune system, babies' brain development.
- **Vitamin B7:** (biotin) Found in liver, fruits, and meats. Helps your body make fats, proteins, and other things your cells need.

Vitamins & what they do

- **Vitamin B12:** Found in fish, poultry, meat, dairy products, and fortified cereals. Helps your body make red blood cells.
- **Vitamin C:** Found in red and green peppers, kiwis, oranges, and other citrus fruits, strawberries, broccoli, and tomatoes. Helps protect against cell damage, supports the immune system, and helps your body make collagen.
- **Vitamin D:** Found in liver oils, fatty fish, fortified milk products, and fortified cereals. Needed for bones, muscles, and the immune system. As well as the communication from your brain to the rest of your body.
- **Vitamin E:** Found in fortified cereals, sunflower seeds, almonds, peanut butter, and vegetable oils. Helps protect cells against damage.
- **Vitamin K:** Found in green vegetables like spinach, collard greens, and broccoli; brussels sprouts and cabbage.
- **Zinc:** Found in red meat, some seafood, and fortified cereals. Supports your immune system and nerve function, and aids in reproduction.