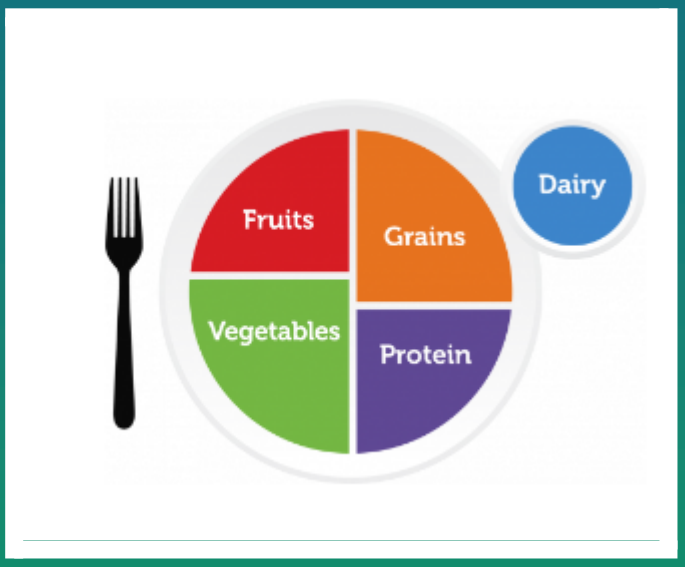
Nutrition and Food

Many countries have created food based dietary guidelines or healthy food recommendations for their populations. It is represented graphically in the form of a food pyramid or a plate to demonstrate the food advice. The messaging is mostly similar which emphasizes on consuming a variety of foods. Variations from country to country exist based on local food habits.

A healthy eating routine is very commonly represented by the MyPlate – as depicted below. The USDA (U.S. Department of Agriculture) created this MyPlate, as an easy, simple food guide to encourage nutritious and balanced meals. It represents the key building blocks of a balanced meal – Vegetables, fruits, grains, protein foods.



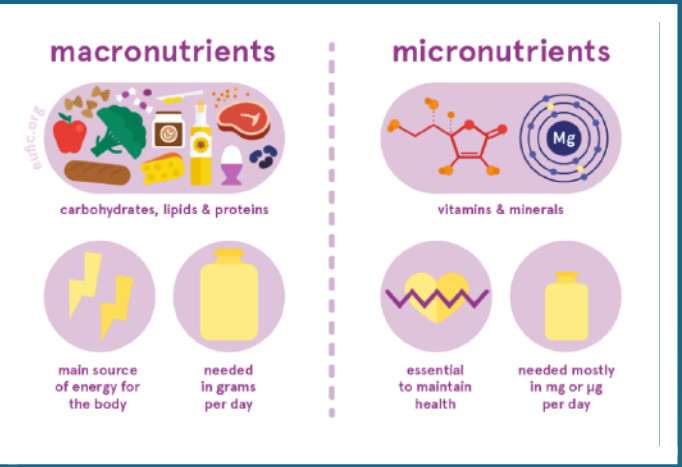
Source - https://www.myplate.gov/eat-healthy/what-is-myplate

Food that we consume are derived from both plant and animal sources. Food contains the energy and a combination of nutrients or dietary substances that helps the body to grow, maintain and repair itself constantly. Colour, flavour, texture are all different aspects that make food interesting and different from one another.

Nutrients coming from food can be broadly categorized into two distinct groups –

- **Macronutrients**
- **Micronutrients**

Macronutrients are called ‘macro’ because we need them in larger amounts. Our bodies rely on macronutrients as the main source of energy. Micronutrients as the name suggests are needed in smaller quantities to function properly.



Source - Dive into the world of vitamins and minerals | Eufic

Macronutrients are carbohydrates, proteins, lipids (fats). These macronutrients form the main ingredients of the diet. Water is also an important macronutrient but is often not considered as it does not provide energy or other essential components.

Carbohydrates – are a vital part of our diet and contribute along with other macronutrients and micronutrients to our overall health and well-being. Carbohydrates are mainly divided into sugars, starches, and dietary fibers. They provide us with energy (4kcals per gram) to carry out all our bodily functions while also supporting our digestion ensuring we have a healthy gut health and regular bowel movements.

Sugars like glucose are needed for daily functioning as it is a direct source of energy for the muscles and brains. Overconsumption leads to overweight and obesity. Starches are complex carbohydrates found in pasta, potatoes, and rice. Dietary fibers are the carbohydrates that are found in plants that cannot be fully digested in the gut and are found in vegetables, fruits, and whole grains.

Proteins – are a very essential macronutrient. Proteins are made up of building blocks referred to as amino acids. They are needed for the functioning and structure of living cells. They are responsible for enzymatic and hormonal activities as well as regular functions like growth and repair. Protein dense foods are also an important source of energy (4kcals per gram). They are also needed by the body to build the body’s proteins as not all the amino acids can be made by the body and some need to be provided from the food we eat. The amount and quantity in food vary widely.

Both plant based (red kidney beans, peanuts, chickpeas) and animal (salmon, chicken breast) foods are rich sources of protein.

Fats – are also needed for good health and proper functioning of the body. Apart from being an important source of energy (9kcals per gram), fats are needed to enhance the absorption of fat-soluble vitamins, and to build our cell membranes. It is important to understand that a balanced intake of fats is important – too little or too much of fat or the wrong type of fat may negatively impact our health.

Fats are triglycerides made up of glycerol and fatty acids – the building blocks. Depending on their structure, fats are classified as saturated or unsaturated (monounsaturated, polyunsaturated or trans

fats). Foods containing a high amount of saturated fats are solid at room temperature and are generally of animal origin. Also, some vegetable oils such as palm or coconut oil are high in saturated fats as well. Foods containing a high proportion of unsaturated fats, like vegetable oils (omega 6 polyunsaturated fats) or fish oils (omega 3 polyunsaturated fats) are usually liquid at room temperature.

Water – Getting enough water every day is important for your health. Water helps the body in keeping a normal temperature, whilst also getting rid of waste in the body through urination, perspiration, and bowel movements.

Micronutrients virtually provide no energy but are extremely essential cofactors for bodily functions. Though the micronutrients are required in very small amounts in the diet, they are very key dietary components. These are primarily Vitamins and Minerals.

Vitamins – are organic compounds produced by plants, bacteria and animals which are crucial to human health. There are 14 necessary vitamins, and our bodies can produce three of them – namely Vitamin D, Vitamin B3 or Niacin and Choline, but not in sufficient amounts. Hence, it is important to get all vitamins via the diet. Vitamins are classified as water- or fat-soluble vitamins based on their ability to dissolve in either water or fat. This plays an important role in how they are absorbed, transported, and stored within the body.

Minerals – Amongst the many minerals found in nature our bodies need only 14 minerals to survive. We get them in our foods by consuming plants and animal-based foods when they absorb them from the environment or via the food chain. Minerals can be divided into macro minerals or as trace minerals based on the amounts required.

Each one of the micronutrients has a specific task in the body. Some examples below –

- Vitamin A – plays a very key role in developing and supporting our vision.
- Folate – is a key vitamin during times of rapid growth and development in the body – pregnancy & infancy.
- Iron – used in our bodies to make hemoglobin (a protein which helps red blood cells to carry oxygen from the lungs to the rest of our body)
- Calcium along with phosphorus helps to keep our teeth and bones strong.

The requirement of the above nutrients varies with the different ages and stages of life. A balance between both macro and micronutrients is the key to optimum health. An insufficient or excess intake of either of these can lead to an imbalance and eventual health related problems. In summary most nutritional issues are related to either an excess of macronutrient consumption or an insufficient micronutrient consumption.

A balanced diet is not only about eating the right combination of foods like mentioned above, but also about eating them in the right amounts. Portion control is key to healthy eating. Larger portions lead to overconsumption and therefore are overweight.

The fundamental principle of healthy eating is variety of foods – the need to consume a broad range of foods on a regular basis in the right amounts.

Source –

The European Food Information Council : Food facts for healthy choices | Eufic

https://www.myplate.gov/eat-healthy/what-is-myplate

World Food Program: https://www.wfp.org/

UN Food Systems Hub https://www.unfoodsystemshub.org/