



## What are the benefits of healthy eating and the importance of hydration?

### What is a Nutrient?

A nutrient is a chemical substance that comes from the food you eat. The energy you need for the metabolic processes in your body and for maintaining a constant internal environment comes from these nutrients. So if you think about all the basic reactions going on in your body to keep you breathing, your heart beating, your brain working and allowing you to move about, they all derive their energy from nutrients.

### The role of the Macro Nutrient

Macronutrients include carbohydrates, fats, and proteins. They are called macronutrients as they are required in large amounts to fuel the body. Energy is measured in calories and they are essential for the body to grow, repair and develop new tissues, conduct nerve impulses and regulate life process.

**Carbohydrates** – are required for energy. Glucose, which is a monosaccharide, is the most essential source of energy in the body. The brain works entirely on glucose alone. When an immediate source of energy is required, glucose is converted into glycogen which is stored in the liver. When energy is needed it is converted into glucose again and used to release energy. Carbohydrates provide 17 kilojoules of energy per gram. **Carbohydrate** in the body has the following functions:

- providing energy for working muscles
- providing fuel for the central nervous system
- enabling fat metabolism
- preventing protein from being used as energy.

**Fats** – have the highest calorific content. This means they provide the largest amount of energy when burnt. When measured by a calorimeter, fats provide about 37 kilojoules per gram, making them twice as energy-rich than protein and carbohydrates. Fats can be saturated, polyunsaturated, or monounsaturated. Fats are essential for good health. They aid in energy production, cell building, oxygen transport, blood clotting, and the production of extremely active hormone-like substances called prostaglandins. Our bodies can produce both monounsaturated and saturated fats. Polyunsaturated fats, or essential fatty acids,

cannot be produced in the body and must come from the diet. **Fat** in the body has the following functions:

- Fat is mostly stored in the body's adipose (fat) cells but is also found in blood plasma and other body cells.
- Fat insulates your body, cushions vital organs, and can be converted into energy.
- Fat is used to build new cells and is critical for normal brain development and nerve function.
- Fat is also needed to carry and help absorb fat-soluble vitamins, such as vitamins A, D, E, and K, and carotenoids.

**Proteins**— are the third and last source of energy. They are the last to be used of all macronutrients. In cases of extreme starvation, the muscles in the body, that are made up of proteins, are used to provide energy. This is called muscle wasting. Proteins also provide 17 kilojoules per gram. Proteins are large, complex molecules that play many critical roles in the body. They do most of the work in cells and are required for the structure, function, and regulation of the body's tissues and organs. They do most of the work in cells and are required for the structure, **function**, and regulation of the body's tissues and organs.

**Proteins** are made up of hundreds or thousands of smaller units called amino acids, which are attached to one another in long chains. Protein in the body has the following functions:

- Growth (especially important for children, teens, and pregnant women)
- Tissue repair
- Immune function
- Making essential hormones and enzymes
- Energy when carbohydrate is not available
- Preserving lean muscle mass

### **The role of the Micro Nutrient**

Micronutrients play crucial roles in human nutrition, including the prevention and treatment of various diseases and conditions, as well as the optimization of physical and mental functioning.

**Vitamins** and **minerals** are the two types of micronutrients. While only needed in small amounts, they play important roles in human development and well-being, including the regulation of metabolism, heartbeat, cellular pH, and bone density. Lack of micronutrients can lead to stunted growth in children and increased risk for various diseases in adulthood. Without proper consumption of micronutrients, humans can suffer from diseases such as rickets (lack of vitamin D), scurvy (lack of vitamin C), and osteoporosis (lack of calcium).

Vitamins are available in two forms: water-soluble and fat-soluble. **Water-soluble vitamins** are easily lost through bodily fluids and must be replaced each day. Water-soluble vitamins include the B-complex vitamins and vitamin C. Vitamins B6 and B12 are two of the most well-known B-complex vitamins. Since they are not lost as easily as their water-soluble

counterparts, **fat-soluble vitamins** tend to accumulate within the body and are not needed on a daily basis. The fat-soluble vitamins are A, D, E and K.

Minerals are also available in two forms: macrominerals and microminerals.

**Macrominerals** are needed in larger amounts and include the following:

- Calcium
- Magnesium
- Phosphorus
- Sodium
- Potassium

**Microminerals** are only needed in trace amounts and include the following:

- Iron
- Copper
- Iodine
- Zinc
- Fluoride

Foods containing many micronutrients are considered **nutrient dense**. This ratio compares the amount of calories the food provides to the amount of nutrients it contains. Low calorie foods with many micronutrients, such as fruits and vegetables, have higher nutrient densities.

### **Common Dietary sources**

- Simple Carbohydrates - Sugar, sweets, chocolate, fruit
- Complex Carbohydrates – beans, bread, pasta, potatoes, rice
- Fats – Processed foods, cakes, biscuits, pies, pastries, oil, butter, dairy products
- Protein – Meat, fish, eggs, dairy products, grains, beans, lentils, pulses
- Vitamin A – Sweet potatoes, carrots, dark leafy vegetables, fish, liver
- Vitamin B6 – Pork, poultry, fish, bread, whole cereals, soya beans, Vitamin B12 - beef, fish, cheese, and eggs
- Vitamin C - oranges, peppers, broccoli, and bananas
- Vitamin D – fatty fish i.e tuna or salmon, cheese, egg yolks
- Vitamin E – sunflower seeds, paprika, almonds
- Vitamin K – green leafy vegetables
- Magnesium – dark leafy green vegetables, nuts, sees avacado
- Phosphorus – seeds, cheese, fish, nuts
- Sodium – processed foods, salt,
- Iron – red meat, green leafy vegetables, dried fruit, beans
- Copper – Liver, sesame seeds, dark chocolate
- Iodine – seaweed, cranberries, strawberries
- Fluoride – toothpaste containing fluoride
- Calcium - milk, yogurt, spinach, and sardines

- Zinc - beef, cashews, garbanzo beans, and turkey
- Potassium - bananas, spinach, potatoes, and apricots

### **Current healthy eating guidelines**

Eat the right amount of calories for how active you are, so that you balance the energy you consume with the energy you use. If you eat or drink too much, you'll put on weight. If you eat and drink too little, you'll lose weight. It is recommended that men have around 2,500 calories a day (10,500 kilojoules). Women should have around 2,000 calories a day (8,400 kilojoules). Eat a wide range of foods to ensure that you're getting a balanced diet and that your body is receiving all the nutrients it needs.

Base your meals on starchy foods. Starchy foods should make up around one third of the foods you eat. Most of us should eat more starchy foods: try to include at least one starchy food with each main meal. Some people think starchy foods are fattening, but gram for gram the carbohydrate they contain provides fewer than half the calories of fat.

It's recommended that we eat at least five portions of different types of fruit and veg a day.

Eat more fish, Fish is a good source of protein and contains many vitamins and minerals. Aim to eat at least two portions of fish a week, including at least one portion of oily fish. Oily fish contains omega-3 fats, which may help to prevent heart disease. You can choose from fresh, frozen and canned: but remember that canned and smoked fish can be high in salt.

Cut down on saturated fat and sugar, we all need some fat in our diet. But it's important to pay attention to the amount and type of fat we're eating. There are two main types of fat: saturated and unsaturated. Too much saturated fat can increase the amount of cholesterol in the blood, which increases your risk of developing heart disease.

Most people in the UK eat and drink too much sugar. Sugary foods and drinks, including alcoholic drinks, are often high in energy (measured in kilojoules or calories), and if eaten too often, can contribute to weight gain. They can also cause tooth decay, especially if eaten between meals.

Cut down on sugary fizzy drinks, alcoholic drinks, sugary breakfast cereals, cakes, biscuits and pastries, which contain added sugars: this is the kind of sugar we should be cutting down on, rather than sugars that are found in things such as fruit and milk.

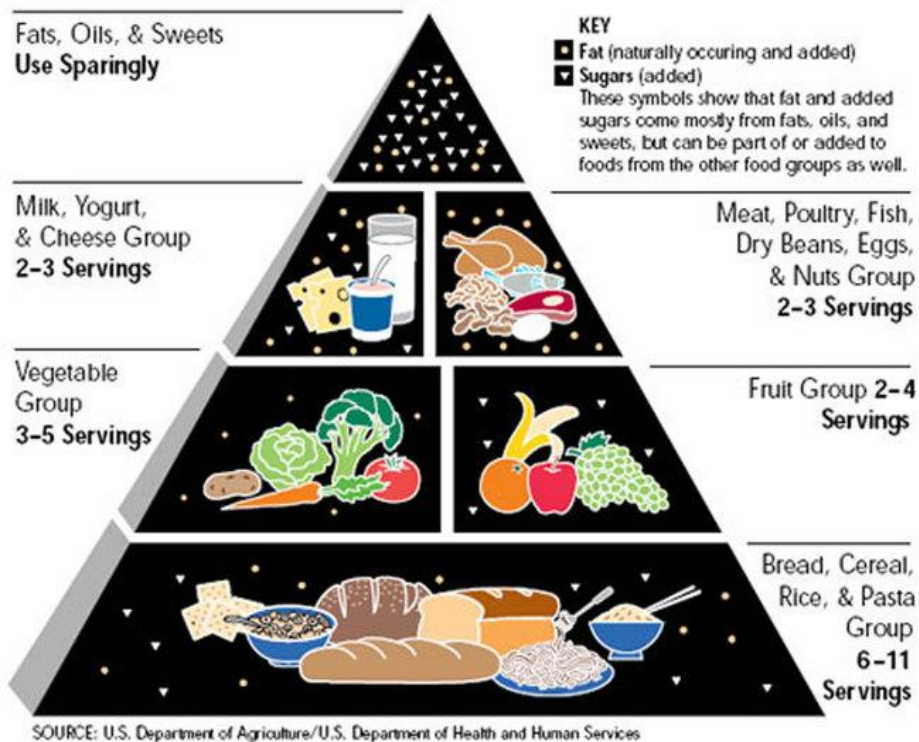
Eat less salt, Even if you don't add salt to your food, you may still be eating too much. About three-quarters of the salt we eat is already in the food we buy, such as breakfast cereals, soups, breads and sauces. Eating too much salt can raise your blood pressure. People with high blood pressure are more likely to develop heart disease or have a stroke.

Alcohol is also high in calories, so cutting down can help you to control your weight. The government guidelines on alcohol are:

- Men should not regularly exceed 3-4 units per day
- Women should not regularly exceed 2-3 units per day
- Have 3 alcohol free days a week

We need to drink about 1.6 to 2 litres of fluid every day to stop us getting dehydrated. This is in addition to the fluid we get from the food we eat. All non-alcoholic drinks count, but water and lower-fat milk are healthier choices. Try to avoid sugary soft and fizzy drinks that are high in added sugars and calories, and are also bad for teeth. Even unsweetened fruit juice is sugary, so try to limit how much you drink to no more than one glass (about 150ml) of fruit juice each day.

### Diagram of a food pyramid



### The importance of healthy eating

Good nutrition is an important part of leading a healthy lifestyle. Combined with physical activity, your diet can help you to reach and maintain a healthy weight, reduce your risk of chronic diseases (like heart disease and cancer), and promote your overall health.

Unhealthy eating habits have contributed to the obesity epidemic in the United Kingdom. Even for people at a healthy weight, a poor diet is associated with major health risks that can cause illness and even death. These include heart disease, hypertension (high blood

pressure), type 2 diabetes, osteoporosis, and certain types of cancer. By making smart food choices, you can help protect yourself from these health problems.

The nutrients in the foods you eat support the activities of day-to-day living, protect your cells from environmental damage and repair any cellular damage that might occur. Protein rebuilds injured tissue and promotes a healthy immune system. Both carbohydrates and fats fuel your body, while vitamins and minerals function throughout your body in support of your body's processes. Vitamins A, C and E, for example, act as antioxidants to protect your cells against toxins, and B vitamins help you extract energy from the foods you eat. Calcium and phosphorus keep your bones strong, while sodium and potassium help to transmit nerve signals. Without a healthy diet, you might compromise any of these essential functions.

### **The role of water in the diet**

Water is essential for life, and maintaining hydration is important for physical and mental performance. The human body is largely made of water. Body water content declines with age, from about 75% in babies to 60% in adults. Although we can live for up to 50 days without food, without water we will survive only a few days, even in a cool climate.

The human brain is composed of 95% water; blood is 82% water; the lungs are nearly 90% water. Water forms 95% of plasma and bathes the tissues. Water is also the single most critical nutrient for health, growth, and development. It is not only the most important nutrient in the body, but also the most abundant. Water is critical to the balance of all the body's systems, including the brain, heart, lungs, kidneys and muscles. A 2% drop in body water can cause a small but critical shrinkage of the brain, which can impair neuromuscular coordination, decrease concentration, and slow thinking. Dehydration can also reduce endurance, decrease strength, cause cramping, and slow muscular response. Water leaves our bodies through skin and in breath all the time, amounting to about 700ml each day. We lose another 100ml through faeces, about 1.5 litres as urine and 200ml in normal perspiration. So, even living and breathing in a temperate climate requires about 2.5 litres a day. Exercise and rises in temperature increases perspiration, loss of water and hence fluid requirements. During sickness and diarrhoea, losses of water will also increase considerably.

We should drink enough to balance water losses. The metabolic processes in our bodies produce about 250ml, and we get another 750ml from our food. This leaves 1.5 litres to be supplied from drinks. All water-containing drinks can contribute to the total required for hydration including fruit juice, soft drinks, tea, coffee as well as pure water itself. It has been shown that drink palatability is important when fluid requirement is high. Studies have also shown that caffeine in amounts typical of a cup of coffee or tea or a cola drink do not have a dehydrating effect, so experts now agree that normal caffeine containing drinks can contribute to total water requirements.

## Health Benefits

- Healthier Skin - Ensuring that you are properly hydrated will prove to be a far better solution to preventing or decreasing wrinkles than the many expensive and in most cases barely effective products being marketing to the public.
- Healthier Teeth and Bones - Water makes teeth and bone stronger. The additional fluoride added to the water supply provides extra strength and bone density to teeth and bones.
- Healthier Joints - Water is extremely important to the joints. Synovial fluid contains water; if you become dehydrated, less synovial fluid is available to protect the joints.
- Healthier Mind and Body - Water is essential for nutrient absorption and many chemical reactions in the body for overall health, including proper brain function and improvements in memory.
- Healthier Digestive System - Water helps improve the digestive process and is imperative in maintaining a healthy urinary tract and digestive system.
- Water is important to properly metabolize food. Drinking sufficient amounts of water will help reduce constipation and it will help the body process and transport nutrients and excrete any waste products once they are metabolized.

## The effects of dehydration on the body

Dehydration can cause headaches, tiredness and loss of concentration. It is a problem particularly associated with aging, as older adults are less sensitive to mild dehydration. They drink less and take longer to re-hydrate. A deterioration of mental performance can also occur in mildly dehydrated younger adults. Children lose more water in perspiration in trying to keep cool so it is important to make sure they drink enough in hot weather.