

# Food and nutrition: Key terms and definitions

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## #

- **The 4Cs:** Cleaning, cooking, chilling, and cross-contamination.

## A

- **Absorption:** The movement of the end products of digestion through the intestinal wall and into the bloodstream.
- **Acid:** Any substance that increases the concentration of hydrogen ( $H^+$ ) ions when added to a water solution (pH 1-6).
- **Acidulation:** Making something more acidic.
- **Active absorption:** A carrier transports nutrients through the wall of the small intestine, into the blood supply.
- **Additives (food):** Substances added to food and drink to perform specific functions, e.g., add colour, sweeten, or preserve.
- **Advertising:** Advertising is a form of communication for marketing and used to encourage, persuade, or manipulate an audience to continue or take some new action.
- **Aerate:** Incorporate air into a mixture.
- **Aflatoxins:** Toxic substances produced by the growth of certain moulds on foods, e.g., on peanuts.
- **Agar:** A polysaccharide, extracted from seaweed, capable of forming a gel. Can be used to thicken and set food products as an alternative to [gelatine](#).
- **Alcohol:** Ethyl alcohol (ethanol –  $C_2H_5OH$ ) which is formed by the fermentation of sugars by yeasts. Found in wines, spirits, and beers.
- **Alcoholism:** A serious form of high-risk drinking, with a strong and often uncontrollable desire to drink. It involves drinking at a level that causes harm to health. Also known as alcohol dependence or alcohol addiction.
- **Alkali:** Any substance that decreases the concentration of hydrogen ( $H^+$ ) ions when added to a water solution (pH 7-14).
- **Allergen:** A substance that is normally harmless (e.g., an ingredient in a food) but can cause an adverse (allergic) reaction in a susceptible person.
- **Allergen labelling:** Under UK food regulations, allergens must be clearly shown in bold, highlighted, underlined or in italics.
- **Ambient foods:** Foods that are stored and sold at room temperature, e.g., canned soup or packet rice.
- **Amino acids:** The units from which proteins are constructed. There are nine 'essential' or 'indispensable' amino acids, which can only be obtained through the diet.
- **Amylase:** An enzyme in saliva and pancreatic juice that digests starch.
- **Anaemia:** A condition in which the number of red blood cells or the haemoglobin concentration within them is lower than normal, e.g., [iron deficiency anaemia](#).
- **Anorexia nervosa:** A mental illness characterised by an abnormally low body weight, an intense fear of gaining weight and a distorted perception of weight.
- **Antioxidant:** A compound that inhibits oxidation to prevent undesirable or potentially harmful effects, e.g., [vitamin E](#) is used to stop rancidity in fats and oils. [Vitamins C, E](#) and [carotenenes](#) are examples of antioxidants which may help to protect cells and molecules from oxidative damage.
- **Anthocyanin:** A group of pigments that produce blue to red colouring in flowers and plants.
- **AOAC fibre:** The currently accepted method for determining dietary [fibre](#) in the UK, the European Union, and the United States. AOAC amounts include lignin and resistant starches as well as [NSP](#).
- **Appetite:** The desire for food.
- **Aqueous solution:** A solution made by dissolving a substance in water.
- **Arable land:** Land able to be ploughed and used to grow crops.

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- **Ascorbic acid (vitamin C):** A water-soluble vitamin required for collagen formation. It helps to protect cells from damage, aids the immune system and the nervous system to function normally and increases iron absorption. Found in fruits, especially citrus fruits and berries, green vegetables, peppers, and tomatoes.
- **Atherosclerosis:** A potentially serious condition where arteries become clogged with fatty substances.
- **Attribute:** A characteristic, quality, or property.
- **Aversion:** A physiological or emotional response indicating an extreme dislike for a food.

## B

- **B vitamins:** Water-soluble vitamins including [thiamin](#) (vitamin B<sub>1</sub>), [riboflavin](#) (vitamin B<sub>2</sub>), [niacin](#) (vitamin B<sub>3</sub>), pantothenic acid (vitamin B<sub>5</sub>), vitamin B<sub>6</sub>, biotin (vitamin B<sub>7</sub>), [folate](#) (vitamin B<sub>9</sub>) and [vitamin B<sub>12</sub>](#).
- **Back-of-pack nutrition labelling:** Legally required in the UK and provides nutrition information that can help consumers make healthier choices.
- **Bacteria:** A group of micro-organisms which are too small to see with the naked eye. Bacteria usually multiply by splitting into two (see [binary fission](#)), each bacterium being capable of independent existence.
- **Baking powder:** A mixture of baking soda and an acid. Used as a raising agent. Produces [carbon dioxide](#) gas when combined with water or another liquid.
- **Baking soda (bicarbonate of soda):** A raising agent commonly used in baking. Produces [carbon dioxide](#) gas when combined with an acid, e.g., vinegar, lemon juice, buttermilk, yogurt, or cream of tartar.
- **Balanced diet:** A diet that provides adequate amounts of all the nutrients in appropriate proportions.
- **Basal metabolic rate (BMR):** The amount of energy used over a period of time, when the body is at complete rest and in a fasting state.
- **Base:** Any substance that increases the concentration of hydroxide (OH<sup>-</sup>) ions when added to a water solution.
- **Beating:** Mixing of ingredients using a wooden spoon, electric whisk, food mixer or food processor to thoroughly combine the ingredients.
- **Benedict's solution:** A blue solution containing a carbonate, citrate, and sulfate. Used to test for reducing sugars.
- **Biuret solution:** A solution made up of sodium hydroxide and copper sulfate. Used to test for protein.
- **Beriberi:** A disease caused by deficiency of [thiamin](#) (Vitamin B<sub>1</sub>). There are two major types of beriberi: wet beriberi, which affects the heart and dry beriberi, which affects the nervous system.
- **'Best-before':** The best-before date is about quality and not safety. The food can be safe to eat after this date if stored according to instructions but may not be at its best.
- **Bile:** Secretion of the liver which emulsifies fats.
- **Binary fission:** The process by which [bacteria](#) reproduce. Each bacterial cell splits itself in two, so that one bacterial cell becomes two bacterial cells. Each of these two bacteria then split to make four bacteria, and so on.
- **Binge drinking:** Drinking a large amount of alcohol in a short period of time. The technical definition of binge drinking is drinking 6+ [units](#) (women) or 8+ units (men) in a single session.
- **Binge eating:** Eating a large amount of food in a short amount of time with a feeling of being unable to control what or how much is eaten.
- **Biological Value:** A term used to describe the quality of a protein. Foods that are low in one or more indispensable [amino acids](#) are said to be of low biological value. If a food has all the indispensable amino acids, it is said to have a high biological value.
- **Biotechnology:** The use of biological processes for industrial purposes.
- **Biuret test:** A test for the presence of protein using potassium hydroxide and copper sulphate.
- **Blanching:** The process of treating food with hot water or steam to reduce [enzyme](#) activity.
- **Body mass index (BMI):** A value determined by the mass (weight) and height of a person. Used as a measure of healthy or unhealthy weight.

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- **Bolus:** A rounded mass of [masticated](#) food, formed in preparation for swallowing.
- **Bulimia nervosa:** A mental illness characterised by a fear of gaining weight and a recurring pattern of binge eating followed by self-induced vomiting.

## C

- **Caffeine:** A stimulant compound found naturally in coffee, tea, and cocoa (chocolate) and added to some soft drinks, (e.g., energy drinks), and medicines.
- **Calcium:** A mineral element that is essential in the diet for building bones and teeth and for many processes in cells.
- **Calories:** A unit of energy in food. Can be measured in [kilocalories](#) (kcal) or [kilojoules](#) (kJ).
- **Cancer:** A condition where cells in the body grow and reproduce uncontrollably. The cancerous cells can invade and destroy surrounding healthy tissue.
- **Caramelisation:** The chemical change of heated [sucrose](#) (table sugar) to caramel, which produces flavour and browning. Caramelisation is a type of [non-enzymic browning](#) reaction.
- **Carbohydrate:** A component of food which includes sugars, fibres, and starches.
- **Carbohydrate loading:** Eating a diet that provides a high proportion of energy from carbohydrate (up to 70% of energy). Common in athletes who are preparing for endurance events.
- **Carbon dioxide:** A colourless gas composed of one carbon and two oxygen atoms.
- **Carcinogen:** A substance that can start the development of cancer.
- **Cardiovascular disease (CVD):** A term for medical conditions affecting the heart and blood vessels, and includes heart disease, heart attacks and strokes
- **Cariogenic:** Capable of causing tooth decay.
- **Carotenes:** Found in yellow, red, and green leafy vegetables such as spinach, carrots and sweet potatoes and fruit such as mango and papaya. Some carotenes are converted to vitamin A by the body. The most common carotene is beta-carotene.
- **Casein:** A protein commonly found in milk.
- **Catalyse:** Cause, or speed up, a reaction.
- **Cell:** The basic unit of life.
- **Cellulose:** The [polysaccharide](#) which forms the structure of plant cells.
- **Cheddaring:** A secondary process in cheese making.
- **Chemical reaction:** A reaction that is irreversible (this means that you can't change it back).
- **Chitting:** Seed potatoes (tubers) are left to sprout in a warm place to help them grow faster and produce a bigger crop.
- **Cholesterol:** A fatty substance that circulates in the blood. Cholesterol is an essential part of cells, but too much cholesterol in the blood can increase the risk of heart disease.
- **Chyme:** Semi-liquid, partially digested food which moves from the stomach to the small intestine.
- **Cirrhosis:** A type of chronic, progressive liver disease in which liver cells are replaced by scar tissue.
- **Coagulation:** The irreversible [denaturation](#) of protein molecules, e.g., when liquid egg turns to solid during cooking.
- **Coating:** Ingredients used to enrobe, or cover one side of, a food product.
- **Coeliac disease:** A condition where your immune system attacks your own tissues when you eat the protein gluten, found in wheat, which results in damage to the lining of the small intestine.
- **Collagen:** A protein matrix found in bone, cartilage, and connective tissue.
- **Cold chain:** A system which ensures food products are manufactured and delivered at safe temperatures.

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- **Colloid:** A system which has one substance dispersed through another, but which does not combine to form a solution, e.g., milk, jam, or mayonnaise.
- **Colon:** The longest part of the large intestine (a tube-like organ connected to the small intestine at one end and the anus at the other).
- **Complementary feeding:** The introduction of other foods and liquids when breast milk or infant formula alone is no longer sufficient to meet the nutritional needs of infants.
- **Composite/combination food:** Food made with ingredients from more than one food group such as sandwiches, casseroles, spaghetti Bolognese and pizza.
- **Compress:** Squashing into a smaller volume.
- **Conduction:** The exchange of heat by direct contact with a food on a surface, e.g., stir frying or plate freezing.
- **Constipation:** Infrequent, difficult and/or painful elimination of faeces from the body.
- **Consumer:** Everyone who buys products or services.
- **Control group:** A control group (e.g., of cells, individuals, or centres) serves as a basis of comparison in a study. In the control group, the treatment or intervention being tested is not received.
- **Control sample:** The sample in an investigation to which no test is applied. It is used for comparison with the test samples.
- **Convection:** The exchange of heat by gas or liquid, e.g., boiling potatoes or blast chilling.
- **Conventional farming:** A system that may include the use of artificial and natural pesticides (to control pests, weeds and diseases), artificial fertilisers and organic manures; other techniques used may include concentrated animal feeding/rearing operations, includes both intensive and extensive approaches.
- **Cook-chill:** A system which produces cooked food which is chilled and held at a low temperature until it is reheated before consumption.
- **Coronary heart disease (CHD):** A term covering angina, heart attack and sudden death caused by the blockage of the arteries supplying blood to the heart.
- **Cortisol:** The body's primary stress hormone.
- **Creaming:** Beating sugar and softened butter together to form a lighter-coloured mixture that is aerated.
- **Critical Control Point:** A point during the process of production which must be controlled to ensure that the food produced is safe.
- **Crop rotation:** Growing different crops in a field to replenish nutrients and improve the soil.
- **Cross-contamination:** The transfer of [bacteria](#) from one source to another. Usually raw food to ready-to-eat food but can also be the transfer of bacteria from unclean hands, equipment, cloths, or pests. Can also relate to [allergens](#).
- **Cultivation:** The preparation, use and raising of plants to produce food.
- **Curds:** A solid product formed during cheesemaking, through [coagulation](#).
- **Curing:** A preservation process that removes moisture from meat.

## D

- **Dairy alternatives:** Plant-based products used in place of milk, yogurt, cheese, or other dairy products.
- **Danger zone:** Temperatures between 5-63°C where bacteria will most readily multiply.
- **Datalogging:** The monitoring of environmental factors, such as [pH](#) and temperature, using probes connected to a computer.
- **Deficiency diseases:** Adverse conditions caused by a lack of an essential nutrient, e.g., [anaemia caused by iron deficiency](#).
- **Dehydration (body):** A state in which the body has lost more fluids than it has taken in.

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- **Dehydration (food):** The process of reducing the amount of available water in food.
- **Demineralisation:** The loss of minerals, e.g., in dentistry, this refers to the loss of minerals from the tooth enamel. See [dental caries](#).
- **Denaturation:** A change in the structure of protein molecules, resulting in their unfolding, e.g., whisking egg white to make meringues.
- **Density:** The amount of mass of an object, divided by its volume.
- **Dental caries:** Tooth decay. It is the progressive destruction of teeth by acid produced by bacteria, which live in dental plaque and on the surface of the teeth.
- **Dental erosion:** The progressive loss of [enamel](#) and dentine from the tooth due to, e.g., frequent consumption of acidic foods and drinks, especially between meals.
- **Dental hygiene:** Correct and regular brushing of teeth with [fluoride](#) toothpaste, and use of dental floss to remove dental plaque.
- **Dental plaque:** A sticky substance which coats the tooth surface and contains acid-producing bacteria.
- **Dentine:** The major component of teeth, which is supplied with blood vessels and nerves.
- **Deoxyribonucleic Acid (DNA):** DNA contains the information which determines the structure of proteins. This information is in the form of the genetic code.
- **Destoning:** The process used to remove stones from the soil, so crops (e.g., potatoes) have more room to grow.
- **Dextrinisation:** The reaction of dry heat on the surface of food which changes starch to dextrin, e.g., toast.
- **Diabetes Mellitus:** A metabolic disorder due to the relative or total lack of the hormone insulin and/or response to insulin, which results in a lack of control over levels of glucose in the blood stream.
- **Diabetes (Type 1):** A medical condition caused by the pancreas producing little or no insulin. Usually presents in childhood. Mostly unrelated to being overweight.
- **Diabetes (Type 2):** A medical condition caused by cells not responding properly to insulin. Usually presents in adulthood. Related to being overweight.
- **Diarrhoea:** When [faeces](#) are produced frequently and in a liquid form.
- **Dietary Reference Values (DRVs):** Estimates of the amount of energy and nutrients needed by different groups of healthy people in the population. In the UK these cover Estimated Average Requirement ([EAR](#)), [LRNI](#) (Lower Reference Nutrient Intake), [RNI](#) (Reference Nutrient Intake) and [Safe intake](#).
- **Dietitian:** A qualified and regulated health professional that assesses, diagnoses, and treats dietary and nutritional problems at an individual and wider public health level.
- **Diffusion:** Particles spread out from a high to a low concentration.
- **Digestion:** The process by which food is broken down in the digestive tract to release nutrients for absorption.
- **Dipeptide:** Two [amino acids](#) joined together.
- **Disaccharide:** A sugar made up of two [monosaccharides](#), e.g., [sucrose](#), [lactose](#), or [maltose](#).
- **Discrimination tests:** Sensory evaluation tests that aim to determine whether a difference between samples is noticeable, e.g., triangle tests.
- **Diuretic:** A substance that causes an increased production of urine.
- **Diverticular disease (diverticulitis):** A condition in which the lining of the colon forms small bulges or pockets (diverticula). If these become inflamed (diverticulitis), it can cause pain and diarrhoea or constipation.
- **Dough:** Mixture of flour and liquid with other ingredients, such as raising agents, shortening, sugar, salt, eggs, and flavourings, used to make baked products.
- **Duodenum:** The first part of the small intestine, leading from the stomach to the [jejunum](#).

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## E

- **E number:** Numbers that denote additives that have passed safety tests and are approved for use (regulated by the EU, regulation retained by UK).
- **Eating habits:** Regular choice of foods that makes up an individual's long-term diet.
- **Eatwell Guide:** The UK's healthy eating model, showing the types and proportions of foods that should be eaten to achieve a healthy, balanced diet.
- ***E. coli* O157 (*Escherichia coli* O157):** A strain of *E. coli* that causes severe illness in humans. Symptoms range from mild gastroenteritis to severe and bloody diarrhoea. Can be contracted from contaminated food or other people (usually because of poor hand hygiene).
- **Elasticity:** The ability of dough to return to its original shape after stretching.
- **Emulsification:** The process by which fat and water mix, forming a suspension of tiny droplets, e.g., by adding [lecithin](#) or mustard to oil and vinegar to make mayonnaise.
- **Emulsifier/emulgent:** A substance which helps mixtures of oils and water to coalesce/mix.
- **Emulsion:** A [colloid](#) which has a fine mixture of two liquids such as oil and water which would not normally mix, e.g., mayonnaise.
- **Enamel:** A hard substance composed of calcium and phosphate that forms the outer surface of the tooth.
- **Energy (dietary):** Derived from chemical combustion of food and required to stay alive and function.
- **Energy balance:** The relationship between energy consumed (in food) and energy used (e.g., through exercise). Any sustained imbalance between energy intake and energy used will lead to gain or loss in weight.
- **Energy expenditure:** The amount of energy used for all the metabolic activity of cells and tissues and the physiological functions essential for life, physical activity, and growth.
- **Energy intake:** The energy provided to the body by food and drink.
- **Energy requirements:** The energy needed to keep the body functioning, for physical activity and for other additional needs such as growth, pregnancy, and lactation.
- **Enrobing:** The process of covering or coating a food product, e.g., fish fingers enrobed in breadcrumbs.
- **Environmental factors:** The surroundings which may affect people's health, e.g., living conditions.
- **Enzymes:** Proteins that regulate chemical reactions, e.g., [rennin](#) in cheese production.
- **Enzymic browning:** An oxidation reaction that causes browning in foods (normally fruits and vegetables).
- **Essential/indispensable amino acids:** [Amino acids](#) which cannot be synthesised in the body and so must be supplied in the diet, e.g., lysine and methionine. There are 9 essential amino acids.
- **Essential fatty acids:** Fatty acids which cannot be synthesised in the body and so must be supplied in the diet, i.e., linoleic (an omega-6 fatty acid) and alpha linolenic acid (an omega-3 fatty acid).
- **Estimated Average Requirement (EAR):** The [DRV](#) that is used for energy. It is an average value for a particular population group.
- **Ethanol:** The alcohol present in drinks such as beers, wines, and spirits.
- **Ethical:** Relating to personal beliefs about what is morally right and wrong.
- **Extensive farming:** A system of production using small amounts of labour and capital in relation to area of land being farmed (low input/lower output).
- **Extract:** To obtain a substance by suction, pressure, or distillation from a material.
- **Extrusion:** The process where pre-mixed ingredients are forced through a barrel shaped chamber, squeezed through a die, and cut into uniform lengths, e.g., pasta.

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## F

- **Faeces:** The residue of undigested food, bacteria, and cell remnants, eliminated from the body through the anus.
- **Famine:** Extreme shortage of food.
- **Fat-soluble vitamins:** Vitamins [A](#), [D](#), [E](#) and [K](#). Can be stored in your liver and fatty tissue until needed.
- **Fats:** Fats are composed of fatty acids and glycerol. Fats are an important part of a healthy, balanced diet. They provide essential fatty acids and carry the fat-soluble vitamins [A](#), [D](#), [E](#) and [K](#). The functions of fats in food include [shortening](#) and enhancing mouthfeel.
- **Fatty acids:** Molecules which, along with [glycerol](#), are components of fat.
- **Fermentation:** The process by which alcohol and carbon dioxide are produced from sugars by yeasts, e.g., during breadmaking.
- **Fibre:** Carbohydrates found typically in plant foods that unlike other carbohydrates (sugars and most starches) are resistant to digestion.
- **Filling:** The process by which a measured quantity of product is put into a container, either before or after cooking.
- **Fillings:** An ingredient or food mixture used in the centre of a food product, e.g., jam in a doughnut.
- **Flavour enhancers:** Food additives which bring out the flavour of food, e.g., monosodium glutamate (MSG).
- **Flow:** To move and change shape smoothly.
- **Flow chart:** A diagrammatic way of explaining the steps involved in a process.
- **Fluoridation:** The addition of small amounts of fluoride to drinking water to help prevent [tooth decay](#).
- **Fluoride:** A trace element forming part of the bone and tooth structure, sometimes added to water supplies to help prevent [tooth decay](#). Found in fluoridated water, tea, fish bones and most toothpastes.
- **Foam:** A [colloid](#) which has a gas dispersed in either a liquid, e.g., beaten egg white, or a solid, e.g., cake.
- **Folate:** A water-soluble vitamin required for the formation of red blood cells. A mother's deficiency at conception can lead to [neural tube defects](#) in her baby. Found in liver, green vegetables, nuts, oranges, and wholegrain bread.
- **Folic acid:** The manufactured form of folate (see above). Many countries fortify their flour with folic acid.
- **Folic acid supplements:** Should be taken prior to and during the first 12 weeks of pregnancy to reduce the risk of [neural tube defects](#) in the baby.
- **Food allergy:** An unusual reaction by the body's immune system to the ingestion of a food that in most individuals causes no adverse effects. Allergic reactions to food vary in severity and can be potentially fatal.
- **Food certification and assurance schemes:** Defined standards of food safety, quality, or animal welfare.
- **Food intolerance:** Difficulty digesting certain foods and having an unpleasant reaction to them. Symptoms include stomach pain, diarrhoea, bloating and wind. Unlike food allergy, these reactions do not involve the immune system.
- **Food poisoning:** Illness resulting from eating foods which contain food poisoning micro-organisms or toxins produced by micro-organisms. The main symptoms of food poisoning are diarrhoea and vomiting.
- **Food processing:** Any deliberate change to food that happens before it is available to eat.
- **Food provenance:** Where food is grown, caught or reared, and how it was produced.
- **Food security:** Having access to sufficient quantity of affordable, nutritious food.
- **Food spoilage:** The process of food becoming unfit to eat through oxidation, contamination, or growth of micro-organisms.
- **Food Standards Agency:** An independent government department responsible for protecting public health and consumers' wider interests in relation to food in England, Wales, and Northern Ireland. Food Standards Scotland operates in Scotland.
- **Forming:** The process by which food mixtures or ingredients are pressed into shapes.
- **Formula milk:** See [infant formula](#).

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- **Fortification:** The addition of one or more micronutrients (vitamins and minerals) to food, e.g., dairy alternatives may be fortified with calcium.
- **Free sugars:** Sugars that have been added to foods and drinks or are 'released' from fruits and vegetables when the structure is broken down (e.g., juice, purees, and pastes). Sugars present within whole fruits and vegetables and plain dairy foods are not free sugars.
- **Free-range farming:** A system where animals, for at least part of the day, can roam freely outdoors. This may be done within a conventional or an organic system.
- **Freezing:** The process of using extremely low temperatures for a specific processing reason, e.g., extend shelf-life, change temperature.
- **Front-of-pack nutrition labelling:** Voluntary in the UK but if used it must provide certain information and can use the traffic light labelling system (red, amber, and green colour coding for fat, saturated fat, sugars and salt), energy and percentage [Reference Intakes](#) (RIs).
- **Fructose:** A [monosaccharide](#) sugar. Commonly occurs in fruits and vegetables.

## G

- **Galactose:** A monosaccharide sugar. Galactose occurs in milk, in chemical combination with glucose, to form lactose.
- **Gall bladder:** The organ that acts as a reservoir for the bile produced by the liver.
- **Gallstones:** Solid material that forms in the gallbladder or bile duct. Gallstones are made of cholesterol or other substances found in the gallbladder.
- **Gas flush packaging:** The process of removing air from a packaged food product and replacing it with a controlled mixture of gases to extend shelf-life.
- **Gastric juice:** Acidic fluid secreted in the stomach that contains the enzyme [pepsin](#).
- **Gel:** A [colloid](#) which has a liquid dispersed in a solid, e.g., jelly.
- **Gelatine:** A protein formed from the hydrolysis of collagen. It has the capacity to hold water molecules in a gel matrix. Used to set sweet and savoury jellies.
- **Gelatinisation:** The process of thickening which takes place when a mixture of starch in liquid is heated, e.g., when making a roux sauce.
- **Gene:** A segment of [DNA](#), carrying genetic instructions to make a protein.
- **Genetic modification:** The term used to describe a series of techniques to insert genetic material into an organism to give it new characteristics or to alter existing ones.
- **Genetically Modified (GM):** An organism which has had its DNA structure deliberately modified.
- **Gliadin:** A protein that makes up [gluten](#) (with glutenin). Gliadin is produced when wheat flour (or flour from other grains including rye and barley) is mixed with a liquid, usually water.
- **Glucagon:** A hormone which is released in response to a fall in blood glucose level. It stimulates the liver to release glucose, thus raising the blood glucose level.
- **Glucose:** A [monosaccharide](#) sugar. Glucose is widely distributed in small amounts in fruits, plant juices and honey. Glucose is also formed when our digestive system breaks starch down and is used as an important energy source for our cells.
- **Gluten:** A mixture of two proteins (gliadin and glutenin), that makes dough 'elastic' and gives the final product structure. The more a dough is mixed, the more gluten is developed.
- **Glutenin:** A protein that makes up [gluten](#) (with gliadin). Glutenin is produced when wheat flour (or flour from other grains including rye and barley) is mixed with a liquid, usually water.
- **Glycerol:** A 3 carbon alcohol that binds to three [fatty acids](#), to form dietary fats.
- **Glycogen:** Glycogen is the stored form of glucose. Found largely in liver and skeletal muscle and functions as an energy store in the body.

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- **Glycosuria:** A phenomenon caused by the presence of sugar in urine.
- **Goitre:** A condition with an enlargement of the thyroid gland in the neck. One cause is an insufficient intake of the mineral [iodine](#) from the diet, but this is a very rare cause in the UK.
- **Greenhouse gases:** Gases in the atmosphere that absorb and emit energy (e.g., [carbon dioxide](#)). This prevents energy (heat) escaping into space, creating a 'greenhouse effect' that warms the Earth.
- **Grist:** The blend of wheat used to make flour.

## H

- **HACCP (Hazard Analysis Critical Control Point):** A systematic process used to assess where hazards might occur in the manufacture of a product and set up controls to prevent them.
- **Haem iron:** Found in animal-based sources including meat, fish, and poultry. This form of [iron](#) is more readily absorbed by the body than non-haem iron.
- **Haemoglobin:** A component of red blood cells that contains [iron](#). Its function is to carry oxygen around the body in the blood.
- **Harvesting:** Gathering crops when ready or ripe.
- **HDL:** High-density lipoprotein, sometimes known as 'good cholesterol'.
- **Health:** A state of physical, mental, and social wellbeing.
- **Health claim:** A claim made about a food, nutrient or ingredient that suggests health benefits can be gained from consumption, e.g., 'protein contributes to the growth or maintenance of muscle mass'.
- **Heart attack:** When the flow of oxygen-rich blood supplying the heart muscle suddenly becomes blocked and the heart muscle can't get enough oxygen.
- **Heart disease:** See [coronary heart disease](#).
- **Heat exchange:** The process of passing heat energy to or from products, e.g., grilling or freezing. Sometimes known as heat transfer.
- **Hedonic scale:** A rating scale between 'like' and 'dislike' for a sensory evaluation test.
- **High biological value (HBV):** A measure of the protein quality of a food. A high biological value protein contains all the indispensable [amino acids](#).
- **High risk ingredients (food poisoning):** Food which is ready to eat, e.g., cooked meat and fish, cooked eggs, dairy products, sandwiches, and ready meals.
- **Homeostasis:** The maintenance of a constant internal environment by the body, e.g., the control of blood [glucose](#) levels or body temperature.
- **Hormone:** A substance that circulates in the bloodstream and controls the actions of certain cells or organs.
- **Hydration:** The process of replacing water in the body.
- **Hydrogenation:** The process of adding hydrogen atoms to unsaturated fatty acids in a liquid fat (oil) to increase the concentration of saturated fatty acids. This causes the fat to harden.
- **Hydrophilic:** 'Water loving' – tends to mix and/or form a solution with water, e.g., salt
- **Hydrophobic:** 'Water hating' – tends not to mix and/or form a solution with water, e.g., oil
- **Hydroponics:** The process of growing plants in sand, gravel, or liquid, with added nutrients but without soil.
- **Hyperglycaemia:** High blood sugar. A greater than normal concentration of glucose in the blood, most frequently associated with diabetes. Controlled using diet or medication.
- **Hypoglycaemia:** Low blood sugar. The level of glucose in the blood being too low. Left untreated, hypoglycaemia will eventually result in a person becoming unconscious.
- **Hypertension:** A term for high blood pressure. Hypertension increases the risk of developing some health problems, such as heart attack or stroke.

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- **Hypertonic** solutions that are more concentrated than body fluids.
- **Hypotonic** solutions that are less concentrated than body fluids.

## I

- **Ileum:** The longest part of the small intestine, leading from the [jejunum](#) to the [colon](#).
- **Immune system:** The body's defence system against infection and illness.
- **Incisors:** The four 'cutting' front teeth.
- **Indicator:** A substance added to a test sample which alters (e.g., in colour) to indicate whether a specific reaction has taken place.
- **Infant formula:** Intended for use by infants during the first months of life, formulated to provide the nutritional requirements until the introduction of appropriate [complementary feeding](#). Breastfeeding is recommended, but for those who cannot, or choose not to, breastfeed, bottle feeding with infant formula is the only safe alternative for babies.
- **Ingestion:** The introduction of food into the mouth.
- **Insulin:** A hormone released by the pancreas when the level of glucose in blood increases, usually after a meal. It helps to control the amount of glucose in the blood by moving glucose into cells, where it is used as a source of energy.
- **Intervention study:** A type of study in which participants are assigned to groups that receive one or more interventions/treatments (or no intervention) so that researchers can evaluate the effects of the interventions on outcomes.
- **Intestine:** The alimentary canal between the stomach and the anus.
- **Intensity:** The degree of which a specified sensory attribute is present in a food product.
- **Intensive farming:** A system of production using large amounts of labour and capital relative to land use (high input/high output).
- **Iodine:** A mineral required for the formation of thyroid hormones and helps the brain to function normally. Found in milk and dairy foods, seaweed, fish, and some fortified foods, e.g., iodised salt.
- **Iron:** A mineral element that is essential in the diet to make red blood cells that carry oxygen to the tissues. Iron also helps the immune system to function.
- **Iron deficiency anaemia:** A condition caused by insufficient iron in the body. Common symptoms include tiredness, lethargy, and pale skin.
- **Irradiation:** The process of using safe levels of ionising radiation to inhibit sprouting or delay ripening in fruits and vegetables or to reduce levels of undesirable micro-organisms.
- **Isotonic:** Solutions that are of similar concentration to body fluids.

## J

- **Jejunum:** Part of the small intestine, between the duodenum and ileum.
- **Joint (food):** A large piece of meat that is cooked in one piece.
- **Joule (J):** A unit used to measure energy. One calorie is equivalent to 4.184 joules.

## K

- **Keratin:** A protein containing sulfur. A component of skin, hair, and nails.
- **Kilning:** Process of drying that generates both flavour and colour in malt.
- **Kilocalories (kcal):** A measurement of energy in food (commonly referred to as simply '[calories](#)').

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- **Kilojoules (kJ):** A metric measurement used for energy on food labels. Whilst it can be found on food labels, most people usually use calories (kcal).
- **Kwashiorkor:** A severe type of [protein-energy malnutrition](#).

## L

- **Labelling:** The term given to the information about the product which is displayed on the packaging, e.g., nutrition information or storage instructions.
- **Lactase:** The [enzyme](#) that breaks down lactose, a type of sugar found in milk in the small intestine.
- **Lactation:** The medical term for milk production during breastfeeding.
- **Lactose:** A sugar present in milk. Lactose is a disaccharide (galactose in chemical combination with glucose).
- **Lactose intolerance:** A disorder arising from an inability to digest lactose because of low levels of the enzyme lactase. People with lactose intolerance may experience diarrhoea, gas and bloating after eating dairy products.
- **LDL:** Low-density lipoprotein, sometimes known as 'bad cholesterol'.
- **Lecithin:** The [emulsifying agent](#) found in many foods including egg yolk and soya.
- **Level 2 Award in Food Safety and Hygiene:** A basic food hygiene course that ensures those working in food environments understand food safety to a legal standard.
- **Life cycle:** Stages of development in life from birth through childhood, adolescence, and adulthood to old age.
- **Lifestyle:** An individual's typical behaviour, habits and attitudes which may affect health.
- **Lignin:** A substance found in plants. It cannot be digested by the enzymes in the small intestine, although it can be fermented by some bacteria in the large intestine.
- **Limiting amino acid:** The [amino acid](#) which is either absent or in shortest supply (in relation to need) in a protein of [low biological value](#).
- **Lipase:** An enzyme, present in pancreatic juice, that breaks down fats.
- **Lipid:** Large molecules made from smaller units of fatty acids and glycerol (see fats).
- **Listeria (*Listeria monocytogenes*):** A [bacterium](#) that can be found in unpasteurised milk products such as soft unripe cheeses, e.g., brie. It can cause a type of [food poisoning](#), called listeriosis.
- **Litmus:** A dye that is red under acid conditions and blue under alkaline conditions.
- **Liver:** A large organ which makes bile, which neutralises stomach acid.
- **Lot (or Batch) mark:** An identity mark which helps identify products in case they must be recalled.
- **Low biological value (LBV):** A measure of the protein quality of food. A low biological value protein is low in one or more of the indispensable amino acids.
- **Lower Reference Nutrient Intake (LRNI):** The amount of a nutrient which will meet the needs of only a small number of individuals who have low nutrient needs.
- **Lymphatic system:** The network of tubes in the body which carry water and other substances such as absorbed fats to the bloodstream.

## M

- **Macronutrients:** Nutrients the human body needs in larger amounts, and that provide [calories](#), i.e., fats, proteins, and carbohydrates.
- **Maillard reaction:** A type of [non-enzymic browning](#) initiated by [reducing sugars](#) reacting with [amino acids](#), e.g., sugars and proteins reacting in bread when it is baked.
- **Malnutrition:** A condition that occurs when the diet does not contain the right amount of nutrients, either not enough or more than is needed.

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- **Malting:** The process where barley grains are soaked and dried for malt.
- **Maltose:** A [disaccharide](#) formed from two [glucose](#) molecules.
- **Marasmus:** A severe type of [protein-energy malnutrition](#).
- **Marketing:** Promoting and selling products or services, including market research and advertising.
- **Mastication:** The act of chewing food.
- **Menopause:** The stage of life at which a woman ceases to menstruate (for at least 12 consecutive months) due to lower hormone levels.
- **Menstrual losses:** The loss of blood during menstruation.
- **Menstruation:** Monthly discharge from the uterus by non-pregnant women from puberty to menopause.
- **Metabolise:** The process of breaking down or building up compounds in the body.
- **Micro-organism:** A tiny organism invisible to the naked eye, e.g., [bacterium](#).
- **Micronutrients:** Nutrient required by the body in tiny amounts for normal growth, development, and maintenance of health; for example, vitamins and minerals, e.g., vitamin C, iron, calcium.
- **Milking:** The primary process in making dairy products.
- **Milking parlour:** A building where cows are milked on a dairy farm.
- **Milling:** The process to separate different parts of the grain.
- **Mineral:** An inorganic micronutrient needed in the diet for normal growth, development, and health. e.g., [iron](#), [calcium](#).
- **Modelling:** The process of developing and trialling ideas in a form where they may be seen and understood, e.g., nutritional analysis.
- **Modified atmosphere packaging:** The enclosure of a food product in a container from which the gases have been removed and replaced with others which have a preservative effect, e.g., carbon dioxide and nitrogen.
- **Molars:** Twelve 'grinding' teeth.
- **Molecule:** Two or more atoms bonded together.
- **Monosaccharide:** A single or simple sugar such as [glucose](#), [fructose](#), or galactose.
- **Monounsaturated fats:** Unsaturated fats with one carbon double bond. Usually liquid at room temperature. Olive oil is an example of an oil high in monounsaturated fats.
- **Moulds:** Moulds can cause food poisoning. They are types of fungi and appear as a layer on the surface of food. They may also penetrate below the surface.
- **Mucilage:** A [polysaccharide](#) found in some plants that can act as an emulsifier.
- **Muscle fibres:** Made up of cells which contains the proteins actin and myosin.
- **Mycoprotein:** A protein made from *Fusarium venenatum*, a fungus. Used as an alternative to meat-based proteins in the diet.

## N

- **Neural tube defects (NTDs):** Abnormalities of the brain and/or spinal cord such as spina bifida. A possible cause of neural tube defects in infants is low [folate](#) status in the mother at conception.
- **Neutral solution:** A solution with a pH of exactly 7.
- **Neutralisation:** The process by which an acidic or alkaline solution becomes of neutral pH (pH7) by the addition of alkali (to acid) or acid (to alkali).
- **Niacin (Vitamin B<sub>3</sub>):** A water soluble vitamin also known as nicotinic acid. Essential for the release of energy from foods. Found in meat, poultry fish and shellfish, wholegrains (e.g., brown rice) and some nuts and seeds (e.g., peanuts and sesame seeds).

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- **Nicotinic acid:** See [niacin](#).
- **Non-enzymic browning:** A term for several processes that cause browning in foods, without the action of enzymes, e.g., [Maillard reaction](#).
- **Non-haem iron:** [Iron](#) obtained mainly from plant sources, eggs, and dairy products. It is less readily absorbed by the body than [haem iron](#).
- **Non-starch polysaccharides:** Plant cell wall constituents including cellulose, hemicellulose, pectins, hydrocolloids (gums) that are not digested or absorbed in the small intestine and are therefore classed as a type of dietary fibre.
- **Nutrient claim:** A statement that implies that a food has beneficial nutritional properties, such as being “low fat” or “high in fibre”.
- **Nutrients:** An element or compound needed for normal growth, development, and health maintenance. Essential nutrients cannot be made by the body and must, therefore, be consumed from food.
- **Nutritional requirements:** The amount of energy and other nutrient requirements that meet the needs of individuals for health.

## O

- **Obesity:** A high, unhealthy amount of body fat. Usually defined as a body mass index ([BMI](#)) of 30 or higher. Having obesity can lead to many health problems.
- **Oesophagus:** The tube connecting the mouth to the stomach.
- **Offal:** Collective name for the internal parts of the animal we eat.
- **Olfactory system:** The sensory system used for olfaction, or the sense of smell.
- **Omega-3 fats:** Fats that can be found in oily fish (long chain omega-3 fats), and in smaller amounts in vegetable and nut oils (e.g., rapeseed, walnut) and some seeds (such as flax and chia seeds) and soybeans and soybean oil.
- **Organic farming:** A system where artificial fertilisers are not allowed to be used, soil fertility is built through crop rotation, and inorganic pesticide use is severely restricted. It is a form of extensive farming.
- **Organoleptic:** Sensory sensations: smell (aroma), taste, touch, sight, and sound.
- **Osteomalacia:** Adult form of rickets. Softening of the bone due to an inadequate intake of [vitamin D](#) and poor [calcium](#) absorption, causing bone pain and muscle weakness.
- **Osteoporosis:** A condition in which bones are weak due to low bone density. Weak bones are fragile and more likely to break, leading to increased fractures. Risk factors include ageing and being female as bones lose strength at a faster rate after the menopause.
- **Overweight:** Carrying excess weight and being at higher risk for certain health conditions. Usually defined as a [BMI](#) between 25 and 29.9.
- **Oxalate:** A substance in some foods, e.g., spinach and rhubarb, which interferes with the absorption of certain minerals, such as [calcium](#).
- **Oxidative respiration:** Cellular respiration, utilising oxygen.
- **Oxidised:** A substance is oxidised when electrons (negatively charged particles) are removed from its atoms.

## P

- **Packaging:** The outer container of a product, e.g., a bottle or wrapper, which gives protection during distribution and storage.
- **Pancreas:** A gland connected to the [duodenum](#) that secretes digestive juices. It also produces [insulin](#).
- **Pancreatic juice:** A fluid secreted by the pancreas into the duodenum that is alkaline to neutralise the acidic [chyme](#) from the stomach, containing the [enzymes](#) trypsin, lipase, and amylase.
- **Pasteurisation:** The process of heating food to kill most food spoilage organisms and pathogenic organisms, e.g., milk.

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- **Peak bone mass:** Maximum amount of bone present in a young adult at the end of the skeletal maturation.
- **Pectin:** A [polysaccharide](#) naturally occurring in some fruits, which has the property of forming a gel, e.g., jam.
- **Pellagra:** Disease of the skin, nervous system and gut caused by a deficiency of [niacin](#) (vitamin B<sub>3</sub>).
- **Pepsin:** An [enzyme](#) found in gastric juice that breaks down protein.
- **Peptide:** A molecule made of at least two [amino acids](#), joined together.
- **Peristalsis:** Wave-like contractions that move partially digested food along the digestive tract.
- **Pescatarian diet:** A diet that excludes meat and poultry but includes fish and shellfish.
- **pH:** A measure of acidity or alkalinity of a solution.
- **pH scale:** A scale from 0 to 14 that tells us how acidic or alkaline an aqueous solution is.
- **Phosphate:** A mineral which is part of the composition of bones and teeth.
- **Photosynthesis:** The process by which plants uses energy from the sun to produce carbohydrates. Water, carbon dioxide and the pigment chlorophyll are required.
- **Phytates:** A group of substances found in plants which may interfere with the absorption of certain minerals, e.g., zinc and calcium.
- **Placenta:** The organ formed as the foetus develops which attaches the developing baby to the uterus and provides oxygen and nutrients, transferred from the mother's blood.
- **Physical activity level (PAL):** A figure based on the amount of physical activity a person does in a day. Used in calculations of energy requirements.
- **Physical reaction:** A reaction that is reversible (this means you can change it back).
- **Plant-based or plant-rich diet:** A diet that is mainly composed of foods from plant sources, e.g., fruit, vegetables, pulses, nuts, and seeds.
- **Plasticity:** The capacity of fats to soften and become liquid over a range of temperatures, which affects their suitability for a variety of uses, e.g., spreading.
- **Polypeptide:** Many [amino acids](#) joined together.
- **Polysaccharide:** A carbohydrate composed of many [monosaccharide](#) units.
- **Polyunsaturated fats:** Fats with more than one carbon double bond. Usually liquid at room temperature, e.g., sunflower oil.
- **Portion size:** The amount of food eaten at one time. Portion size choices may be important in weight management.
- **Potassium:** A mineral that helps control the balance of fluids in the body. Potassium contributes to the maintenance of normal blood pressure and normal muscle and nerve function. Good sources of potassium include fruit and vegetables, poultry, red meat, fish, milk, and wholegrains.
- **Pre-gelatinised starch:** A powder formed by drying the mixture produced from disrupting [starch](#) granules in excess hot water. This can be conveniently added to products, such as instant desserts, to improve the speed with which they absorb water and to help provide a smoother texture.
- **Preference tests:** Sensory evaluation tests that supply information on people's likes and dislikes of products.
- **Preference:** A liking for a particular food or drink over another food or drink.
- **Preservation:** The process of extending the shelf-life of a food product by inhibiting the growth of micro-organisms, e.g., by controlling [pH](#), temperature, and water availability.
- **Preservatives:** Additives which prevent the growth of micro-organisms, e.g., by controlling and extend the shelf-life of food products.
- **Primary processing:** The conversion of raw materials to food commodities that can be eaten, e.g., extraction of sugar from sugar cane.
- **Product analysis:** A systematic and in-depth investigation of a product.
- **Product development:** A process of creating new or modified food products.

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- **Product life cycle:** The stages a product goes through from development to market saturation.
- **Product specification:** A detailed record of every aspect of a product's attributes, formulation and production.
- **Profiling:** A method of representing test results from a sensory evaluation discrimination test, e.g., star diagram.
- **Proteases:** Digestive [enzymes](#) which act on proteins, e.g., [pepsin](#) and [rennin](#).
- **Protein:** A component of food that is made up of [amino acids](#). There are many diverse types of protein with a range of functions, including enzymes that catalyse reactions and structural proteins that make up the tissues in our body.
- **Protein-energy malnutrition (PEM):** A name used to describe the long-term effects of a diet which is too low in protein and energy. Two examples of PEM are [kwashiorkor](#) and [marasmus](#).
- **Proving:** When dough is allowed to rest before baking. During this time, fermentation takes place causing the dough to rise.
- **Psychological disorders:** Any condition characterized by cognitive and emotional disturbances, abnormal behaviours, impaired functioning, or any combination of these.
- **Puberty:** Stage of life at which a young person experiences physical and hormonal changes that mark a transition into adulthood.
- **Pulses:** The dried edible seed of a legume plant, e.g., chickpeas, lentils.
- **Pyloric sphincter:** A muscle which regulates the flow of digested food from the stomach to the duodenum.

## Q

- **Quality Assurance:** A system of continual monitoring throughout all steps of the manufacturing process to check that product quality is monitored.
- **Quality Control:** A system of inspecting and checking food products during and after manufacture against their specifications and making any changes necessary.

## R

- **Radiation:** The emission of energy in the form of rays, e.g., grilling.
- **Raising agent:** One of several substances that produces gases that 'raise' dough or mixtures, e.g., baking powder.
- **Rancidity:** Flavour and odour taints caused by the process of oxidation in fats.
- **Ratio (ingredient):** A fixed proportion of one ingredient or ingredients relative to another, e.g., a 1:1 ratio contains equal parts of two ingredients.
- **Reduced:** A substance is reduced when electrons (negatively charged particles) are gained with the removal of oxygen. Hydrogen has an affinity for oxygen and thus reduces compounds.
- **Reducing Sugar:** A sugar that can be oxidised (react) by a weak oxidising agent. Has a free group that can react. Reducing sugars react with [amino acids](#) in the [Maillard reaction](#).
- **Reference Intakes (RIs):** Guidelines about the approximate amount of particular nutrients and energy required for a healthy diet.
- **Reference Nutrient Intake (RNI):** The RNI is the amount of a nutrient that is enough to ensure that the needs of nearly all (97.5%) of the population are being met.
- **Regenerative agriculture:** A cropping system and grazing practice that, among other benefits, reverses climate change by rebuilding soil organic matter and restoring degraded soil biodiversity, resulting in both carbon capture and improving the water cycle.
- **Remineralisation:** The replacement of minerals, e.g., [calcium](#), previously lost from the tooth enamel by demineralisation.
- **Rennet:** A mixture of enzymes used in cheese production. Makes the milk 'curdle' by denaturing the protein casein.

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- **Rennin:** Sometimes called chymosin. An enzyme that coagulates milk proteins. Found in rennet and used in cheese production.
- **Respiration:** The exchange of gases between a cell and its environment.
- **Retentiveness:** Stickiness.
- **Retinol (vitamin A):** A fat-soluble vitamin needed to help the immune system to function normally, help with vision and help the maintenance of normal skin. Found in animal foods such as liver, cheese, and eggs. The body can also make vitamin A from beta-carotene.
- **Riboflavin (vitamin B<sub>2</sub>):** A water-soluble vitamin involved in energy release from foods, reduction in tiredness and contributing to normal nerve function. Found in milk, eggs, fortified breakfast cereals, and mushrooms.
- **Rickets:** Bone deformities in childhood caused by a deficiency of [vitamin D](#).
- **Risk factor:** Any aspect of a person's lifestyle, environment or pre-existing health condition that may increase their risk of developing a specific disease or condition, e.g., smoking is a risk factor, which can increase the risk of heart disease.
- **'Rubbing-in' method:** The process of mixing flour and chilled fat by gently rubbing the two together between the fingertips and thumbs.

## S

- **Safe intake:** An amount that is enough for almost everyone but below a level that could have undesirable effects. This is set in government nutrient recommendations when there is not enough evidence to set a Reference Nutrient Intake.
- **Saliva:** Fluid secreted by salivary glands in the mouth that moistens food and contains the enzyme amylase.
- **Salmonella:** A genus of bacteria, many of which cause food poisoning. *Salmonella* is often found in uncooked or undercooked meat and fish, and in raw or undercooked eggs that are not British Lion standard.
- **Saturated fat:** A fat which contains a high proportion of its fatty acids as saturated fatty acids, (containing no carbon-carbon double bonds) e.g., lard, butter.
- **Scale-up:** A term used to describe a stage in the process of product development when the product is moved from the pilot plant to the factory to be manufactured in large quantities.
- **Scurvy:** A disease caused by deficiency of [ascorbic acid](#) (vitamin C). Symptoms include bleeding gums, haemorrhages and opening of old wounds.
- **Seasonal food:** Food grown at a particular time of year.
- **Seasonality:** The times of year when a given type of food is at its peak, either in terms of harvest or its flavour.
- **Secondary processing:** The conversion of food commodities to edible food product, e.g., maize into breakfast cereals.
- **Sedentary:** Inactive. A person described as sedentary typically spends long periods sitting or lying down.
- **Sedentary behaviour:** Requires little energy expenditure and includes sitting or lying down to watch television, using the computer, read, work or study, and sitting when travelling to school or work.
- **Seed potato:** A potato that is grown to be planted to produce a future crop of potatoes.
- **Sensory attributes:** Words used to describe the appearance, odour, taste, and texture of a food product.
- **Sensory evaluation:** The process of testing food, using the senses to assess the qualities or attributes of food products.
- **Shear:** A type of force and pressure applied to a material.
- **Shear thinning:** A characteristic of some fluids, where viscosity (thickness) decreases as force is applied (e.g., shaking or tapping a bottle of ketchup lowers the viscosity and allows it to flow more easily).
- **Shelf-life:** The length of time a food can be stored, displayed, or used. After this time, the product will deteriorate and may become unsafe to eat.
- **Shortening (effect):** The effect caused when fat is [rubbed into flour](#). The fat coats the flour particles, waterproofing them, and preventing gluten forming a structure, so creating a crumbly texture.

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- **Shortening (noun):** A fat that is [rubbed into flour](#) to 'shorten' a dough.
- **Sifting:** The method of passing flour, cocoa or icing sugar through a sieve to remove lumps and aerate it.
- **Small intestine:** The long, thin winding tube that food goes through after it leaves the stomach.
- **Sodium:** A mineral element that regulates body water content and nerve function. Often added as salt (sodium chloride) during processing. Currently intakes of sodium are too high, and most people need to reduce their intake substantially.
- **Sol:** A liquid [colloid](#) which has solid particles dispersed in a liquid, e.g., milk, pouring custard, gravy.
- **Spina bifida:** A condition in which the spinal cord fails to form properly in the foetus during pregnancy. It is an example of a [neural tube defect](#).
- **Spore (mould):** Moulds reproduce by releasing spores into the atmosphere. If they land on food, the spores may germinate and produce new mould.
- **Spore (bacteria):** A bacterium, such as *Clostridium perfringens*, has the capacity to change into a resistant form called spores. Some of these spores can survive the normal cooking process.
- **Stabilisers:** Additives used to maintain an emulsion and prevent it from separating.
- **Staple foods:** Foods which are eaten regularly and form the bulk of a population's diet, e.g., bread, pasta, rice, and potatoes.
- **Star diagram:** A graphic representation of the intensity of different sensory attributes in a food product.
- **Starch:** A polysaccharide made up of many glucose units and the principal storage carbohydrate in plants. The main source of carbohydrate in most diets. Starch can have straight chains (amylose) or branched chains (amylopectin).
- **Starchy foods:** Foods that contain a high proportion of starch, e.g., bread, rice, potatoes, and pasta.
- **Starvation:** Lack of food, resulting in severe weight loss.
- **Sterilisation:** The severe heating of food to kill all micro-organisms, e.g., sterilised milk.
- **Stomach:** Organ that is part of the digestive system situated just below the diaphragm. The stomach helps digest food by mixing it with digestive juices and churning it into a thin liquid.
- **Stroke:** Damage to part of the brain resulting from a breakdown in the blood supply or haemorrhage.
- **Sucrose:** Sucrose is the most common disaccharide and is composed of the monosaccharides glucose and fructose. It is digested by the enzyme sucrase into [glucose](#) and [fructose](#).
- **Sugars:** [Mono](#) or [disaccharides](#) such as [glucose](#), [sucrose](#), and [lactose](#).
- **Supplements:** A substance or product that can be taken to fill a deficiency in the diet. Most people can get all the vitamins and minerals they need by eating a healthy, balanced diet.
- **Survey:** Technique for gathering information from consumers.
- **Sweetener:** [Additives](#), which are used instead of sugar to sweeten foods. Sweeteners can be of two categories: high-intensity sweeteners with an intense sweet taste and with no energy value and polyols which are low calorie sugar replacers.
- **Syneresis:** The process of liquid being lost from a gel on standing or through storage. Syneresis can also occur when eggs are over cooked, causing the proteins to tighten and release moisture.
- **System:** A sequence of events which has an input, a process, and an output.

## T

- **Tannins:** Substances present in tea and red wine. They may reduce the absorption of [iron](#).
- **Target group:** A group of consumers who are similar in one respect, e.g., age, income, or lifestyle.
- **Tenderising:** To apply a process or substance that breaks down the connective tissue found in meat.

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- **Thiamin (vitamin B<sub>1</sub>):** A water-soluble vitamin essential for energy release from food and that helps the nervous system and heart function normally. Good sources include pork, fortified breakfast cereals, nuts and seeds, beans, and peas.
- **Threshing:** The method to remove the outer husk layer from rice grains.
- **Tofu:** A soft product made from ground soya beans.
- **Tolerance levels:** Levels within which a product or process must conform to ensure consistent quality.
- **Toxic:** Poisonous.
- **Toxin:** A poison produced by some microorganisms which can cause food poisoning.
- **Trace elements:** Minerals which are needed in very small amounts in the body, e.g., iodine.
- **Trans fat:** A type of unsaturated fat that can occur naturally in small amounts in animal foods such as meat and dairy products and can also be produced by the partial hydrogenation of vegetable oils (artificial *trans* fats), that have been associated with increased risk of heart disease. Most artificial *trans* fats have been removed from the UK diet.
- **Triglycerides:** A molecule containing three [fatty acids](#) joined to [glycerol](#).
- **Trypsin:** An [enzyme](#) that converts (breaks down) protein into peptides and [amino acids](#).
- **Tryptophan:** The [amino acid](#) from which the body can synthesise [niacin](#).

## U

- **Ultra-Heat Treatment (UHT):** The heating of food to kill or inactivate all micro-organisms without causing damage to the product, e.g., UHT milk.
- **Umami:** Savoury taste, often known as the fifth taste.
- **Underweight:** Being below an ideal weight and therefore potentially at risk of poor health. Usually defined as having a [BMI](#) of less than 18.5.
- **Unit (of alcohol):** A measurement used in the UK to provide guidance on how much an adult should drink over a week.
- **Unsaturated fat:** A fat which contains a high proportion of its fatty acids as unsaturated fatty acids, fatty acids containing one or more carbon–carbon double bonds.
- **Urea:** Produced in the liver from excess amino acids. Eliminated from the body in urine.
- **‘Use-by’:** The date given to foods which spoil quickly. The food must be eaten, cooked, frozen or thrown away by the given date. Otherwise, it may be unsafe to eat and cause food poisoning.

## V

- **Vacuum packing:** The process of enclosing a food product in packaging and removing all the air.
- **Vegan diet:** A diet that excludes any products of animal origin.
- **Vegetarian diet:** Although there is no single definition, a vegetarian diet is usually described as excluding meat, poultry, fish, shellfish, or any by-products of slaughter, but including dairy products and eggs. Lacto-vegetarians eat dairy products but not eggs. Ovo-vegetarians eat eggs but not dairy products.
- **Villi:** Finger-like protrusions from the lining of the intestine that increase the area for [absorption](#).
- **Viruses:** A group of submicroscopic pathogens (germs) that can infect humans. Some can cause illness (e.g., norovirus, coronavirus). Many times smaller than [bacteria](#).
- **Viscosity:** The thickness of a liquid product mixture, e.g., a roux sauce.
- **Vitamin:** An organic micronutrient that is essential for the human body.
- **Vitamin A:** A fat-soluble vitamin needed for normal vision, mucous membranes, and normal skin maintenance. Found as carotenes in plants, e.g., carrots, tomatoes, apricots and mangos, and retinol in foods from animal sources, e.g., milk, butter, cheese, and eggs.

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- **Vitamin B<sub>1</sub>:** See [thiamin](#).
- **Vitamin B<sub>2</sub>:** See [riboflavin](#).
- **Vitamin B<sub>3</sub>:** See [niacin](#).
- **Vitamin B<sub>6</sub> (pyridoxine):** A water-soluble vitamin needed for releasing energy from foods and forming red blood cells. Found in foods such as pork, poultry, and fortified breakfast cereals.
- **Vitamin B<sub>12</sub> (cyanocobalamin):** A water-soluble vitamin needed for red blood cell and nerve fibre formation. Found only in foods from animal sources, such as red meat, eggs, and milk, or in fortified foods, e.g., fortified breakfast cereals and fortified yeast extract.
- **Vitamin C:** See [ascorbic acid](#).
- **Vitamin D (cholecalciferol):** A fat-soluble vitamin which helps the body absorb calcium and is essential for the formation of bones and teeth. Good sources include oily fish, eggs, fortified breakfast cereals and fortified fat spreads. In summer, most people will get most of their vitamin D through the action of sunlight on the skin.
- **Vitamin E (tocopherols):** A fat-soluble vitamin which helps protect cells from oxidation. Found in vegetable and seed oils, nuts, seeds, and avocados.
- **Vitamin K:** A family of fat-soluble vitamins; phyloquinone (vitamin K<sub>1</sub>) from plant origins, particularly in green vegetables and some oils and menaquinones (vitamin K<sub>2</sub> found in animal products such as meat, cheese, and egg). Also made in the gut by bacteria. Vitamin K is required for normal blood clotting.
- **Volume:** The amount of room something takes up.

## W

- **Water-soluble vitamins:** Vitamin C and the B vitamins (e.g., thiamin, riboflavin, niacin, folate, vitamins B<sub>6</sub> and B<sub>12</sub>). Water soluble vitamins are not stored in the body and excess is excreted in urine.
- **Weaning:** See [complementary feeding](#).
- **Whey:** The liquid remaining after the curds have been separated from milk.
- **Whisking:** Rapidly beat or stir a substance to incorporate air.
- **Wholegrains:** Cereal grains used in food where all parts of the grain (bran, germ, and endosperm) are included.

## Y

- **Yeasts:** Tiny micro-organisms which carry out the fermentation of sugars, to produce alcohol and carbon dioxide.

## Z

- **Zinc:** A mineral element required for growth, repair, and sexual maturation. Found in meat, cheese, nuts and seeds, wholegrain breakfast cereals and wholegrain seeded breads.

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