Glossary

Acceptable daily intake (ADI)

The amount of chemical that, if ingested daily over a lifetime, appears to be without appreciable effect.

Additives (Food Additives)

Any natural or synthetic material, other than the basic raw ingredients, used in the production of a food item to enhance the final product. Any substance that may affect the characteristics of any food, including those used in the production, processing, treatment, packaging, transportation or storage of food.

Ambient temperature

The temperature of the immediately surrounding environment. Ambient room temperature ranges from 68 to 77 degrees Fahrenheit.

Amino acids

Amino acids function as the building blocks of proteins. Chemically, amino acids are organic compounds containing an amino (NH2) group and a carboxyl (COOH) group. Amino acids are classified as essential, nonessential and conditionally essential. If body synthesis is inadequate to meet metabolic need, an amino acid is classified as essential and must be supplied as part of the diet. Essential amino acids include leucine, isoleucine, valine, tryptophan, phenylalanine, methionine, threonine, lysine, histidine and possibly arginine. Nonessential amino acids can be synthesized by the body in adequate amounts, and include alanine, aspartic acid, asparagine, glutamic acid, glutamine, glycine, proline and serine. Conditionally essential amino acids become essential under certain clinical conditions.

Bacteria

Tiny, one-celled microorganisms found in the environment. Bacteria multiply rapidly in food under the right conditions, and some bacteria can cause foodborne illness. Helpful bacteria can be used to make yogurt, vinegar and some cheeses.

Biological hazard

Exposure to food by disease-causing microorganisms or toxins that are found in some plants and fish.

Biopesticide

A biopesticide is any material of natural origin used in pest control derived from living organisms, such as bacteria, plant cells or animal cells.
**Biotechnology**

The simplest definition of biotechnology is "applied biology." The application of biological knowledge and techniques to develop products. It may be further defined as the use of living organisms to make a product or run a process. By this definition, the classic techniques used for plant and animal breeding, fermentation and enzyme purification would be considered biotechnology. Some people use the term only to refer to newer tools of genetic science. In this context, biotechnology may be defined as the use of biotechnical methods to modify the genetic materials of living cells so they will produce new substances or perform new functions. Examples include recombinant DNA technology, in which a copy of a piece of DNA containing one or a few genes is transferred between organisms or "recombined" within an organism.

**Bovine spongiform encephalopathy (BSE)**

Bovine spongiform encephalopathy, or BSE, is also known as "mad cow disease." It is a rare, chronic degenerative disease affecting the brain and central nervous system of cattle. Cattle with BSE lose their coordination, develop abnormal posture and experience changes in behavior. Clinical symptoms take 4-5 years to develop, followed by death in a period of several weeks to months unless the affected animal is destroyed sooner.

**Calorie**

A calorie is the amount of energy required to raise the temperature of one milliliter (ml) of water at a standard initial temperature by one degree centigrade (°C).

**Caffeine**

Caffeine is a naturally-occurring substance found in the leaves, seeds or fruits of over 63 plant species worldwide and is part of a group of compounds known as methylxanthines. The most commonly known sources of caffeine are coffee and cocoa beans, cola nuts and tea leaves. Caffeine is a pharmacologically active substance and, depending on the dose, can be a mild central nervous system stimulant. Caffeine does not accumulate in the body over the course of time and is normally excreted within several hours of consumption.

**Carbohydrate**

Carbohydrates are organic compounds that consist of carbon, hydrogen and oxygen. They vary from simple sugars containing from three to seven carbon atoms to very complex polymers. Only the hexoses (sugars with six carbon atoms) and pentoses (sugars with five carbon atoms) and their polymers play important roles in nutrition. Carbohydrates in food provide 4 calories per gram. Plants manufacture and store carbohydrates as their chief source of energy. The glucose synthesized in the leaves of plants is used as the basis for more complex forms of carbohydrates. Classification of carbohydrates relates to their structural core of simple sugars, saccharides. Principal monosaccharides that occur in food are glucose and fructose. Three common disaccharides are sucrose, maltose and lactose. Polysaccharides of interest in nutrition include starch, dextrin, glycogen and cellulose.
Case Control Study
A study that starts with the identification of persons with the disease of interest and a suitable control group of persons without the disease. The relationship of an attribute to the disease is examined by comparing the diseased and non-diseased with regard to how frequently the attribute is present or, if quantitative the levels of the attribute, in each of the groups. Case control studies are sometimes called "retrospective studies." In relation to gastrointestinal illness they are usually undertaken to test a hypothesis that a certain type of food caused the illness to occur by comparing the ill (cases) with well people (controls). Controls are usually matched with the cases for sex, age and postcodes.

Case finding
A process or method used to find additional cases of an illness being investigated. Examples used may be to contact doctors, laboratories, hospitals, cases etc.

Cholesterol (dietary)
Cholesterol is not a fat, but rather a fat-like substance classified as a lipid. Cholesterol is vital to life and is found in all cell membranes. It is necessary for the production of bile acids and steroid hormones. Dietary cholesterol is found only in animal foods. Abundant in organ meats and egg yolks, cholesterol is also contained in meats and poultry. Vegetable oils and shortenings are cholesterol-free.

Cholesterol (serum, or blood) -
High blood cholesterol is a risk factor in the development of coronary heart disease. Most of the cholesterol that is found in the blood is manufactured by the body, in the liver, at a rate of about 800 to 1,500 milligrams a day. By comparison, the average American consumes 300 to 450 milligrams daily in foods.

Cholesterol (different types) -
Blood cholesterol is divided into three separate classes of lipoproteins: very-low density lipoprotein (VLDL); low-density lipoprotein (LDL), which contains most of the cholesterol found in the blood; and high-density lipoprotein (HDL). LDL seems to be the culprit in coronary heart disease and is popularly known as the "bad cholesterol." By contrast, HDL is increasingly considered desirable and known as the "good cholesterol."

Cohort Study
The method of epidemiological study in which subsets of a defined population can be identified who are, have been or in the future may be exposed or not exposed or exposed in different degrees, to a factor or factors hypothesized to influence the probability of occurrence of a given disease or other outcome. Whilst cohort studies are sometimes referred to as "prospective studies" in relation to gastrointestinal outbreaks cohort studies are undertaken after the
event has occurred. However a cohort study is only appropriate when the number of exposed persons can be identified (e.g. an outbreak at a wedding etc).

**Communicable Disease**

A disease which is capable of being transmitted from one person or species to another.

**Confounding variable or confounding factor**

A "hidden" variable that may cause an association that the researcher attributes to other variables.

**Consumer Control Points**

Points in the process of food preparation when harmful microorganisms can contaminate the food. When conditions such as time, temperature or moisture may encourage the growth of microorganisms. *Food handling practices that prevent foodborne illness are critical at these points.*

**Contact**

A person or animal who has been in association with an infected person or animal or a contaminated environment and who may have thereby acquired infection.

**Contamination**

The unintended presence of harmful substances or microorganisms in food.

**Control group**

The group of subjects in a study to whom a comparison is made in order to determine whether an observation or treatment has an effect. In an experimental study it is the group that does not receive a treatment. Subjects are as similar as possible to those in the test or treatment group.

**Cross-contamination**

The spread of micro-organisms from one surface to another or from something that is contaminated to something that is not.

**Danger Zone**

The range of temperatures at which most bacteria multiply rapidly, between 41° F and 140° F.

**Disinfection**

The specific killing of infectious agents outside the body by direct exposure to chemicals or physical agents.
E. coli: O157:H7

The bacteria Escherichia coli: O157:H7 is a type of E. coli associated with foodborne illness. Healthy cattle and humans can carry the bacteria. It can be transferred from animal to animal and animal to human, and from animal to human on food. Transmission from person to person through close contact is a potential problem, especially among young children in daycare.

Environmental Protection Agency (EPA)

The EPA's mission is to protect human health and safeguard the natural environment - air, water and land - upon which life depends. Through regulation, EPA tries to ensure the human population and the environment are protected from environmental risks and exposures.

Epidemic Curve (Epi curve)

A histogram or bar chart showing the time-course of the outbreak on the horizontal axis, with the number of cases on the vertical axis. Time may be expressed as either specific dates, or as time since exposure if that is known. (e.g. hours or days, depending on what is appropriate.)

Epidemiology

The study of distribution and determinants of diseases or other health outcomes in human populations. It seeks to expose potential associations between aspects of health (such as cancer, heart disease, etc.) and diet, lifestyle, habits or other factors within populations. Epidemiological studies may suggest relationships between two factors, but do not provide the basis for conclusions about cause and effect. Possible associations inferred from epidemiological research can turn out to be coincidental.

Etiological agent

The agent (e.g. bacteria, virus) that causes the illness.

Fats (dietary fats)

Fats are referred to in the plural because there is no one type of fat. Fats are composed of the same three elements as carbohydrates -- carbon, hydrogen and oxygen. However, fats have relatively more carbon and hydrogen and less oxygen, thus supplying a higher fuel value of nine calories per gram (versus four calories per gram from carbohydrates and protein).

One molecule of fat can be broken down into three molecules of fatty acids and one molecule of glycerol. Thus, fats are known chemically as triglycerides.

Fats are a vital nutrient in a healthy diet. Fats supply essential fatty acids, such as linoleic acid, which is especially important to childhood growth. Fat helps maintain healthy skin, regulate cholesterol metabolism and is a precursor of prostaglandins.
hormone-like substances that regulate some body processes. Dietary fat is needed to carry fat-soluble vitamins A, D, E and K and to aid in their absorption from the intestine.

**Fatty acid**

Fatty acids are generally classified as saturated, monounsaturated or polyunsaturated. These terms refer to the number of hydrogen atoms attached to the carbon atoms of the fat molecule. In general, fats that contain a majority of saturated fatty acids are solid at room temperature, although some solid vegetable shortenings are up to 75 percent unsaturated. Fats containing mostly unsaturated fatty acids are usually liquid at room temperature and are called oils. Also, see "fats", or "hydrogenation."

**Fiber**

Dietary fiber generally refers to parts of fruits, vegetables, grains, nuts and legumes that can't be digested by humans. Meats and dairy products do not contain fiber. Studies indicate that high-fiber diets can reduce the risks of heart disease and certain types of cancer. There are two basic types of fiber - insoluble and soluble. Soluble fiber in cereals, oatmeal, beans and other foods has been found to lower blood cholesterol. Insoluble fiber in cauliflower, cabbage and other vegetables and fruits helps move foods through the stomach and intestine, thereby decreasing the risk of cancers of the colon and rectum.

**5 A Day**

Refers to the dietary recommendation to consume five servings of fruits and vegetables every day. The tagline, 5 A Day, became a promotional message in campaigns to increase fruits and vegetable consumption.

**Fomes (Plural fomites)**

Object such as a book, wooden object or an article of clothing that is not harmful in itself but is able to harbor pathogenic microorganisms and thus may serve as an agent of transmission of an infection.

**Food and Drug Administration (FDA)**

The Food and Drug Administration is part of the Public Health Service of the U.S. Department of Health and Human Services. It is the regulatory agency responsible for ensuring the safety and wholesomeness of all foods sold in interstate commerce except meat, poultry and eggs (which are under the jurisdiction of the U.S. Department of Agriculture). FDA develops standards for the composition, quality, nutrition, safety and labeling of foods including food and color additives. It conducts research to improve detection and prevention of contamination. It collects and interprets data on nutrition, food additives and pesticide residues. The agency also inspects food plants, imported food products and feed mills that make feeds containing medications or nutritional supplements that are destined for human consumption. And it regulates radiation-emitting products such as microwave ovens. FDA also enforces pesticide tolerances established by the Environmental Protection Agency for all domestically produced and imported foods, except for foods under USDA jurisdiction.
Food Safety

Protecting the food supply from microbial, chemical (i.e. rancidity, browning) and physical (i.e. drying out, infestation) hazards or contamination that may occur during all stages of food production and handling-growing, harvesting, processing, transporting, preparing, distributing and storing. The goal of food safety monitoring is to keep food wholesome.

Foodborne disease

Disease, usually gastrointestinal, caused by organisms or their toxins carried in ingested food. Also commonly known as "food poisoning."

Food Guide Pyramid

The Food Guide Pyramid is a graphic design used to communicate the recommended daily food choices contained in the Dietary Guidelines for Americans. The information provided was developed and promoted by the U.S. Department of Agriculture and the U.S. Department of Health and Human Services.

Food irradiation

The exposure of food to sufficient radiant energy (gamma rays, x-rays, and electron beams) to destroy microorganisms and insects. Irradiation is used in food production and processing to promote food safety.

Functional foods

Foods that may provide health benefits beyond basic nutrition. Examples include tomatoes with lycopene, thought to help prevent the incidence of prostate and cervical cancers; fiber in wheat bran and sulfur compounds in garlic also believed to prevent cancer.

Gastronomy

The study and appreciation of good food and good eating, and a culture's culinary customs, style and lore. Any interest or study of culinary pursuits as relates essentially to the kitchen and cookery, and to the higher levels of education, training and achievement of the chef apprentice or professional chef.

Grains

Grains are the seeds or fruits of various food plants including cereal grasses. The examples of wheat, corn, oats, barley, rye and rice provide a partial list. Grain foods include foods such as bread, cereals, rice and pasta.

GRAS (Generally Recognized as Safe)

GRAS is the regulatory status of food ingredients not evaluated by the FDA prescribed testing procedure. It also includes common food ingredients that were already in use
when the 1959 Food Additives Amendment to the Food, Drug and Cosmetic Act was enacted.

**HACCP (Hazard Analysis and Critical Control Point)**

A system that identifies, evaluates and controls hazards that are significant for food safety.

HACCP works by the following principles:

- Identify the likely health hazards to consumers in a given product.
- Identify the critical points in the processing where the hazards may occur.
- Establish safety measures to prevent the hazard from occurring.
- Monitor to make sure the safety measures are working.
- Establish an appropriate remedy if monitoring shows a problem.
- Establish detailed record keeping to document monitoring and remedies taken.
- Verify that the whole system is working.

**Immuno-compromised**

An individual with an existing disease or weakened physical condition who may be more susceptible to becoming ill from foodborne illness.

**Incidence**

The number of new cases of a disease during a given period of time in a defined population.

**Index Case**

The first case in a family or other defined group to come to the attention of the investigator.

**Infection Control**

The process of minimizing the risks of spreading infection.

**Incubation period**

The time between initial contact with an infectious agent and the appearance of the first sign or symptom of the disease.

**Isolation**

The process of separating infected or colonized persons from others, usually for as long as the organism may practically be communicated to other susceptible persons. Isolation usually occurs in places and under conditions to prevent or limit the direct or indirect transmission of the infectious agent to susceptible persons.
Mad Cow Disease

See BSE (Bovine spongiform encephalopathy).

Microorganism

A general term for bacteria, molds, fungus, or viruses that can be seen only with a microscope.

Mold

Multi cellular fungi that may grow on food items such as bread, cheese, fruit, and jam. They usually are not a cause of foodborne illness, but in the right environment, cause food spoilage.

Molluscan shellfish

Oysters, clams or mussels intended for human consumption, whether shucked or in the shell, whether fresh or frozen, but does not include (1) oysters, clams, and mussels which have been dehydrated or which have been sterilized in hermetically sealed containers, or (2) processed shellfish.

Nationwide Food Consumption Survey (NFCS)

A survey conducted by the USDA roughly every ten years that monitors the nutrient intake of a cross-section of the U.S. public.

National Health and Nutrition Examination Survey (NHANES)

A series of surveys that include information from medical history, physical measurements, biochemical evaluation, physical examination and dietary intake of population groups within the United States. The NHANES is conducted by the U.S. Department of Health and Human Services approximately every five years.

Norwalk virus

Virus that contaminates raw oysters/shellfish, water and ice, salads, frosting, person-to-person contact.

Organic

Organic defines agricultural products that are grown using cultural, biological and mechanical methods prior to the use of synthetic, non-agricultural substances to control pests, improve soil quality an/or enhance processing. The USDA is currently addressing the issue of organic products, and aims to have official rules for what may be considered organic ready for the 1999 spring planting season.

Currently organic defines an agricultural process in which farmers use techniques such as crop rotation, cultivation, mulching, soil enrichment and the "encouragement" of predators and microorganisms which naturally keep pests away. The now widely accepted definition allows farmers to use natural pesticides, but nothing synthetic.
Parasite

An animal or plant that lives in or on another from whose body it obtains nourishment.

Pasteurized

Term applied to milk or milk product that has been exposed to a process of pasteurization wherein every particle of that milk or milk product is heated in properly designed and operated equipment to a specified temperature and then held continuously at or above that temperature for at least the corresponding specified time. Pasteurization eliminates pathogen (disease causing bacteria) contamination in milk and products derived from milk.

Pathogen

A disease-causing microorganism.

Perishable

Food that is subject to decay or spoilage unless properly stored.

Pesticide

A broad class of crop protection chemicals including four major types: insecticides used to control insects; herbicides used to control weeds; rodenticides used to control rodents; and fungicides used to control mold, mildew and fungi.

In addition consumers use pesticides in the home or yard to control termites and roaches, clean mold from shower curtains, stave off crab grass on the lawn, kill fleas and ticks on pets and disinfect swimming pools, to name just a few "specialty" pesticide uses.

Physical Hazard

Particles or fragments of items not supposed to be in foods

Potable water:

Water from an approved source which meets all drinking water quality standards.

Potentially hazardous food

Moist, high-protein, low acid foods that consist, in whole or in part, of milk or milk products, shell eggs, meats, poultry, fish, shellfish, baked or boiled potatoes, tofu and other soy-protein foods, plant foods that have been heat-treated, raw seed sprouts, or synthetic ingredients.

Primary Case

The individual who introduces the disease into the family or group under study. Not necessarily the first diagnosed case in a family or group. See also Index Case
Protein

Chemically, a protein is a complex nitrogenous compound made up of amino acids in peptide linkages. Dietary proteins are involved in the synthesis of tissue protein and other special metabolic functions. In anabolic processes they furnish the amino acids required to build and maintain body tissues. As an energy source, proteins are equivalent to carbohydrates in providing 4 calories per gram. Proteins perform a major structural role in all body tissues and in the formation of enzymes, hormones and various body fluids and secretions. Proteins participate in the transport of some lipids, vitamins and minerals and help maintain the body's homeostasis.

Risk

A term encompassing a variety of measures of the probability of an outcome. It's usually used in reference to unfavorable outcomes such as illness or death. Be certain to distinguish between absolute and relative risk.

Risk factor

A risk factor is anything statistically shown to have a relationship with the incidence of a disease, however it does not necessarily infer cause and effect.

Salmonella

Salmonella is a Gram-negative bacterium, occurring in many animals, especially poultry and swine. In the environment, salmonella can be found in water, soil, insects, factory and kitchen surfaces, animal fecal matter, and raw meats, poultry (including eggs) and seafood.

Acute symptoms of the illness caused by the Salmonella species include nausea, vomiting, diarrhea, abdominal cramps, headache and fever.

Sanitize

To reduce pathogenic microorganisms to a safe level.

Secondary Case

Case of disease occurring among contacts within the incubation period following exposure to the primary case.

Special care facility

Includes aged care facilities, special accommodation facilities, special developmental schools etc.

Spoilage

Significant food deterioration, usually caused by bacteria and enzymes, that produces a noticeable change in the taste, odor, or appearance of the product.
**Statistical significance**

The probability of obtaining an effect or association in a study sample as or more extreme that the one observed if there was actually no effect in the population. Based on the hypothesis that if there truly is no effect, the results of a study are unlikely to have occurred. A P value of less than five percent (P<0.05) means the result would occur less than five percent of the time if there were no effect, and is generally considered evidence of a true treatment effect or a true relationship.

**Sterilization**

The complete destruction or elimination of all living microorganisms, including bacterial spores.

**U.S. Department of Agriculture (USDA)**

The United States Department of Agriculture comprises of many agencies charged with different tasks related to agriculture and our food supply. Among these is ensuring a safe, affordable, nutritious and accessible food supply. The USDA also enhances the quality of life for the American population by supporting production of agricultural products; caring for agricultural, forest and range lands; supporting sound development of our rural communities; providing economic opportunities for farm and rural residents; expanding global markets for agricultural and forest products and services; and working to reduce hunger in America and throughout the world.

**Virus**

Any group of infectious microorganisms that reproduce only in living cells. They cause diseases such as mumps and Hepatitis A and can be transmitted through food.

**Vitamins**

Vitamins are organic compounds that are nutritionally essential in small amounts to control metabolic processes and cannot be synthesized by the body. Vitamins are usually classified by their solubility, which to some degree determines their stability; occurrence in foodstuffs; distribution in body fluids, and tissue storage capacity.

Each of the fat-soluble vitamins A, D, E and K has a distinct and separate physiologic role. Several have antioxidant properties to depress the effects of metabolic byproducts called free radicals, which are thought to cause degenerative changes related to aging.

Most of the water-soluble vitamins are components of essential enzyme systems. Many are involved in the reactions supporting energy metabolism. These vitamins are not normally stored in the body in appreciable amounts and are normally excreted in the urine. Thus, a daily supply is desirable to avoid depletion and interruption of normal physiologic functions.