



## Role of Nutrition in Public Health

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### Food

One of life's fundamental needs is food. Nutrients are compounds that are necessary for the regulation of vital activities as well as the growth, repair, and maintenance of body tissues. The energy our bodies require to function is provided by nutrients.

Calories are a unit of measurement for the energy in food. The quantity of calories an individual needs each day depends on their age, gender, weight, height, and degree of exercise. The recommended daily caloric intake for a child between the ages of 11 and 14 might vary depending on age, sex, and activity level, with sedentary females needing the fewest calories and energetic boys needing the most. This can range from 1,800 to around 3,000 for adults.

### Nutrients

The six main categories of nutrients are water, minerals, vitamins, proteins, and carbs. Most foods have varying levels of all or most nutritional categories.

### Carbohydrates

The body gets its energy from carbohydrates. We eat almost entirely plant-based carbohydrates. They consist of the carbohydrates in plants like potatoes and yams as well as those in cereal grains.

### Fats

More than twice as much energy is provided by fats as by carbohydrates. They also aid in insulating and shielding the body's internal organs. Vegetable oils including soybean, cottonseed, and corn oil are examples of common fats.

Butter and lard are examples of animal-derived fats. High fat foods include fish, meats, poultry, eggs, milk, cheese, and dairy products.

### Protein

The principal tissue builders in the body are proteins. Animal products are rich in protein, including meat, fish, poultry, eggs, and dairy goods. Additionally high in protein foods are nuts, certain legumes, and grains.

### Vitamin and mineral

Due to the fact that they are required in much smaller amounts than proteins, carbs, and lipids, minerals and vitamins are referred to as micronutrients.

### Diet

Diets of people vary from nation to nation. Diets can differ even within the same nation. Part of this variation is explained by geographic differences. People who live close to the ocean, for instance, may consume more fish than those who live further inland. People who live in chilly climates with brief growing seasons rely on crops like potatoes that mature fast. Rice is frequently a mainstay in warm, humid lowlands where the soil holds water.

What individuals eat and how they prepare their meals are influenced by regional traditions and customs. In accordance with English custom, roast beef and Yorkshire pudding should be consumed together. Nearly all Asians eat rice with each meal.

What people eat is also influenced by economic circumstances. In the American state of Maine, lobster is typically a reasonably pri-

ced food. The shellfish has been a staple dish for hundreds of years and is a native of the state's coastal regions. But in the Midwest, where it must be flown in, lobster is a luxury good. The price of lobster dishes may be two to three times more in Iowa than in Maine.

Many people in industrialized nations have access to sufficient funds to purchase a variety of nutrient-dense foods. Malnutrition is not a major issue, and lifespans are long. However, even in these nations, a sizable portion of the population lacks access to these meals due to unequal distribution of resources. Food that is wholesome and nutritious might sometimes be more expensive than calorie-dense "junk food," which offers nothing in the way of nutritional value. It's possible to eat poorly even if you can buy good meals. Many people's diets in developed nations contain an excessive amount of the fats, salt, and refined carbohydrates present in fast food. These diets contain far too little fiber, fruits, and vegetables.

Malnutrition is a more widespread problem in underdeveloped nations. Famine may result from a bad harvest, a flood, or a drought if the community or country cannot afford to import food.

In emerging nations, the urban and rural populations can have very distinct diets. While those who reside in rural locations may have access to fresh milk, fruits, and vegetables, persons in metropolitan areas tend to consume more processed meals. However, a bad crop is first felt by those who live in rural areas.

### Food/diet and culture

People don't just eat to get nutrition and prevent starvation and hunger. The way that people eat is greatly impacted by their culture. Food preparation, sharing, and consumption rituals have social as well as biological purposes.

When and what people eat might sometimes depend on their religious beliefs. For instance, adherents of the Jain religion firmly hold that all living creatures should be treated without harm. Jains who follow strict observance never consume meat. Numerous little organisms are injured when potatoes and other tubers are dug up from the ground, hence many Jains also avoid eating them.

Many guidelines for eating are outlined in both Muslim dhabihah law and Jewish kashrut law. Both of them forbid eating pork. Food prepared in accordance with kashrut law is referred to as kosher, while food made in accordance with dhabihah law is referred to as halal.

Additionally, eating is a significant ritual for both religious and nonreligious purposes. The majority of religious fasting occasions, like Ramadan, are followed by celebratory meals. The Islamic celebration that follows Ramadan is called Eid al-Fitr. Giving food to the needy is one of the ways Muslims commemorate Eid.

### Nutrition

Nutrition, the process by which living things assimilate dietary components to grow, maintain themselves, and reproduce.

### Nutritional patterns

The way that feeding functions are carried out by living things can be used to classify them. As a result, species like green plants and some bacteria that can only develop in inorganic compounds are known as autotrophic organisms, while all animals, all fungus, and the majority of bacteria that can only thrive in both inorganic and organic compounds are known as heterotrophic organisms.

### Nutrition in plants

Despite the fact that organic materials make up the majority of their tissues, plants, unlike animals, are not dependent on them for nutrition. They can produce nutrients from carbon dioxide (CO<sub>2</sub>) and water by storing solar energy in photosynthetic systems. Plants nevertheless need inorganic salts, which they take up from the soil around their roots. These salts contain the elements phosphorus (in the form of phosphate), chlorine (as the chloride ion), potassium, sulphur, calcium, magnesium, iron, manganese, boron, copper, and zinc. In the form of nitrate (NO<sub>3</sub>) or ammonium (NH<sub>4</sub><sup>+</sup>) ions, plants also need nitrogen. Additionally, they will absorb inorganic substances that they themselves do not require, such as iodides, cobalt salts, and selenium salts.

### Nutrition in bacteria

These tiny creatures, which are typically exclusively considered to be sources of infection, play a crucial role in the whole life cycles of both plants and animals. Like larger species, they frequently have to digest their food, and their cell walls do not permit the passage of massive molecules. If the bacteria are in a liquid that contains sugars, the sugars will diffuse through the bacterial wall before usually aggregating into larger molecules to prolong the concentration gradient that promotes inward diffusion. However, bacteria must expel digestive enzymes (i.e., catalysts) into the surrounding fluid in order to use bigger molecules like carbohydrates and protein.

This is obviously a costly function for a single organism because many of the produced enzymes and even the products of digestion may flow away from the bacterial cell rather than toward it. The technique is less expensive for a group of thousands or millions of bacteria working similarly, though.

### Nutrition in animal

Animals in the animal kingdom depend on plants for nourishment, as may be seen by simple observation. Even carnivorous, or

meat-eating, animals, like the lion, eat grazing animals and are thus indirectly reliant on the plant kingdom for survival.

Nutrition in animal there are HERBIVORES, CARNIVORE and OMNIVORE.

### Public health

A general and agreed-upon definition of public health has been difficult to come by, with several definitions highlighting various aspects of public health, much like the difficulties involved in fully describing health itself. According to Acheson's famous definition from 1988, public health is "the science and art of avoiding disease, extending life, and enhancing human health via coordinated efforts and informed social choices, 'Public health is concerned with the health of populations, has a future orientation, and necessitates societal/collective action typically including cooperation across many sectors,' (Acheson 1988), which effectively reflects these facts. In its broadest meaning, public health refers to all coordinated societal initiatives aimed at establishing, preserving, and enhancing health.

This means the inclusion of all actions taken to advance health, prevent, lessen, and treat disease, as well as address the social and ecological determinants of health, many of which include changing public policy and enlisting the help of the community.

Public health is everything and is omnipresent when viewed through the lens of health in all policies. The problem, though, is that definitions that cover all aspects that have an impact on population health run the risk of losing focus and diluting the essence of what public health is all about. On the other hand, limited definitions that are entirely focused on public health workforce actions or societal initiatives to address specific problems run the danger of underestimating the influence of upstream action on the systemic elements that generate the circumstances for health.

In his description of public health as "a way of thinking, a set of disciplines, an institution of society, and a manner of practice... with an increasing number and variety of specialized domains and demands on its practitioners an increasing," John Last effectively captures this tension between the need to maintain disciplinary identity (in relation to the public health workforce and services) and also capture plurality and breadth (considering population health more broadly) (Last 2007).

### WHO is public health

This prompts thought on the who in public health and the difficulty for practitioners, no matter how organized, to involve all pertinent sectors that share public health goals (or their concomitant benefits) while respecting each group's contributions and viewpoints (i.e., avoiding health imperialism). John Snow, a doctor who looked into a cholera outbreak in London in 1854, personifies both the mystery of this topic and the enormous possibility that lies

in its resolution. In his one-of-a-kind work resolving a public health crisis, Snow used a variety of different disciplinary paradigms and problem-solving techniques. He is known as the father of public health, epidemiology, anesthesia, and health geography (Oleckno 2008). Modern public health almost always demands an interdisciplinary team-based approach, and as the traditional public health workforce faces capacity and workforce fragmentation concerns, the contributions of other health and non-health professions are becoming more crucial.

In particular, academia plays a crucial role in producing and interpreting data in cooperation with the numerous actors who affect health and health equity-determining policies (Kershaw 2018). The Strategic Clinical Networks (SCNs) in Alberta are one example of an effort to speed up this process by offering a platform for innovation and quick knowledge mobilization to guide practice and policy.

All medical care has the same objective of maximising health gains, as noted by former CDC Director Thomas Frieden in his well-known article titled "The Future of Public Health" (Frieden 2015). To reposition health authorities to more fully embrace a population health mandate in the context of regionalization, which has posed challenges to public health in many Canadian jurisdictions, there is a persistent need for collective leadership (Marchildon 2017). In certain provinces, efforts have been made to involve family doctors in primary care through programmes like Primary Care Networks, which offer financial incentives to family doctors for enhancing the management of chronic diseases and embracing a population health strategy.

Rachlis (Rachlis 2004) has also cited a number of instances of successful collaboration between public health and acute care made possible by regionalized systems, such as improved response to influenza outbreaks, earlier release of mothers and babies after childbirth in a supportive and healthy environment, and introduction of harm reduction initiatives. There should be optimism that health authorities are beginning to adopt healthy communities/cities approaches and are prioritising intersectoral collaboration in their strategic planning, despite the modest nature of successes to date and recognition of the time required for fundamental shifts in attitudes and roles.