Chapter

Introductory Chapter: General Nutritional Problems in the Different Countries of the Four Continents - Our Challenges Now and Forthcoming Time

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1. Introduction

The right for nutrition is a major principle in the Universal Declaration of Human Rights announced in 1948 [1]. *The Declaration of Social Progress and Development* of 1969 specified the major aim as "the elimination of hunger and malnutrition and the guarantee of the right to proper nutrition" [2]. The Universal Declaration of Human Rights accepted in 1974 makes it clear that "Everyone has the right to get rid of starvation and malnutrition in order to use and preserve their physical and mental capacities" [3]. The Declaration of 1992 also recognized "access to safe food suitable for nutrition" as a universal right.

Every day globally about 40,000 people die from malnutrition and the diseases associated with it, which are also responsible for the death of 5 million children according to FAO, the Food and Agricultural Organization of the United Nations report of 2004.

From time to time, efforts are made by the developed world to eliminate the extreme poverty prevailing in the developing countries. Radical changes, however, can only be achieved by effective measures at the local level.

Up until the nineteenth century, famines most commonly originated from the natural disasters. At present, in most of the cases, they are caused by people; suffice with Ethiopia, Cambodia, the former Yugoslavia, Rwanda, or Haiti. In the era when we are capable of handling famine, a lot more than ever before, such situations prove to be a big shame of mankind.

2. Undernutrition and malnutrition

Malnutrition (undernutrition) is a pathological condition where energy deficiency or lack of energy or absolute or relative lack of at least one nutrient is present [4]. More than one of the factors playing a part in the development of malnutrition may be present in hospitalized individuals or in those living in social institutions offering prolonged stay.

Starvation in the child's organism may range from occasional or rare mild undernutrition through severe deficiency in growth to life hazard.

Starvation (inanition) is the condition where the bodyweight decreases due to the lack or low level of food intake, the body grows thinner and weaker, and the metabolism of essential nutrients shows a value lesser than normal.

"Quantitative" starvation means that the individual for some reason consumes too little food. Insufficient energy uptake leads to weight loss even in the short run. The regenerating mechanisms of the organism are capable of preventing only the effect of moderate undernutrition, while weight loss also leads to reduced spontaneous and voluntary activity.

"Qualitative" starvation is less conspicuous, while its importance is high, since in this case, the intake of vitally important nutrients (such as vitamins and minerals) is insufficient, especially in childhood and babyhood.

Specialists most commonly encounter protein and energy deficiency resulting in protein-energy malnutrition. In this case, the fatty tissue disappears, the organism can resist infections to a lesser extent, and chronic diarrhea may also occur. If the energy balance in the organism is upset for a long time (i.e., the daily energy uptake is less than the energy use), emaciation may develop. If the body weight is 15–20% less than the optimal and the amount of fatty tissue reserve also gets reduced or disappears, cachexia can be established, while in cases when the organism uses up the muscle proteins in addition to fat reserves, marasmus is diagnosed.

3. Obesity

It seems the most cruel and absurd thing that the world struggling with famines needs to fight obesity at the same time. In history, this is the first time when there are more obese people than those suffering from undernutrition. In the United States alone, every year, more than 300,000 people die due to obesity, while 100 billion dollars are spent on the treatment of the disease and the related consequences.

Overweight and obesity are two endemics that are not restricted to the population of rich countries. There are more than 300 million obese people in the world, of them 115 million live in the developing countries [5].

According to the World Health Organization, it is among the top 10 most severe diseases. Plenty of people suffer from its complications and even more from the esthetic and social consequences. The incidence of cancer increases with the pathological obesity of the population, while both obesity and individual types of tumors are preventable. The simplest recipe of slimming diets: eat less and move more. If we consume just 500 kcal less daily, it results in 0.5 kg weight loss, which is 2 kg in the month. Body weight reducing therapies are built on four pillars: slimming diet, exercise, behavior change, and medication. A long-lasting effect can be achieved by the combined application of these four possibilities [6].

The effects of overweight and obesity are well documented. Obesity studies typically reveal association with cardiovascular diseases, cerebrovascular diseases diabetes, gall stones, goiter, and a number of cancers (e.g., breast, colon, ovary, and prostate cancer) endocrine disturbances, renal disturbances, liver damages, pulmonary disturbances, and joint diseases.

4. Health industry

The composition, quality, and quantity of the food consumed and the frequency of food intake have crucial effect on our general feeling, well-being, and diseases. A healthy adult consumes half a ton of food per annum. Nowadays, information on the role of nutritional factors in developing diseases gains more and more importance.

The explanation is simple: there is a whole industry that focuses on health preservation, optimal body weight, and well-being. The products promoting healthy way of living need to be advertised, whereas the value of programs arousing public interest is unfortunately determined by the number of viewers of such programs and the chances for placing commercials in them, rather than their usefulness for the society.

In the civilized world, preferences are to be given to foods which, in addition to their nutritional value, have obvious biological usefulness; therefore, beside the level of microelements vitamin, fiber and flavonoid content of foods to be consumed should be taken into account. The quality of foods also counts, so the qualitative approach should gain priority over the quantity-centered nutrition; mass media plays an important part.

For national economies, the treatment of obesity-related conditions is a great challenge which takes up an increasing part of health care expenditure. Obese people suffer three to four times more often and intensely from depression and anxiety than their fellow citizens with optimal body weight.

Since both obesity and the development of some malignant tumors are preventable, the greatest issue and challenge for health care providers is the number of pathologically obese European citizens. Besides public health specialists parents and those in charge of children's education also share this responsibility. We, Hungarians, would not die 10 years earlier than our European fellow humans if we valued health, cared for ourselves and others, and increased our knowledge on health preservation [7].

5. Ethical issues

Safe food supply does not sheerly mean that we have a sufficient amount of food at our disposal but the diversity of this food at reasonable price is also important. Families need income covering the cost of sufficient and diverse food for each family member.

Apart from that it is also important for individuals to have access to relevant information about the nutrients and food. It is a fact that the amount of corn grown all over the world could provide 3000 kcal of energy for each man, woman, and child, whereas the optimal value is 2300 kcal per person. Food production exceeds the growth of population by 16%.

The real problem is caused by distribution. For many people, appropriate food is unaffordable –this is how starvation becomes a global problem. Since it is widely known that the amount of foodstuff is sufficient, increasing the production provides no solution for the problem. In spite of the fact that climate factors and various natural disasters have a huge influence on the agricultural production, there are economic, social, cultural, and political issues behind starvation and malnutrition. Intensive cultures are accused with damaging the environment and endangering natural resources,—water and soil—with fertilization and inconsiderate use of chemicals. The intensification of agricultural cultivation of the land maybe defined as the increase in the proportion of industrial products as compared to the cultivated agricultural area. By now, agricultural technology has become independent of the land, its own natural basis. By destroying the environment, we will not have the chance for producing appropriate and sufficient foodstuff.

Globally every day 40,000 people die from undernutrition and the related diseases. Every fourth child in the Earth suffers from undernutrition and annually 11 million infants below 1 year of age die from undernutrition, 2 billion people suffer from chronic undernutrition [8], while the amount of foodstuff produced could profoundly satisfy all people's needs.

"If the order of values gets disturbed and good is mixed with bad, then individuals and groups take sheerly their own interests and not those of others into account. Safe food supply of the world is endangered by the greediness of the rich and the spread of inappropriate methods of production—the excessive increase of the productivity of soils and the use of excessive amounts of pesticides" [3]. This is what we need to change until it is not too late.

6. Our challenges now and forthcoming time

Besides these aforementioned facts, the nutritional problems from the viewpoint of science need to cover other "real scientific problems" namely characteristics of the different foods and food preparations: toxicological approach, clinical nutrition behaviors (chemical constituents, their stabilities utilization, physical-chemical properties, food preparation forms, etc.).

Sorry to say, the toxicological problems of the different food or food components are not sufficiently studied in over the world.

In our previous studies, we deeply analyzed the capsaicin problems and were very surprised that no human clinical toxicological examination was found independently in the literature during the human population of the last 7000–9000 years [9–11] by the international authorities asked different toxicological data and by the measurements given internationally accredited institutes. We received these data from the different authorities, and Hungarian authorities gave permission to carry out observations with capsaicin for 1 month period (Phase I). However, we would like to use capsaicin for human therapy we need to give farther toxicological data (two species of animals—rats and Beagle dogs for 6 months, and thereafter in human beings).

From this book, the changes of different physical-chemical properties of the food produced by different preparation are absolutely absent; meanwhile, these data are important in the utilization of different foods or food preparations.

For the objective analysis of the foods, we need to use objective methods as we did during drug therapy [11].

In case of drug preparation, we need to give the international authorities so-called Drug Master File (DMF). In case of capsaicin, the DMF has to be present in the following details: (1) specification of the capsicum species, (2) climatic regulations in places of capsicum cultivation, (3) chemical treatments of capsicum plants during their cultivation, (4) detailed treatment of capsicum plants (their collection, drying, extraction storages, etc.), (5) analytical results supporting the chemical composition of the plant origin of capsaicinoids extract, (6) chemical stability of natural capsaicin (capsaicinoids), (7) analytical results showing the possible contamination of natural compounds with organic phosphates, pesticides, fusarium, and aflatoxins, and (8) international certification (including the Food and Drug Administration, FDA) on the capsaicin (capsaicinoids) content of the natural preparation. Aforementioned data need to be given by internationally accredited laboratories. These data are collected in the DMF.

Sorry to say, similar qualification systems do not exist in case of foods regardless of using much higher portions in the everyday life (Food Master File, FMF). These are in under discussion by the international organizations.

The qualification of the foods would be necessary to be done firstly in human beings, of course, with respect to the actual physiological (pathophysiological) parameters of the human organs [12].

Our challenges now and in the forthcoming decades are the solutions of these aforementioned problems. Our biggest challenge is that although the number of human population increases exponentially, increase of food supply does not happen exponentially.

Our Take Home Message is

"TO BE OR NOT TO BE"

(William Shakespeare, 1564–1616)

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