

Genesis of functional nutrition: sustainability perspectives

A Y Zharikov¹, S V Rettikh^{1*} and S V Shirokostup¹

¹Altai State Medical University, 40 Lenina prosp., Barnaul 656038 Russia

E-mail: rettihsv@agmu.ru

Abstract. In this article, the authors consider the concept of “functional food” in a biomedical context. In the modern world, it is quite difficult to eat regularly and properly. A modern consumer is active, mobile, socially loaded; consequently, the minimum time per day is allocated for food. As a result, there is a slowdown in metabolic processes, and the body receives an insufficient number of useful components and vitamins. More than that, there are malfunctions in the intestine. To eliminate these problems, it is necessary to start eating functionally. It will make up for the deficiency of the necessary vitamins, minerals, and components for optimal and coordinated work, as well as weight loss. The article presents the rationale for the interrelation of functional food as an element of national culture and as a means of disease prevention. The authors propose a rationale for the “separation” of the definition of functional nutrition, formed in a certain ethno-cultural environment, from its fundamental basis in modern conditions and “transfer” to other social environments. The scientific relevance of the study is due to the growing interest of scientists to the problem of the relationship of cultures in the context of globalization, as well as the need for a more detailed study of the ancient semantic “food” unit as a representative.

Keywords: functional nutrition, functional food, product, consumption

1. Introduction

In the second half of the 20th century and the beginning of the 21st century there were radical transformations in various spheres of social and cultural life. They affected the daily lives of people, in particular with regard to the preparation and consumption of food. The world food consumption is increasing. According to the Faostat, between 1993 and 2013, per capita consumption of kilocalories per day increased by 10%, from 2616 kcal to 2874 kcal [1]. From the basic human need, with the development of civilization, food has become a special concentrate of “cultural meanings” that identify the individual and society in their relationship [1].

The concept of “functional food” has been the subject of several exercises, including gastrite, the science of symbolic and communicative functions of food, drinks, cultural, and communicative functions of potions and treats. The nonverbal “language of food” as the dominant code of culture is considered in the special literature [7], [16]. The concepts of hedonism are of great interest in connection with the study of the principles underlying the formation of the psychology of human nutrition [8]. The founder of this doctrine is considered the ancient Greek philosopher Aristippus of the city of Cyrenaica. He believed that the ultimate purpose of human life and all its activities was the obtaining of pleasure and avoidance of feeling any dissatisfaction [11]. However, the pleasure derived from the consumption of any food product has an individual character [9].

2. Materials and Methods

The methodological basis of the proposed article is the works of Yu. S. Stepanov [2]; conclusions about the interrelation between food and culture made by N. S. Marushkina [4].

Extensive materials on the traditions of eating were collected in the works of V. N. Mazurina [5]. P. Bourdieu [6], who developed the socio-anthropological concept of taste, considers the susceptibility to pleasure in the socio-cultural space in terms of bodily identification of the individual by certain categories of food. The research methodology is determined by the framework of the general scientific approach; more than that, descriptive, comparative-historical, and conceptual methods were applied.

3. Results

Considering the Genesis of functional nutrition, it can be noted that medical and preventive provisions in this area are presented in the ancient Egyptian and Roman manuscripts. In his works, Hippocrates traced the principles of food use for therapeutic purposes, the use of a differentiated approach in diet therapy, taking into account the stage of the disease, the patient's age, his habits, climate, time of year, etc. [11]. Arnaldus de Villa Nova suggested that in the treatment of various diseases it is necessary to use proper nutrition in combination with physiotherapy [12].

Claudius Galen, an ancient Roman physician, pointed out the important role of the use of proper nutrition along with drugs in his encyclopedia on all branches of medicine [13]. In the writings of Ibn Sina (Avicenna), ideas about diet therapy were further developed; in the treatise "Canon of Medicine" was considered a diet. Ibn Sina gives a series of recommendations, including an indication of the usefulness of tasty food, an obstacle to digestion, the manifestation of a depressed state of mind, the need to adhere to a certain order in food intake, etc. [14]. From a medical-preventive point of view, the treatise "Regimen Sanitatis Salernitanum" (16th century), which indicates the harm of eating food just before bedtime, describes the nutritional value of individual foods and the feasibility of their use in various diseases, taking into account therapeutic properties [15].

The concept of "functional food" as an independent definition was formed in Japan. So, in 1947, the Law "On Food Sanitation" was adopted; in 1955, the first fermented milk product was developed ("good intestinal microflora provides a healthy body"); in 1984, a project on the creation of functional nutrition (FP) was launched, and the concept of "healthy foods" was developed (FOSHU). In 2001, the national law "On promotion of healthy lifestyle" was adopted.

The next stage in the development of functional food is connected with technological innovations arising in medicine, health care, and food production. But, despite the fact that technical innovations assume the availability of fruits and vegetables throughout the year, does not mean that the human body, which has been formed for tens of thousands of years, was able to automatically change and adapt to a particular diet. For example, in India, where vegetarianism is practiced (without milk, fish, eggs), an average life expectancy of a person is 54 years. The Tibetan and Caucasian shepherds live and work for up to 100 years, and this is despite hard work and a difficult mountain climate. They exclusively rely on a meat and dairy diet, drink strong tea with salt and low-grade tobacco.

The main rule of functional food in the biomedical aspect is the use of high-quality products with high energy value. They should saturate the body, suppress hunger, without causing food allergies and other side effects. Functional foods are not just quality products that are related to proper nutrition, they are the products grown exclusively in a clean environment, in which no additives exist. [Shterman, 2017]. Functional products are those that have scientifically proven their benefits to the body and deserve to be the best.

Currently, there are a number of national projects in the field of demography and health care in Russia. The Government of the Russian Federation developed the "Strategy for improving the quality of food products in the Russian Federation until 2030" (June 29, 2016 No. 1364-r) [17], which provides for the creation of incentive mechanisms for manufacturers to produce food products that meet quality criteria, and also creates conditions for the production of food products of a new generation with specified quality indicators. The action plan for the implementation of the Strategy includes the development of criteria, methods, and procedures for confirming the effectiveness (health

benefits) of functional food products, the creation of innovative technologies for the deep processing of agricultural raw materials for obtaining new types of functional food, as well as the development and implementation of pilot projects for the production of functional food products.

In the Russian Federation, a bill on the “Ideology of Healthy Food” is almost ready and can be submitted to parliament in May 2019. Dmitry Medvedev, Russian Prime Minister, delivered the authority to control the food quality to the Rospotrebnadzor. By improving the quality of nutrition, one can partially solve the demographic problems of Russia. According to the Rospotrebnadzor, more than half of deaths in Russia are associated with intake of poor-quality food and unhealthy diets. More specifically, about 63% of deaths in Russia are associated with diseases caused by poor food [17].

High consumption of sugar, saturated fatty acids, salt leads to the development of cardiovascular diseases, arterial hypertension, diabetes. At the end of March 2019, the Ministry of Health reported that in 2018, the Russians consumed sugar twice as much as the established norms. Each Russian had 39.4 kg of this product at a rate of 24 kg. But in milk and dairy products last year, there was a lag of 225.2 kg per person with a rate of 325 kg.

4. Discussion

The theses outlined above are quite debatable. The Foundation “Public Opinion” decided to ask the Russians their opinion on how they see “a healthy food.” For 37% of Russians, this is the use of natural, organic products without preservatives and GMOs. For 19% of respondents, food is healthy when it is balanced and regular. That is, it is necessary to have breakfast, lunch, and dinner, as well as to monitor the balance of proteins, fats and carbohydrates. 11% of respondents think that the most important thing is to observe moderation, or compliance with any diet (the Kremlin diet is the first in popularity). Also, it is important to reject salty, fatty, and sweet products.

It is necessary to bear in mind that the functional food is not just quality products that relate to a healthy lifestyle, it is the food grown exclusively in a clean environment, without additional ingredients. Functional products are those that have scientifically confirmed their benefits to the body and deserve to be the best. Also, the functional food suggests a category of foods that can be eaten, but this is undesirable. These include vegetable fats (olive, sunflower, corn, flaxseed), they contain the essential fatty acid Omega-3 [3]. However, a number of great studies show that these oils do not supply the body with cholesterol and phospholipids necessary for the construction of cellular membranes. New trends in bioengineering, medicine, processing, and cooking technologies will affect what we eat.

5. Conclusion

Today, the multifunctionality of food products has become so obvious that it relegated their purpose as satisfying a physiological need, and turned them into a means of cultural self-determination of the individual. The mass consumer society cultivates more and more new needs of an individual, immersing him in the abyss of pleasures, including gastronomic pleasures. Traditional product advertising appeals to new forms of promotion of goods and services. In Russia, across the country are food trade fairs. Today, food becomes a kind of fetish, a real subject of worship. From the object of physiological pleasure, some products, especially those banned in Russia because of sanctions, have become a factor of prestige and social status.

6. Acknowledgment

The authors are grateful for the contribution to the research made by the Scientific Department of the Altai State Medical University, Department of the Altai Krai for the Food, Processing, Pharmaceutical industry and Biotechnology.

References

- [1] Milknews 2018 *The world food consumption is growing steadily – FAO* Available at: <https://milknews.ru/index/FAO-potreblenie-pishchi.html> (Accessed 28 04 2018)
- [2] Stepanov Yu S 2004 *Constants: Dictionary of the Russian culture* (3rd ed.) (Moscow, Russia: Academic

- project)
- [3] Bibler V S 1991 *From the science of knowledge to the logic of culture: Two philosophical introductions in the 21st century* (Moscow, Russia: Politizdat)
 - [4] Marushkina N S 2014 *The concept of "Food" in the context of dialogue between cultures* (Cand. of Sci. Dissertation) (Ivanovo, Russia)
 - [5] Mazurina V N 1999 *Etiquette of food in Nepal: Etiquette among the peoples of South Asia* (St. Petersburg, Russia: Publishing House "Petersburg Oriental Studies")
 - [6] Bourdieu P 2001 *Practical sense* (St. Petersburg, Russia: Aleteya)
 - [7] Rettikh S V 2011 The main approaches to sociocultural research. Historical, philosophical, political and legal sciences, cultural studies and art history *Theory and Practice Issues* **6-2**(12) pp 149-15
 - [8] Giannantoni G Ed. 1990 *Socratis et Socraticorum Reliquiae Napoli* **2**
 - [9] Shterman S V, Sidorenko M Yu, and Shterman V S 2017 The hedonistic account of consumer preferences when designing food products (Part I) *Food Industry* **6** pp 57-61
 - [10] Rettikh S V 2009 Innovative component of the socio-cultural process *Bulletin of the Altai Academy of Economics and Law* **13** pp 40-44
 - [11] Karpova V P Ed. 1944 *Hippocrates: Writings (Book 2.)* (Moscow, USSR: Medicine Publishing)
 - [12] Trokhachev S Yu 1989 The philosophical foundations of the medical theory of Asklepiad Vifinsky. In A I Zaitsev, and B I Kozlov Eds. *Collection of scientific papers: Some problems of the history of ancient science* (pp. 126-135) (Leningrad, USSR: Main Astronomical Observatory)
 - [13] Balalykin D A, Shcheglov A P, and Shok N P 2014 *Galen: a doctor and philosopher* (Moscow, Russia: Vest)
 - [14] Frolova E A 2010 *The New Encyclopedia on Philosophy: Ibn Sina* (Moscow, Russia: Institute of Philology)
 - [15] Arnaldus de Villa Nova 1964 *Regimen Sanitatis Salernitanum* (Moscow, USSR)
 - [16] Rettikh S V 2011 Definition of innovation in philosophy: Historical, philosophical, political and legal sciences, cultural studies and art history *Theory and Practice Issues* **7-2**(13) pp 189-191
 - [17] Government of the Russian Federation 2016 *Order on the Strategy for improving the quality of food products in the Russian Federation until 2030* (June 29, 2016 No. 1364-r)