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# THE INFLUENCE OF THE WORLD'S FOOD TRADITIONS ON ATHEROSCLEROSIS REVIEW

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**Abstract**
The authors gave a review of current literature on the impact of food traditions of the world on the development of atherosclerosis. Analytical information on modern trends in the transformation of culinary preferences is presented. It was found that in the conditions of today's globalization and unification, among representatives of the older generation, food remains as a stable marker of ethnic identity. On the other hand, the younger generation is largely committed to unification, which is manifested in the consumption of store-bought products, dishes based on recipes from the Internet, not to mention fast food, which has a single standard throughout the world. An analysis of literature from open sources of the last 5 years on the influence of ethnic food traditions on the development of atherosclerosis was performed. Deviations in eating habits are indicated, accompanied by appetite disturbances and obesity, which is important in the development of atherosclerosis. An obvious dependence of life expectancy on dietary style has been demonstrated. Examples such as the Mediterranean diet and traditional nutrition in Japan have shown beneficial effects on atherosclerosis. Explanation of the possible mechanisms of this phenomenon is the essence of this work.

**Keywords**: style, nutrition, atherosclerosis, ethnic, tradition.

## Introduction

The food traditions and customs of the various ethnic groups are considered to be the most enduring elements of cultures. Despite the vector of globalization and unification of the development of the modern world, they continue to be the most stable marker of ethnic identity. At the same time, it should be said that this is legitimate for people of the older generation. For various reasons, such as the desire to meet the modern requirements of a healthy diet, the influence of advertising, there is a process of changing food preferences.





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Children and grandchildren in ethnic groups are all subject to unification to a large extent, which is manifested both in the greater consumption of store-bought products and in the preparation of dishes whose recipes are taken from the Internet [1, 2, 3]. On the other hand, research in the field of etiology and pathogenesis of atherosclerosis also remains a relevant and modern trend. The attention of researchers is attracted by this pathology, since, being associated with cardiovascular diseases, it is the leading cause of mortality in the world's population [4, 5, 6].

The issues of ethnic food culture in the light of its interaction with the development of atherosclerosis within the framework of the metabolic theory of its development have not been left aside [7, 8, 9]. The above makes very interesting reports on modern views on the pathogenesis of atherosclerosis [10, 11, 12], which include this review of literature sources of recent years.

**Materials and Methods**

The material for this report is numerous scientific works posted in the public domain of Internet resources of scientific platforms, journals, collections, monographs. An analytical review of publications and literature sources in the PubMed, Medline, Web of Science, and Cochrane Library databases since 2018 is presented in this article.

**Results and Discussion**

Modern data indicate that food is an integral element of the axiosphere of human life, in connection with which the principles of food culture have historically been formed, including knowledge of the basics of proper nutrition, the properties of products, their impact on the body, the ability to choose, cook, and serve them. Studies of the problematic elements of "food" and "culture" in cultural studies of everyday life continue to be interesting. The ethnic and cultural-historical specificity of the people is reflected in the sets of food products characteristic of different peoples, the methods of their processing, the types of dishes, the traditions of preference or avoidance, the organization and ritual of meals, and other aspects of everyday culture that are directly or indirectly related to food [13, 14].

It is important to note that in the era of multi-vector cultural ties, the relationship between the values of ethnic groups is a necessary factor in creating a holistic view of world culture and, at the same time, the progress of ethnic cultures. At the present stage of socio-cultural development, two opposing trends are manifested: the active borrowing of foreign cultural values, on the one hand, and the transmission of primordial values, on the other. We are convinced of this by the data of ethnography, ethnology, and the results of cultural studies [15, 16, 17].

At the same time, a number of researchers note the presence of an "axiological paradox". Despite the fact that the axiosphere of ethnic culture is a cycle of dynamic and stabilizing values, it is constant within its boundaries: this constancy is determined by its central zone, which filters new values on the basis of correspondence to the "value framework." The borrowing of values as such takes place partially: only their elements are accepted, and not the main ones, thanks to which the originality is not lost, thanks to which ethnic culture remains

self-identical for centuries. This property can play a dual role: both to help it master new spheres of life and develop, and to "preserve" it [18, 19].

The convergence of trends in ethnic food and atherosclerosis occurs due to the fact that the development of this dangerous and insidious disease, which underlies widespread diseases of the cardiovascular system, largely depends on the nature of nutrition. This is confirmed by the fact that there is a currently existing metabolic theory of the pathogenesis of atherosclerosis. Not only has it not lost its relevance, but it continues to develop dynamically. This is due to the fact that one of the important modifiable risk factors for the occurrence and development of atherosclerosis is nutritional disorders and obesity. The latter can be largely attributed to people's ethnic culinary preferences [20].

It is very indicative that one of the main elements in the complex of preventive and therapeutic measures for cardiovascular diseases is a comprehensive assessment of patients' nutrition and diet therapy. A number of authors, bearing in mind the fact that multivitamin deficiency is observed in chronic diseases, including cardiovascular diseases, consider this deficiency as one of the possible risk factors for heart and vascular diseases [21, 22].

It is noteworthy that this is associated with the ability of antioxidant vitamins (E, C, β-carotene) to inhibit the peroxidation of low-density lipoproteins, which plays an important role in the mechanism of atherosclerosis development. It has been pointed out that the study of ethnic nutrition, vitamin supply, as well as the assessment of the quality of life, the level of stress, and anxiety are very relevant from the point of view of the conceptuality of the facts of cardiovascular disease risk and the possibility of preventive interventions [23].

In connection with the above, the efforts of specialists to use all kinds of alimentary technologies for the correction of impaired metabolic status in people with vitamin deficiency, obesity and metabolic syndrome look quite logical. These include variations of a low-calorie diet, specialized, functional foods, and nutritional supplements. An important role of normalization of the digestive-transport conveyor in restoring the imbalance of the brain-liver-gastrointestinal microbiota axis in this category of patients and, as a result, adequate optimization of neuroimmuno-endocrine regulation of metabolism has been postulated [24, 25].

The data on the importance of nutrition in the development of atherosclerosis, obtained in animal experiments, are interesting. We are talking about rabbits or dogs that do not develop atherosclerosis in natural conditions. Cholesterol feeding leads to persistent hypercholesterolemia, which progresses as the duration of the experiment lengthens [26, 27]. Pathological examination of the vessels revealed atherosclerotic lesions in the form of lipid spots and streaks and fibrous plaques. The results obtained confirm the existence of a direct link between nutrition and the development of atherosclerosis. This species is within the framework of the alimentary or metabolic theory [28, 28a, 29].

One of the well-known variations of diets aimed at the beneficial effects of the lipid profile, body weight, carbohydrate metabolism, blood pressure and cardiovascular morbidity in general is the Mediterranean diet. In recent decades, due to cardioprotective mechanisms, it has been the subject of study by cardiologists around the world. It is no secret that non-drug prevention and treatment of cardiovascular accidents occupies a fairly impressive part of research. These

include the rationalization of nutrition. In addition to the positive effect on the risk factors for cardiovascular pathology, there is a well-known data on a decrease in mortality from cardiovascular diseases with adherence to a certain dietary model [30].

An example is the eating style, first described in the early 1950s by Ansel Keys in A Study of Seven Countries, which was mainly followed by poor rural communities in the Mediterranean basin, later called the "Mediterranean diet" [31]. A distinctive feature of this ethnic eating style was the abundant consumption of fats, but only in the form of olive oil, nuts or fatty fish, moderate consumption of red wine with meals, and a large amount of cereals, fruits and vegetables in the diet. Restrictions were imposed on full-fat dairy products, red meat and poultry.

Subsequently, the researchers of PREDIMED (PREvencion con DIeta Mediterannea) confirmed the protective effects of the Mediterranean diet and identified it as one of the most important components in the prevention of cardiovascular diseases [32, 33]. Further studies have shown a significant cardioprotective effect in the form of a 50–70% reduction in the incidence of recurrent heart attack and mortality with the Mediterranean diet [34].

Even more demonstrative were the results of studies postulating that the Mediterranean diet model was comparable to drug interventions such as aspirin, statins, ACE inhibitors and beta-blockers, as well as physical activity, in terms of reducing the risk of cardiovascular disease and mortality [35].

The Mediterranean diet is the most researched and evidence-based ethnic dietary model for the prevention of not only cardiovascular catastrophes, but also other chronic diseases (cancer, obesity, inflammatory bowel disease), which is why it has become the standard for healthy eating and a dietary template of special value. It is noted that the bulk of the studies were carried out on the territory of the Mediterranean basin, it is impossible to exclude the possibility of obtaining ambiguous results in other groups (living in different climatic, geographical, social conditions). For a part of the population, the products that are part of this dietary stereotype may not be available (due to climatic, social or religious reasons) [36].

A large study of the relationship between the characteristics and style of nutrition as a risk factor for obesity and, through it, atherosclerosis and cardiovascular diseases, has shown that in modern conditions of increased stress and physical inactivity, the prerequisites for obesity and overweight appear. Psycho-emotional stressful situations can contribute to the development of alimentary obesity, since stressed individuals are prone to irrational nutrition, excessive alcohol consumption, and physical inactivity [37].

As defined in the Oxford Dictionary of Psychology, eating behaviour is an umbrella term used to refer to all the different components of behaviour involved in the normal process of eating, which includes preparatory behaviours such as food seeking, actual food intake, and a large number of physiological processes involved in the disposal of what has been eaten. Eating behavior can be harmonious (adequate) or deviant (deviant). Eating disorders (deviant eating behavior) are those disorders in which the consumption of food in terms of composition, quantity, method of consumption and preparation does not correspond to the need for nutrients and energy [38].

In the current literature, eating disorders are considered as a socially acceptable variant of additive behavior. Addictive or dependent behavior is a type of deviant behavior. The essence of addictive behavior lies in the fact that, in an attempt to escape from reality, people try to artificially change their mental state, which gives them the illusion of security and restoration of balance [39].

At present, within the framework of the socio-psychological typology of pathological

There are 3 main types (strategies) of addictive eating behavior: external, emotional, and restrictive. In external eating behavior, food consumption is initiated not by homeostatic internal stimuli (hunger, low blood glucose level, an empty stomach, etc.), but by external stimuli (including olfactory ones) – a set table, people eating, food advertising, the smell of food, etc.

For the emotional type of eating behavior (hyperphagic reaction to stress, emotional overeating), the stimulus to eat is also not the feeling of hunger, but the emotional discomfort that a person "eats" in an effort to find peace of mind. Emotional overeating has 2 main forms: paroxysmal (compulsive eating) and night eating syndrome (overeating with a disruption of the circadian rhythm of eating). Restrictive eating behaviors refer to excessive self-restraint in eating with haphazard strict diets [40, 41].

To conclude this report, in contrast to the above-described obesity and the development of atherosclerosis, we will cite an interesting work on the relationship between the nature of nutrition and the life of centenarians. In the early 2000s, the results of a study on the influence of culture and diet on the state of the cardiovascular system of the population of the Japanese island of Okinawa were published. It was said that the peculiarities of the diet and food culture are the key factors that determine their health and longevity. It has been established that a feature of the diet of the inhabitants of Okinawa is the consumption of seaweed (mainly brown and red with minimal heat treatment) along with foods rich in polyunsaturated fatty acids and natural antioxidants. In this way, the diet of the islanders differed significantly from that of other regions of Japan [42].

The data obtained served as the beginning of an in-depth study of the chemical and biological properties of seaweed, the peculiarities of the effect of the biologically active substances contained in them on the human body. At the same time, it is a well-known fact that every fourth resident of Japan is over 65 years old, and more than 61 thousand people have crossed the century mark. The average life expectancy of Japanese men is 80 years, women 86 years, and the active period of life lasts up to 70 and 73 years, respectively [43, 44, 45].

The presented article, within the framework of existing possibilities, cannot contain a huge amount of material that can be read and analyzed. Authors will be grateful for suggestions and critical appeals. We would venture to assume that this will not be our last meeting.

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