

Original article

Culinary medicine as an integrative field of modern healthcare: A review

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Abstract:

This article examines culinary medicine as a developing integrative field in modern healthcare, combining evidence-based medicine, nutritional science, and clinical dietetics.

The relevance of this topic is determined by the global rise in diet-related chronic diseases and the need for effective preventive programs aimed at fostering a healthy eating culture. The paper explores the theoretical foundations of culinary medicine, its differences from related disciplines such as dietetics and nutritional science, and highlights the interdisciplinary collaboration of physicians and chefs in developing therapeutic diets. Particular attention is given to international studies demonstrating the integration of culinary medicine courses into medical education in the United States and Europe, which has significantly improved the competence of future physicians in nutrition counseling. The paper emphasizes the need to implement similar educational and clinical practices in Russia to support disease prevention and promote responsible eating behavior. Culinary medicine is presented as a promising tool for the formation of an integrative healthcare model aimed at improving public health and quality of life.

Keywords: culinary medicine, nutritional science, dietetics, healthy eating, preventive medicine, public health, integrative healthcare

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Introduction

The modern healthcare system reconsiders the role of preventive medicine and lifestyle in maintaining health of people. Along with pharmacological and clinical treatments, the importance of non-pharmacological interventions (NPIs) aimed at improving nutrition and developing sustainable healthy eating habits is growing. According to the World Health Organization, up to 60% of chronic diseases are directly related to diet and eating behavior in people.

The problem is aggravated by a lack of public awareness regarding the principles of healthy eating and a low level of trust in official dietetics. Pseudoscientific recommendations are actively disseminated in the media, replacing evidence-based approaches with amateur concepts of self-proclaimed nutritionists without formal training.

In recent years, culinary medicine has become widespread primarily in the USA and Europe. Medical universities introduce elective courses in their curricula. These courses combine nutrition, biochemistry, and practical training in cooking adapted to specific clinical settings. Such programs enhance the competencies of future physicians in providing nutritional counseling to patients and strengthen the evidence base for preventive medicine.

The objective of our review is to analyze the development and nature of culinary medicine as an integrative healthcare approach, identify its differences from related disciplines,

and determine prospects for its implementation in the Russian preventive medicine system.

Review methodology

To prepare this review, we conducted a systematic search of scientific publications in the international and Russian databases (PubMed, Scopus, eLIBRARY, Google Scholar, and CyberLeninka). The following keywords and their combinations were used: culinary medicine, nutritional science, preventive medicine, public health, and healthy eating.

Articles were selected based on the following inclusion criteria:

- Publications from 2019–2025;
- Full-text availability;
- Research papers and reviews dedicated to culinary medicine and its integration into the healthcare system;
- Publications in Russian and English.

Exclusion criteria were as follows:

- Duplicate publications;
- Articles without access to their full text;
- Irrelevant materials in terms of the stated objective of the review;
- Popular and non-scientific sources.

After selection based on relevance and full-text access criteria, 50 published sources were included in our final analysis.

Culinary medicine in modern healthcare.

Currently, healthy eating receives particular attention, as people face numerous challenges, including those related to cardiovascular and gastrointestinal diseases. Russian researchers conducted an epidemiological analysis based on a long-term study and concluded that gastrointestinal diseases rank fourth in overall morbidity and mortality in Russia, accounting for 5.2% and 7.7% of deaths, respectively [1].

Furthermore, obesity remains a pressing issue. In March 2025, M.A. Murashko (Russian Minister of Healthcare) stated that the prevalence of obesity among adults in Russia is almost 25% [2]. At the same time, a number of chronic diseases are becoming more prevalent among younger individuals, including Alzheimer's disease, dementia, hypertension, osteoporosis, and others.

Factors contributing to these negative trends include:

1. Lifestyle changes. Following the 2020 lockdown, when majority of the population was forced to switch to remote work and education, and due to the rapid development of ICT, levels of physical activity significantly declined [3]. Lack of physical activity leads eventually to poor health and increases the risk of developing chronic diseases.
2. Genetic predisposition.
3. Medical factors, including the side effects of certain medicines.
4. Socioeconomic factors (economic instability, natural disasters, information overload, and high levels of stress) that directly affect public health.

In response to these challenges, federal initiatives aimed at strengthening public health are currently implemented in the Russian Federation. One of the key projects of the kind is the federal project Healthy Nutrition, which is part of the national project Demography and the program Developing a System of Motivating Citizens to Lead a Healthy Lifestyle, Including Healthy Eating and Abstinence from Bad Habits [4]. One of the main goals of this project is to develop a system of scientifically reliable information for the public on healthy eating principles.

The legal basis for healthy eating is provided by the Federal Law No. 29-FZ of January 2, 2000, On the Food Quality and Safety, Article 2.1 of which lists the principles of healthy eating and requirements for ensuring food safety [5]. As the population shifts to healthy eating, the reliability and scientific validity of the information provided to citizens is of particular importance. At the same time, it is necessary to maintain a balance between the taste and health benefits of food, since eating is one of the main sources of pleasure for people, and the strict restrictions of traditional dietetics often prove psychologically difficult to perceive.

Interest in the applied aspects of healthy eating resulted in the emergence of new concepts in medical terminology such as culinary medicine and culinary therapy (also known as cooking therapy). The former represents an entire field of medical science that uses food as a means of treating and preventing diseases, whereas the latter involves the principles of compiling the therapeutic meal plans that contribute to patient recovery [6; 7]. Growing interest in culinary medicine and nutritional science is driven, in part, by augmented

attention to public health at the national level and public demand for high-quality, evidence-based recommendations [8].

International interest in culinary medicine grew significantly over the past decade. Several studies demonstrated that the inclusion of practice-oriented modules on culinary medicine in medical curricula contributes to the development of students' skills in counseling patients on nutrition as the means of disease prevention [9; 10].

One of the first systematic studies on the topic was conducted by Hauser M.E. et al. who summarized the principles of introducing culinary medicine into American medical universities [9]. The authors pointed out that traditional courses on nutrition are often limited to theoretical aspects, while practical experience (cooking) enhances students' understanding of the Food as Medicine (FAM) concept (also known as Food is Medicine).

The results of the course described by Rothman K.D. et al. confirmed a noteworthy increase in medical students' confidence in counseling patients and an improvement of their knowledge of nutrition [10]. After completing the elective course, 93% of participants confirmed their readiness to use the gained knowledge in clinical practice, while 88% claimed an improvement in their own eating behavior.

Further development of the concept is echoed in the review by Loy V. et al. [11]. The study showed that culinary medicine is becoming an integral part of public healthcare system and educational policy: programs bring together medical and agricultural universities, as well as local communities. Similar trends are observed in the pilot project by Krumholz J. et al., implemented at Larner College of Medicine (VT, USA), where 91% of students confirmed better understanding of the relationship between nutrition and diseases [12].

The review by Loy M. et al. [13] emphasizes the expanding scope of culinary medicine, now including the prevention of childhood obesity and the integration of the FAM approach into national healthcare systems. These findings are consistent with the results of Hildebrand C.A. et al., who demonstrated the effectiveness of culinary modules in the training of medical students and residents in the USA and Canada [14].

Vasques A.C. et al. presented a Brazilian model of integrating culinary medicine into the educational process, where its role as a tool for preventing chronic noncommunicable diseases (NCDs) is emphasized [15]. Similar conclusions are made by Asher R.C. et al., who noted the positive impact of culinary education on changing the eating behavior of study participants [16].

The most pronounced practical effect was demonstrated in the study by Weston S. et al., who considered culinary medicine as part of gastroenterology and pediatrics [17]. These findings were confirmed by Humerick M., who demonstrated the effectiveness of a four-year course in culinary and lifestyle medicine at the West Virginia University School of Medicine (WV, USA) [18].

Besides their physiological effect, culinary interventions also have a psychological effect. In their systematic review, Farmer N. et al. demonstrated the favorable impact of participation in culinary programs on stress level reduction and self-esteem improvement [19]. Similar results were

obtained in a study by Pritlove C. et al., where cancer patients participated in culinary training, which contributed to a reduction in the severity of chronic fatigue [20].

Recent reviews emphasized that culinary medicine is becoming part of the comprehensive FAM approach, which is actively implemented in the United States and EU countries [21; 22]. Multiple programs implemented as part of the Health meets Food project (HmF) demonstrated the effectiveness of introducing culinary courses in the preclinical curriculum for physicians [23].

An important theoretical stepstone was the clarification of competencies in culinary medicine proposed by the authors of the Defining Culinary Medicine article (2023) [24]. These authors proposed a unified list of professional skills and knowledge compulsory for future doctors and nutritionists working with patients.

Substantial attention is also paid to the effect of nutrition on aging. Culinary Medicine and Healthy Ageing review (2022) demonstrates that regular cooking helps prevent age-related changes in the body and reduces the risk of sarcopenia [25]. Recent studies (2025) confirmed that culinary medicine can improve muscle quality in older adults by optimizing their protein intake [26].

The achievements of the USA and Canada in disseminating educational programs are stated in the following publications: Evaluation of the Reach and Utilization of the American Culinary Medicine Curriculum [27] and Culinary Medicine in Medical Education: Cancer CALM Curriculum [28]. The authors proposed that the inclusion of such courses into curricula increases student motivation and fosters a sustainable culture of preventive care.

As for Russia, similar trends are observed in the study by Tutelyan V.A. et al., who focused on monitoring the dietary practices of the adult population [29]. These data confirm the need to adapt foreign practices to Russian conditions and integrate culinary medicine into the preventive healthcare system. The study by Kuzmin S.V. complements these findings, highlighting low public awareness of the healthy eating principles [30].

Recent research revealed that healthy eating issues are closely linked to regulatory, legal, and social education aspects [31; 32]. According to Russian scientists, the effective implementation of the FAM concept is only possible via the integration of scientific, educational, and medical approaches. For instance, Chicherin L.P. pointed out that international standards of healthy eating are gradually adapted into domestic practices due to the collaboration of medical research centers and nutrition institutes [31].

A study by V. A. Tutelyan, I. Yu. Tarmaeva, M. A. Kade, and D. B. Nikityuk established that the introduction of digital technology and artificial intelligence facilitates the personalization of dietary recommendations, thereby increasing their effectiveness and accuracy [32]. These findings are consistent with international results [33; 34], in which culinary medicine is considered as part of educational strategies and preventive programs in public health [35,36].

Relevant research areas include the development of online courses and distance learning in culinary medicine [37; 38]. Electronic educational platforms provide flexible learning and expand access to modern evidence-based knowledge on nutrition. Such approaches are particularly actively used in countries with transition economies, including Russia, where issues of developing proper dietary

habits are becoming an element of the national food security strategy [39; 40].

Particular attention is paid to the prevention of NCDs, including obesity, diabetes, hypertension, and metabolic syndrome. The study by Martinchik A.N. et al. [40] demonstrated a steady relationship between the education level, income, and dietary behavior in the Russian population. Moreover, there is a trend toward an increasing share of diets containing highly processed foods.

An analysis of domestic publications allows systematizing key areas of development in culinary medicine in Russia (Table).

A study by Masterova S.N. [42] demonstrated that the development of a healthy eating culture has a favorable impact on the country's economy rather than on public health alone: increased workforce productivity and reduced costs of treating chronic diseases lead to GDP growth.

According to the Changing Dietary Structure of the Russian Population over 100 Years [43], the share of processed foods in the Russian diet has increased, requiring adjustments to food policy. Development of the Healthy Eating Concept in Russia [44] emphasized the need to implement comprehensive educational programs that integrate medicine, culinary arts, and educational technologies.

The Nutrition Culture of the Russian Population [45] analyzed sociological surveys that revealed a correlation between eating behavior and the levels of education and income of citizens. The author emphasizes that low public awareness of the healthy eating principles is among the key reasons for the high morbidity rate [46].

Table. Key areas and results of domestic research in culinary medicine (2023–2025)

#	Authors and year	Key points of the study
1	Tutelyan V. A. et al., 2024 [29; 32]	Monitoring the nutrition of the Russian population, implementing AI in diet analysis
2	Kuzmin S.V., 2024 [30]	Assessing the actual nutritional status of the Russian population, identifying shortages
3	Chicherin L.P., 2023 [31]	Interaction of international and Russian nutrition standards
4	Masterova S.N., 2023 [45]	Economic effects of healthy eating and its impact on GDP
5	Lisitsyn Yu.P., Fedorova N. E., Nikityuk D.B., 2024 [50]	Developing a healthy eating culture in preventive medicine
6	Pokida A.N., 2024 [43; 49]	Sociological features of dietary patterns in Russian population
7	Development of the Healthy Eating Concept in Russia, 2023 [47]	State policy in nutrition and education
8	Nutrition Culture of the Russian Population, 2022 [48]	Social factors and regional differences in eating habits

According to A. N. Pokida [41], the formation of sustainable healthy eating habits requires the implementation of ongoing educational practices and the development of an infrastructure for accessible, high-quality food. Similar conclusions are made by Lisitsyn Yu.P. [47], who views nutritional culture as an integral element of preventive medicine and a key area of public healthcare policy. It is essential to emphasize the importance of active participation of the government in encouraging healthy eating and opposing aggressive advertising of foods with a negative impact on human health. Advertising often has a strong influence on consumer preferences, especially among vulnerable groups such as children and youths. It is important for the government to ensure the protection of citizens through developing effective informational and educational support. For example, the successful experience of combating smoking explicitly demonstrates that consistent government measures can significantly change public behavior and reduce health risks.

Conclusion

A comprehensive analysis of domestic and international experience convincingly proves that culinary medicine and nutritional science are mutually enriching disciplines aimed at preventing disease, improving quality of life, and fostering a culture of conscious attitude towards one's own health. The integration of these disciplines into the medical education and healthcare systems will strengthen the country's human resources, stimulate the professional and personal growth of specialists, and create a new paradigm for everyday nutrition based on scientific knowledge and responsibility, provided the state actively participates in promoting healthy eating and fighting aggressive advertising.

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