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Healthy Eating Culture in a Valeological Approach: Theory, Practice and Innovative Methods

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Healthy Eating Culture in a Valeological Approach: Theory, Practice and Innovative Methods

Monograph

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The monograph "Healthy Eating Culture in a Valeological Approach: Theory, Practice and Innovative Methods" explores the interconnection between nutrition, health, and valeology — the science of healthy living. Integrating theoretical foundations with practical applications, the work presents a comprehensive analysis of how dietary habits influence physical and psychological well-being. Special attention is given to the development of a healthy eating culture as a preventive tool against chronic diseases and lifestyle disorders. The authors offer evidence-based recommendations, emphasizing personalized nutrition, food literacy, and socio-cultural factors shaping eating behavior. Innovative educational and methodological approaches are also introduced to enhance health promotion strategies across various populations. This monograph is intended for researchers, educators, healthcare professionals, and students interested in nutrition science, preventive medicine, and health education. It serves as both a theoretical guide and practical resource for fostering a holistic and sustainable model of healthy eating in alignment with modern valeological principles.

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INTRODUCTION

Subject relevance. XXI century society digital technologies and information of the flow fast photos with development in the background human of life different fronts , including healthy marriage in style noticeable effect This is showing . in process food of behavior change and global food trends health storage the most important from directions one — nutrition and valeology integration attention to focus requirement Unfortunately , the food human to your health directly effect often enough is not evaluated , whereas the World health storage According to the World Health Organization (WHO) According to , 50-60 % of health marriage style with related to be , to be main from components one is food is considered [1] .

Today on the day wrong food habits — excessive consumer goods , unhealthy to products addiction , fast food , dessert gas drinks , high caloric light food — whole world along metabolic syndrome , obesity , diabetes diabetes , heart - blood vein diseases , osteoporosis and even some oncological situations development main danger factors as record is being done [2] .

Digital in society marriage of style o ' change — that is ' ni of the movement decrease , information saturation , screen in front of transferable of time most of the people food behavior " digital " by changing "stress " background forming dysfunctional eating (stress eating , night eating) food , lightning consumer goods) such as negative situations brought is issuing .

At the same time, nutrition and valeology are two directions that need to work in harmony in modern conditions. While nutrition studies the scientific basis of nutrients that have a biological effect on the body, valeology focuses on transforming this knowledge into healthy habits in a person's life and behavior. That is, it serves to form an understanding of not only what to eat, but also how, how often, in what conditions and why to eat.

Scientific hypothesis and evidence. According to WHO estimates, more than 2.8 million deaths each year are attributed to causes related to overweight and obesity.

In the Health Strategy of the Republic of Uzbekistan for 2022–2026, malnutrition ranks first among the main risk factors for non-communicable diseases.

According to an epidemiological survey conducted in 2020, 22% of students aged 18–25 had mild forms of obesity, and 68% had poor dietary habits. These Pic.s indicate that a healthy eating culture is not sufficiently formed among young people, and dietary errors can increase the risk of metabolic diseases in the future [3] .

Purpose of the study. The purpose of this monograph is to analyze nutrition as a valeological factor, to reveal the problems and opportunities in forming a culture of healthy eating, and to develop scientifically based recommendations for the application of nutritional knowledge in the daily life of a person.

Scientific novelty of the monograph. The monograph presents a valeological assessment of eating habits emerging in the digital society, conclusions and practical recommendations based on analytical data from questionnaires conducted in a student-age group.

Practical significance. The monograph serves as a methodological basis that is useful for educators, medical personnel, specialists promoting a healthy lifestyle in universities, as well as students and family members.

CHAPTER I. THEORETICAL AND METHODOLOGICAL FOUNDATIONS OF NUTRITION VALUEOLOGY

1.1. THE CONCEPT OF VALEOLOGY AND ITS PLACE IN PROPHYLAXIS MEDICINE

The issue of human health has always been relevant for all eras and civilizations. If ancient healers considered health to be the highest wealth, then in modern medicine this concept is gaining a deeper, systematic and integrative meaning. In the 21st century, the concept of health is not limited to the absence of disease, but is considered as a multifaceted system that evaluates biological, psychological, social and informational factors as a whole. In this regard, **valeology, which occupies a special place within the framework of medical science** , creates a fundamental and practical basis for the preservation, strengthening and promotion of health.

The term "valeology" comes from the Latin words "valeo" - "I am healthy, strong, firm" and the Greek "logos" - "teaching, science", and directly means "the doctrine of health". This term was first introduced as a term by the Russian scientist II Breygin in the 1980s and has been formed as an independent science since the 1990s.

Nevertheless, valeological ideas were formed much earlier, in the medical heritage of the ancient and Muslim East. Hippocrates linked human health to the harmony of character, environment and lifestyle, while Ibn Sina, in his work "The Canons of Medicine", singled out 6 factors important for maintaining health (air, food, physical activity, sleep, emotions and cleanliness).

Also, the works of scientists such as Paracelsus, IP Pavlov, AA Bogomolets, and VM Bekhterev served as a psychophysiological basis for the valeological approach.

In particular, the Swiss physician, chemist and philosopher Theophrastus Paracelsus, although he did not use the term "valeology" in his works, put forward the idea of health preservation through the restoration of the body's balance and internal potential. He understood health as "a state associated not with external

influences, but with the body's ability to restore itself." In his opinion, "each person is treated according to his nature," which is a reflection of the modern individual approach and personalized medicine in valeology.

"The remedy should be in accordance with the inner essence, not the body" - Paracelsus .

Paracelsus defined health as "harmony between spirit, body, and external environment," which is the root of the current biopsychosocial model [4] .

It is also worth noting that the Nobel Prize winner, the famous Russian physiologist IP Pavlov, introduced the theory of functional health, controlled by the central nervous system, into the valeological approach. His work on "conditioned reflexes" provided a scientific explanation of how the human body adapts to the external environment. This was important in understanding the physiological mechanisms of a healthy lifestyle, in particular, habitual movements, nutrition, and stress responses.

Pavlov's main idea is that health is the result of stable and balanced reflex activity. The body's own state of reflex stability - this "dynamic stereotype" - is considered the norm of health.

"The organism maintains its vital equilibrium through its physiological functions in motion" – IP Pavlov

Autogenic exercises, relaxation techniques, and stress resistance training methods used in today's valeology are based on Pavlov's idea of reflex mechanisms [5] .

It is also worth noting that the Ukrainian scientist, academician AA Bogomolets, studied health from the point of view of reserve capabilities (reserve forces). His work “The Struggle of the Organism Against Aging” led to the view that health is not a temporary equilibrium, but a system of adaptive reserves. He was one of the first to put forward the concept of “functional health” and linked the body's capabilities with its ability to fight the external environment.

"Health is a state of mobilization of the body in response to emergencies" - AA Bogomolets

Functional diagnostics, stress tests, and physiological reserve indicators used in today's valeology are based precisely on the scientific school of Bogomolets [6] .

Also, neuropathologist, psychologist and physiologist VM Bekhterev was one of the first scientists to explain health in terms of mental and social state. He explained health in terms of such criteria as mental stability, resistance to external stresses, and social compatibility of the individual. His main idea is that mental health is inseparable from physical health.

Bekhterev scientifically explained the control of health through the balance of the mental state, the prevention of neurosis and psychosomatic diseases, and the influence of upbringing and social environment on health.

"Human health is his positive socio-psychological state in relation to society" – VM Bekhterev

Today's concepts of psychovaleology, psychohygiene, and emotional health are considered to be a development of Bekhterev's ideas [7] .

WHO defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” This definition is fully consistent with the main goal of valeology – the formation and maintenance of a healthy lifestyle throughout a person’s life.

The main subject of valeology is the systematic study of human health and its constituent factors, the development of tools aimed at strengthening this health, developing stress resistance, and early identification of risk factors and their neutralization.

In the modern concept of health care, valeological activity is considered as a multi-component system aimed at the formation, preservation and strengthening of health. If clinical medicine is based on the diagnosis and treatment of diseases, valeological activity has a preventive goal, preventing the development of diseases and managing the internal resources of the human body, psychophysiological balance and a healthy lifestyle.

These areas of activity can be systematized as follows:

1. Individual health assessment (anthropometry, psychophysiological analysis, functional tests) - this stage consists of an objective assessment of the individual's condition, that is, determining the starting point of health. In this, anthropometric indicators (height, weight, body mass index, waist circumference), vital signs (blood pressure, heart rate, respiratory rate) and psychophysiological tests (reaction speed, stress resistance, vegetative status) play a key role.

This methodology is based on the principles of IP Pavlov's theory of physiological balance, Bogomolets' concept of functional reserve, and metabolic analysis . It is through individual assessment that the level of health, risk factors, and imbalances are determined.

For example, a student's daily stress factors, sleep quality, cognitive load level, and eating habits are assessed, and appropriate individual preventive recommendations are developed.

2. Lifestyle analysis

Lifestyle is one of the most important determinants of health. According to WHO studies, 60–70% of health status is determined by lifestyle. In valeological work, this analysis covers factors such as eating habits, physical activity, sleep patterns, mental state, harmful habits, information intake, and interaction with the social environment.

This analysis is based on the concepts of socio-hygienic approaches (NA Semashko's school), psychosomatics, and the health locus of control model.

For example, a person who eats less than 3 times a day, sleeps less than 7 hours, and does not exercise much has an increased risk of metabolic syndrome — which requires valeological intervention.

3. Provide advice on healthy eating, physical activity, hygiene, and emotional health

This direction represents the pedagogical and consultative aspect of valeology. A person cannot proceed to practice healthy eating without understanding its principles. Therefore, through concepts such as nutritional literacy, emotional

hygiene, information hygiene, cognitive hygiene, the necessary knowledge for a healthy life is conveyed to the individual.

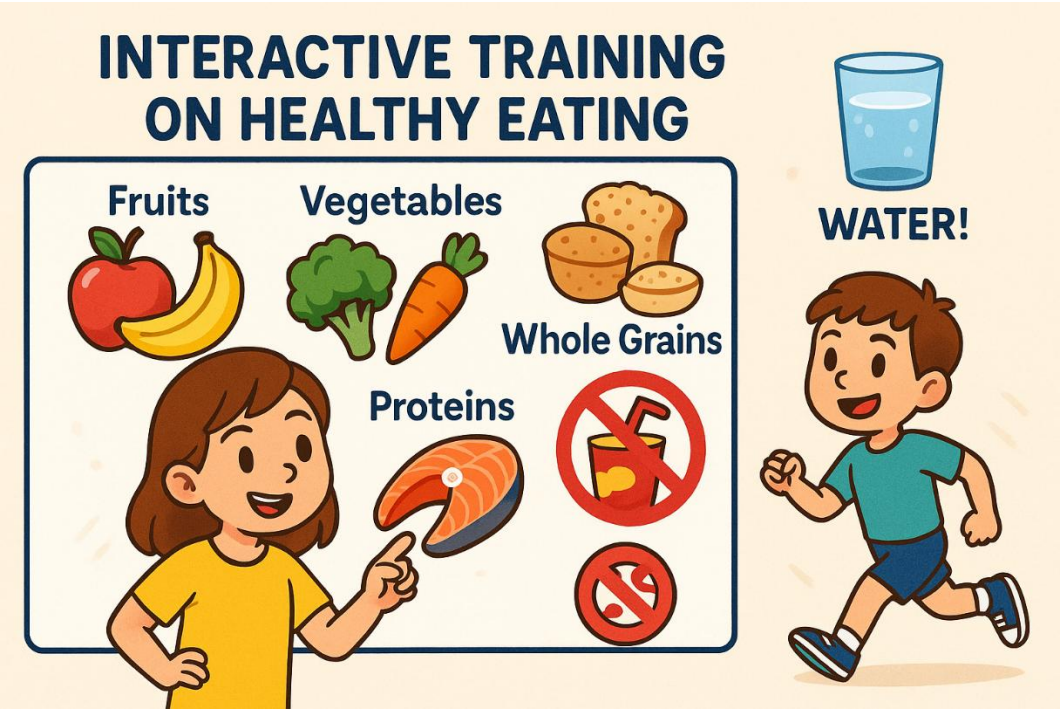
For example, breathing exercises, stress management techniques, and mindfulness training based on emotional hygiene restore psychological balance.

uses the psychoneurological concepts of the Bekhterev and Sechenov schools, psychohygiene, pedagogical psychology, as well as the capabilities of modern " digital health apps " .

4. Motivational training and educational activities in health care

In order for a person to strive for a healthy life, he must have not only knowledge, but also internal motivation. This component of valeological activity is a psycho-educational process aimed at teaching people to value health, to take responsibility for it. At this stage, trainings, health seminars, psychological motivational conversations, a system of life goals, and the concepts of "health coaching" are used.

For example, as a result of 3 months of interactive training on healthy eating, obesity rates and psychological stress levels in students were significantly reduced (Pic. 1).



Pic. 1. Interactive training on healthy eating

This activity is based on the model of IA Zimnyaya, KD Ushinsky, R. Rotter (motivational psychology), as well as the "Transtheoretical Model of Health Behavior Change" by J. Prochaska and C. DiClemente. Preventive medicine is a science aimed at preventing the development of diseases, early detection, and eliminating negative factors, while valeology is a science aimed at strengthening, maintaining, renewing, and developing health in the absence of disease. In other words, preventive medicine is aimed at "eliminating negative factors," while valeology is aimed at "creating positive resources."

These disciplines are inextricably linked as follows:

Preventive medicine → diagnosis, vaccination, screening

Valeology → promotion of a healthy lifestyle, psychohygiene, nutritional culture, stress management

In addition, according to WHO, factors affecting health include:

- 60% — lifestyle
- 20% — socio-economic environment
- 15% — genetic factors
- 5% — quality of medical care (Pic. 2).

Pic. 2. Factors affecting health

So, valeology works with the most important 60% "lifestyle factor", which brings it to a central place within medical strategies.

The main directions of modern valeology

1. Personal valeology is the formation of a conscious, independent and responsible attitude towards one's own health.
2. Pedagogical valeology - promoting a healthy lifestyle culture in schools and higher education institutions.
3. Medical valeology is the analysis of functional health, immunity, mental stability, nutrition, and movement.
4. Information valeology — the separation of reliable health information and protection from misinformation (infohygiene).

In modern life, human existence in a digital environment requires new valeological directions, such as the proper use of information flow, stress management, and maintaining a healthy "cyber-life balance."

Valeology is widely used in medical practice in the following areas:

1. Prevention of obesity and metabolic syndrome (balanced diet, lifestyle correction)
2. Prevention of cardiovascular disease (reduction of risk factors, constant monitoring)
3. Reducing chronic stress and psychosomatic disorders (relaxation techniques, psychohygiene)
4. Formation of a healthy lifestyle among students and young people (motivational training, healthy eating habits).

On this basis, the theoretical and practical development of valeology is a scientific reinforcement of the idea of forming health not only through medical services, but also through personal responsibility, potential, and social consciousness.

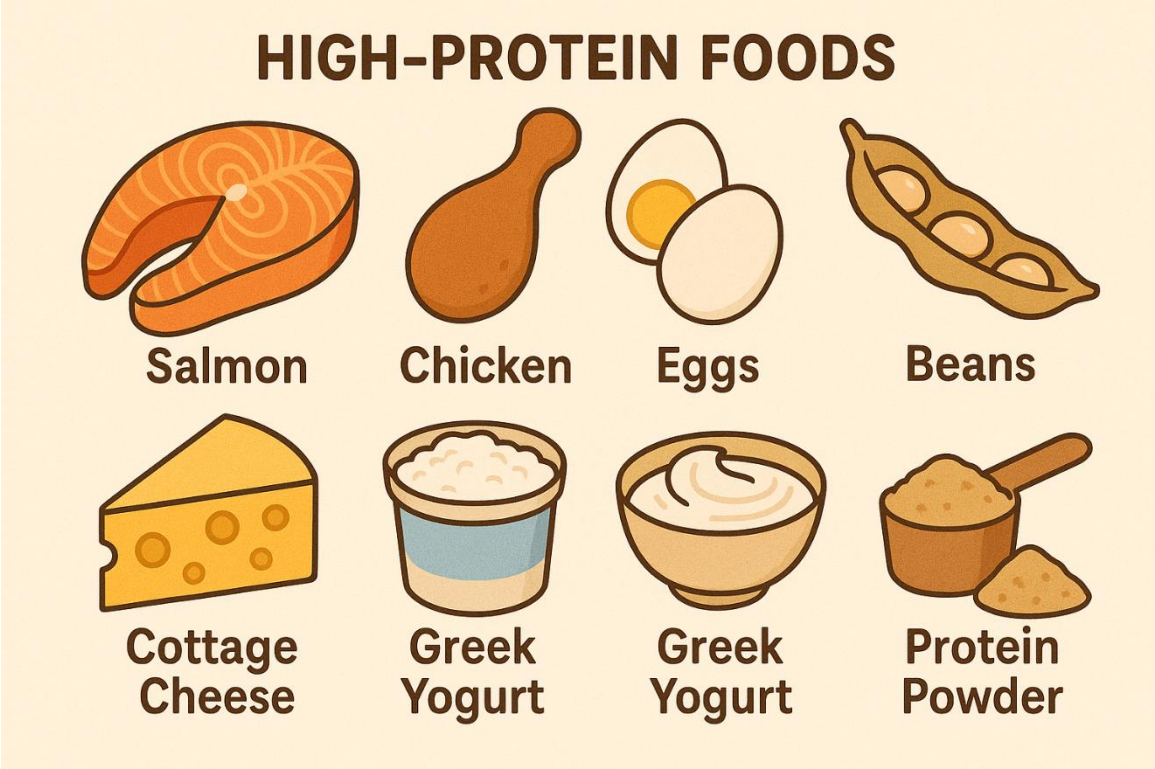
1.2. THE ROLE OF NUTRITION IN THE SYSTEM OF HEALTH DETERMINANTS

Health is the most important resource in human life. Its condition directly depends not only on the quality of medical services, but also on lifestyle, socio-economic factors, environment and eating habits. The World Health Organization (WHO) recognizes that more than 60% of health status is determined by lifestyle, and the nutritional factor is at the center of it.

Nutrition is not only a physiological necessity, but also a factor that strengthens health, prevents diseases, and determines the quality of life. Proper nutrition is the protector of health, while malnutrition is considered the direct cause of many diseases.

Nutrition satisfies the body's need for energy, ensures tissue and cell regeneration, enzymatic activity, immune stability, and hormonal balance. The diet contains:

1. Proteins are the basic molecules of life, participating in the structure, transport, signal transduction, enzymatic, immunological, and hormonal functions of the body (Pic. 3).



Pic. 3. High-protein products

They are a necessary substrate for cell and tissue regeneration, the synthesis of immunoglobulins, enzymes, hormones. Therefore, a sufficient amount of protein plays an important role in maintaining and restoring health. However, an unbalanced amount of proteins in the body - that is, their deficiency or excessive consumption - can cause the development of various pathological conditions and diseases. Protein deficiency is a dangerous health condition, especially common in developing countries. This deficiency is manifested by a slowdown in metabolic processes, a decrease in immune function, and impaired regeneration processes.

Kwashiorkor is a condition that develops when the total calorie content is sufficient but the protein is insufficient. Its clinical manifestations include edema (especially in the legs), muscle atrophy, hair and tissue discoloration, and mental retardation. As a result of weakened immunity, the patient is more susceptible to infections.

Marasmus is a condition characterized by protein and total energy deficiency, resulting in extreme weight loss, loss of body fat, and loss of muscle mass. In children, this condition is accompanied by stunted growth and impaired intellectual development.

Weakened immunity - Since immunoglobulins are protein in nature, the lack of the necessary substrate for their synthesis weakens the immune system. As a result, there is an increased susceptibility to chronic infections, frequent colds, and inflammatory diseases.

Delayed wound healing - proteins are an important source of cell regeneration. Their deficiency leads to a slowdown in reparative processes, which leads to prolonged wound healing.

2. Fats are one of the main sources of energy, 1 gram of fat contains 9 kcal of energy. They participate in the structure of cell membranes, help in the absorption of vitamins A, D, E, K, play an important role in the synthesis of hormones, thermal insulation and coordination of vital functions. However, if fats are less or more than the norm, this leads to various diseases and dysfunctions.

Fat Deficiency: Negative Health Effects

➢ Hypoavitaminosis (deficiency of vitamins A, D, E, K)

These fat-soluble vitamins are poorly absorbed in low-fat diets. As a result:

Vitamin A deficiency leads to decreased vision;

Vitamin D deficiency causes brittle bones (rickets, osteomalacia);

Vitamin E deficiency causes weakening of cell membranes, hemolysis, and muscular dystrophy;

Vitamin K deficiency leads to impaired blood clotting (hemorrhagic syndrome).

➢ Hormone synthesis and reproductive health disorders

Fats are essential for the synthesis of steroid hormones in the body, especially sex hormones such as estrogen, progesterone, and testosterone. Low fat levels can lead to menstrual irregularities and infertility in women, and decreased libido and testosterone deficiency in men.

➢ Thermoregulation and skin health disorders

Fats are stored in the subcutaneous layer of the skin and help maintain body temperature. Their deficiency increases sensitivity to cold, dry skin, cracks, dermatitis, and eczema.

➢ Nervous system dysfunction

Polyunsaturated fatty acids (omega-3, omega-6) are essential for neuronal membranes. Their deficiency leads to decreased cognitive function, depression, irritability, and slow thinking.

Excessive consumption of fats: diseases and risks

Excessive consumption of fats, especially unsaturated (animal) fats, is a major risk factor for cardiovascular, metabolic, and oncological diseases.

✓ Atherosclerosis and cardiovascular disease

Excess animal fat (unsaturated fatty acids) increases the level of LDL (low-density lipoproteins) in the blood, which leads to the formation of atheroma on the walls of blood vessels. This leads to the following dangerous conditions: arterial hypertension, myocardial infarction, stroke, ischemic heart disease

✓ Protein-lipid dystrophy and hepatic steatosis

A diet high in fat can lead to excess fat accumulation in the liver, a condition known as nonalcoholic fatty liver disease. It is characterized by inflammation of the liver, fibrosis, and cirrhosis.

✓ Obesity and type 2 diabetes

Fatty foods are a high-calorie source, and excess energy in the body leads to obesity. Excess weight causes the development of insulin resistance. As a result: blood glucose levels increase, type 2 diabetes develops, and the risk of cardiovascular and kidney diseases increases.

✓ Risk of oncological diseases

Trans fats and processed oils (especially aldehydes formed in overheated oils) can become mutagens that damage DNA, increasing the risk of stomach, colon, breast, and prostate cancers.

✓ Bowel dysfunction

Excessive fatty foods increase bile secretion, which leads to an increase in bile acids and the formation of stones in the gallbladder (cholelithiasis). This condition can also be accompanied by diarrhea or, conversely, constipation.

Fats are one of the main substances necessary for the health of the body. However, they should be consumed in moderation, balanced and of the right quality. A lack of fats can harm the health of hormones, vitamins, the nervous system and skin. Excessive fat consumption increases the risk of cardiovascular, metabolic and even oncological diseases.

3. Carbohydrates are the main and primary source of energy in the human body, and their main function is to provide tissues and cells with the necessary energy. 1 gram of carbohydrate provides 4 kilocalories of energy.

Especially vital organs such as the brain, heart and kidneys receive energy mainly from glucose. Carbohydrates perform not only energetic, but also plastic, reserve and metabolic functions in the body. They are part of glycoproteins, glycolipids and mucopolysaccharides and participate in the structure of cell membranes. In the liver, excess glucose is stored in the form of glycogen, which is a source of energy that can be quickly mobilized according to the body's needs.

In the case of carbohydrate deficiency (hypoglycemia), the central nervous system is the first to be affected. Since glucose is the brain's only source of energy, a decrease in its level can lead to unconsciousness, dizziness, decreased concentration, cognitive impairment, and in severe cases, coma. Also, in the case of glucose deficiency, the body compensates by breaking down fats to produce ketone bodies (acetone, beta-hydroxybutyrate), which causes metabolic acidosis. An increase in these ketone bodies — a state of ketosis — has serious consequences, especially in children and the elderly.

In addition, when glucose is lacking, energy is taken from proteins, which leads to the breakdown of muscle tissue, a weakening of the immune system, and a slowdown in regenerative processes. As a result, a person suffers from symptoms such as general weakness, fatigue, decreased endurance, and metabolic disorders.

Excessive consumption of carbohydrates, however, causes other types of dangerous conditions. In particular, if simple carbohydrates (sugar, confectionery, unrefined bread and snacks) are consumed excessively, excess glucose in the body is converted into adipose tissue, leading to obesity. As a result, body mass index increases, insulin resistance develops, and the risk of type 2 diabetes increases. Also, carbohydrates in the oral cavity, under the influence of bacteria, turn into acids, which eat away tooth enamel and cause caries.

Excessive consumption of carbohydrates also leads to disruption of the intestinal microflora - dysbiosis, flatulence, dehydration of feces, increased susceptibility to intestinal inflammation. At the same time, a sharp increase in glucose levels increases insulin secretion, which leads to the activation of inflammatory markers (interleukin-6, TNF-alpha) and creates the basis for chronic inflammatory states. This increases the risk of cardiovascular, oncological, neurological and endocrine diseases.

Thus, carbohydrates are one of the main macronutrients necessary for human health. Their deficiency leads to negative consequences such as nervous disorders, ketosis, weakening of the muscle and immune systems, while their excessive consumption ends with obesity, diabetes, dysbiosis and chronic inflammation. In the

formation of a healthy lifestyle, the correct distribution of the amount of carbohydrates in the diet in terms of optimal levels (50–60% of daily calories) and quality (complex carbohydrates, products with a low glycemic index) is an important factor.

4. Vitamins and minerals are biologically active substances necessary for the functioning of the body. They serve as cofactors or substrates for many enzymes, hormones, immune chains, and oxidative-reductive processes. Their optimal content in the body, that is, the prevention of hypovitaminosis and hypervitaminosis, plays an important role in maintaining health.

Vitamin deficiency (hypovitaminosis) and avitaminosis: clinical manifestations

A) Water-soluble vitamins

- Vitamin B_1 (thiamine): deficiency leads to beriberi, nervousness, weakness of the heart muscle, and neurological disorders (Wernicke-Korsakoff syndrome).
- Vitamin B_2 (riboflavin): cracks in the corners of the mouth, burning sensation on the tongue, skin redness, eye sensitivity.
- Vitamin B_6 (pyridoxine): depression, convulsions, peripheral neuritis, toxicosis in pregnant women.
- Vitamin B_{12} (cobalamin): megaloblastic anemia, inflammation of the tongue, ataxia, cognitive decline.
- Vitamin C (ascorbic acid): scurvy — decreased immunity, bleeding, inflammation of the gums.

B) Fat-soluble vitamins

- Vitamin A (retinol): night vision impairment (nyctalopia), dry skin, growth retardation in children.
- Vitamin D: rickets (in children), osteomalacia (in adults), muscle weakness, bone deformities.
- Vitamin E (tocopherol): weakened protection against free radicals, muscular dystrophy, impaired gametogenesis.

- Vitamin K: impaired hemostasis, tendency to bleed.

2. As vitamin excess (hypervitaminosis), fat-soluble vitamins tend to accumulate in the body, their excessive consumption causes toxic conditions:

- Vitamin A: headaches, visual impairment, liver toxicosis, brittle bones.
- Vitamin D: hypercalcemia, kidney stones, heart rhythm disturbances.
- Vitamin E: enhances the anticoagulant effect in high doses.
- Vitamin C (excess): kidney stones, exacerbation of gastritis, diarrhea.

3. Mineral deficiencies and excesses

A) Iron (Fe):

- Deficiency: iron deficiency anemia, pallor, fatigue, tachycardia.
- Excess: hemochromatosis, liver fibrosis, heart failure.

For example, iron deficiency anemia is the most common nutritionally related disease in the world, with one in three women suffering from it, according to the WHO.

B) Iodine:

- Deficiency: endemic goiter, mental retardation (cretinism).
- Excess: thyrotoxicosis, iododerma.

C) Calcium (Ca):

- Deficiency: brittle bones, spasms (tetany), decreased heart function.
- Excess: hypercalcemia, kidney stones, muscle weakness.

D) Magnesium (Mg):

- Deficiency: muscle spasms, cardiac arrhythmias.
- Excess: diarrhea, low blood pressure.

E) Sodium and potassium (Na/K):

- Na deficiency: hyponatremia in cases of vomiting, diarrhea, fainting.
- Excess K: hyperkalemia - heart rhythm disturbances, up to asystole.

Vitamins and minerals are the basis of all physiological processes in the body. Their excessive or under-consumption leads to extremely important functional disorders - negative effects on the nervous, cardiovascular, musculoskeletal,

endocrine and immune systems. Therefore, in a rational diet, not only quantity, but also quality and balance are important. In preventive medicine and valeology, assessing the state of these elements and ensuring their balance through healthy eating is one of the main directions.

Nutrition is the foundation of not only physical but also mental health. According to evidence supported by neurobiologists:

Tryptophan is involved in the production of serotonin, which reduces mild depression.

Omega-3 fatty acids support cognitive function and slow down dementia.

These aspects play an important role in modern psychovaleology. Especially for young people, students and active people, rational nutrition directly affects work productivity, emotional stability and decision-making mechanisms.

In the science of valeology, nutrition is studied according to the following principles:

An individualized approach — taking into account the metabolic characteristics of each person, age, gender differences, and level of physical activity.

Cultural and social aspects - food habits, cooking traditions, social influences.

Educational function - prevention of diseases through the formation of nutritional literacy and a culture of health.

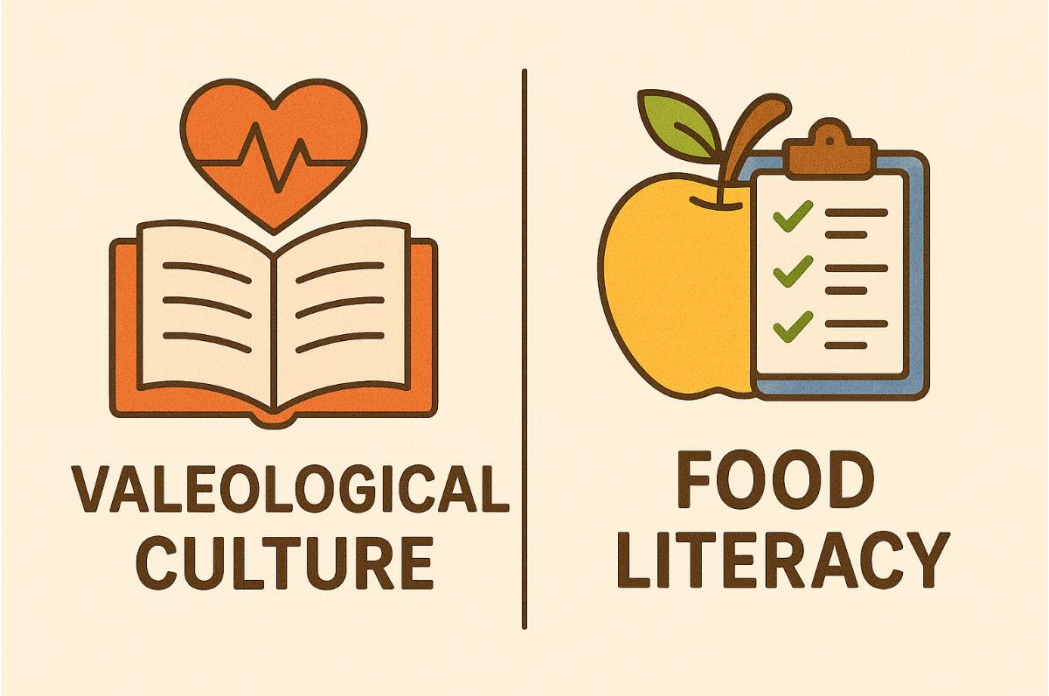
Nutrition is a leading determinant of health. It is not only a physiological need, but also a factor that contributes to health, emotional stability, disease prevention, mental strength and social adaptation. Therefore, it is necessary to approach nutrition in a comprehensive and scientific manner in modern medical education and healthy lifestyle promotion.

1.3 Valeological culture and food literacy

In modern society, valeological culture and food literacy are considered an important socio-cultural phenomenon in the formation of a healthy lifestyle. A person's conscious attitude to his own health, making healthy eating decisions based

on critical thinking, are inextricably linked to cultural values and moral norms aimed at strengthening health.

Valeological culture is a system of knowledge, skills and values of an individual or society based on the appreciation of health, which is aimed at consciously choosing and maintaining a healthy lifestyle (Pic. 4). Here the term "conscious decisions" requires special attention - that is, a person acts based on analysis, knowledge and positive motivation, and not on pressure from the external environment.



Pic. 4. Valeological culture and food literacy

Valeological culture includes:

- sense of responsibility for one's own health
- understanding the key elements of a healthy lifestyle
- conscious decisions about hygiene, movement, nutrition, mental health
- awareness of health and preventive measures

Understanding that many aspects of a person's health depend not on external factors, but on his own actions, he makes conscious choices in areas such as his diet, physical activity, hygiene, emotional state, and giving up harmful habits. For example, diseases caused by smoking, poor nutrition, or inactivity are signs of indifference to his health. On the contrary, regular diagnostic procedures, vaccinations, and adherence to a diet are an expression of a sense of responsibility.

A person with a valeological culture understands these elements and applies them in his daily life. The formation of this knowledge from childhood, especially during school, college and university, is of great importance.

Food literacy (nutritional literacy)

Food literacy is a person's ability to understand the principles of healthy eating, read labels, analyze dietary composition, and make food choices based on critical thinking.

Food literacy includes: knowledge of macro- and micronutrients; understanding of daily norms and energy balance; the ability to refuse harmful products; assessing the influence of external factors (advertising, fad diets, information on social networks).

Specifically, a study conducted in Turkey in 2024 among 3,459 employees found that individuals with higher food literacy had higher adherence to the Mediterranean diet. These individuals had lower body mass index (BMI), waist and hip circumferences, and higher physical and mental health indicators. These results indicate that food literacy is directly related to healthy eating and overall health status [8] .

Meanwhile, in a study of 144 office workers in Germany, a 3-week health program improved food literacy and diet.

Improvements in food literacy and diet were maintained for 18 months [9] .

Also, 120 Romanian students participated in an online survey. The survey included the following sections: anthropometric indicators, physical activity, eating

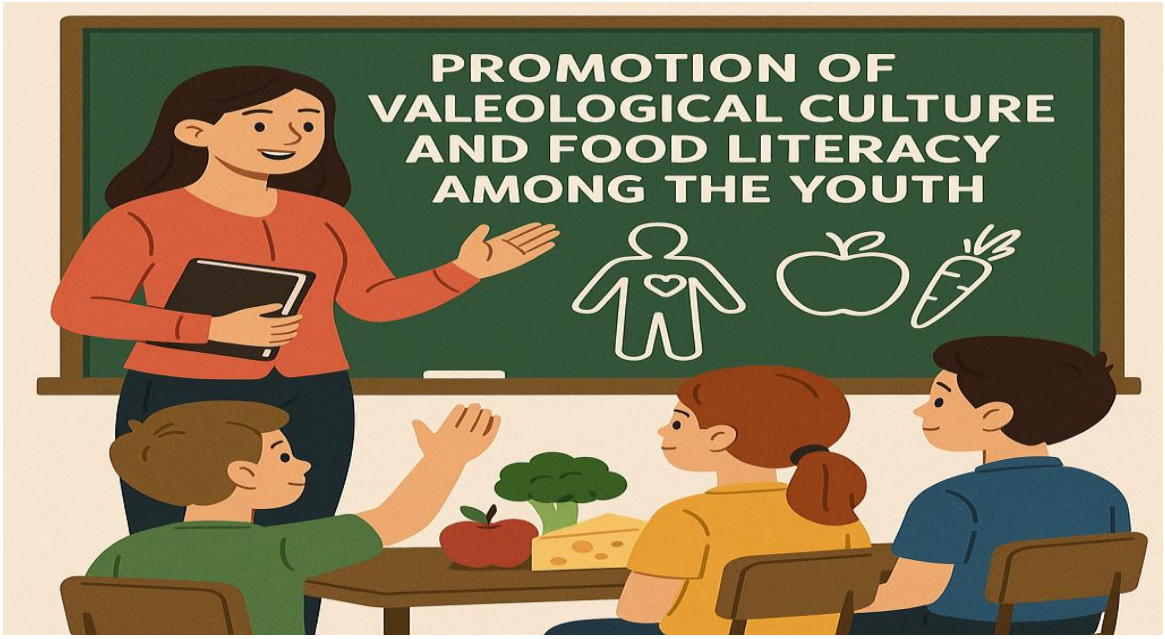
habits, and food literacy knowledge and skills. The results showed that students with the highest levels of food literacy tended to have higher academic performance. 45% of students reported weight problems, and 12.7% reported eating disorders. No significant relationship was found between food literacy, body mass index (BMI), and age [10] .

The interrelationship between culture and food literacy

Healthy eating depends not only on scientific knowledge, but also on cultural values and social stereotypes. National dishes, customs, religious restrictions and family traditions also affect the composition of the diet. Therefore, valeological culture and nutritional literacy are interrelated concepts and complement each other.

The role of education

The following are important in forming a healthy eating culture: teaching healthy eating lessons through schools and universities; interactive training and seminars; conducting health promotion activities using mobile applications and multimedia tools are key to increasing food literacy (Pic. 6).



Pic. 6. Promotion of valeological culture and food literacy among the younger generation

Food literacy is not just a general understanding of nutrition, but also includes multifaceted competencies such as biological knowledge, information

analysis, rational decision-making, and responsibility for quality of life. The higher the level of this literacy, the higher the formation of a healthy lifestyle, prevention of metabolic diseases, and psycho-emotional stability.

Therefore, improving food literacy is a strategically important direction in the development of a valeological culture.

CHAPTER 2. MODERN NUTRITION TRENDS AND THEIR IMPACT ON HEALTH

2.1. DIGITALIZED LIFESTYLE AND ITS IMPACT ON FOOD BEHAVIOR

the 21st century digital technologies human of life almost all to the fronts deep enter went . This changes human food behavior , choices , diet compliance to do styles and even food acceptance to do time such as many to factors directly or indirectly impact showing . Modern health storage in the paradigm of " digitalized" marriage " style " term — human daily life digital tools (smartphones , apps , health monitoring devices , internet access) based information) via management with depends .

Food behavior this is a person the food choose , prepare , consume to do order and with him related decisions acceptance Digitized in the environment this behavior social on the networks trends , healthy life propaganda , online diets , food products about digital advertising , even mobile of applications calories calculation opportunities through is formed . Therefore, today's on the day food behavior analysis in doing technological factors separately attention focus necessary .

In Europe take visited last research digital information of the flow youth to eat the impact This systematic comment and meta- analysis results this shows that digital food marketing teenagers between high high-calorie , low- quality to products was interest increases .

Other scientific in research and 28 articles analysis made of which 19 were included in the meta - analysis included . Results media food marketing teenagers food with related cognitive relations and to their behavior positive impact to show showed [11] .

Also in the Netherlands take visited in the experiment online in supermarkets to users healthy products with related green with banner visual instructions As a result , users fruits and vegetables purchases increased by 28% (Pic. 7) [12] .

Pic. 7. Online in shopping green banners impact .

From this Besides , Mobile applications through healthy food habits promote to do on the surface held research works this showed that this systematic comment and meta- analysis mobile health storage applications physical activity increase and inaction in reduction effective that The study included 9 randomized controlled tests analysis made are , they are mobile applications through healthy food habits promote in doing positive results that gave determined [13] .

With this together , Great In Britain held The study involved 2,000 people aged 13–21. participant , TikTok and "healthy eating" and "body challenge" content on Instagram regular seeing users between diet 24% higher risk of eating disorders was [14] .

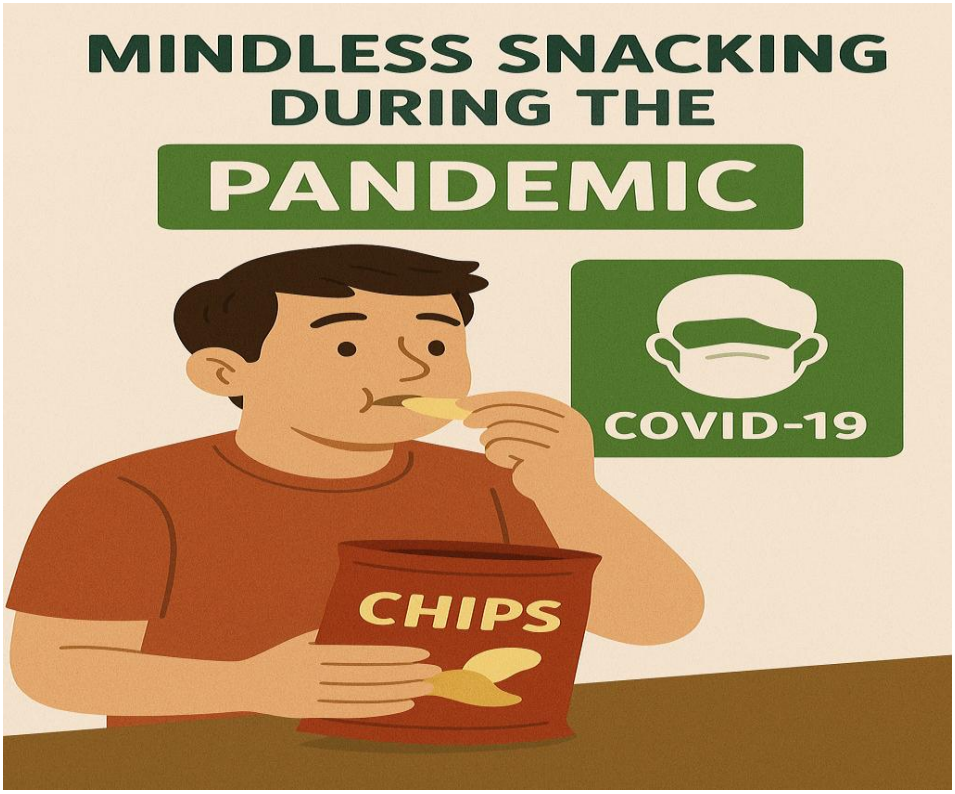
Other from the side , digital excess loading — for example , screen in front of to be held of time increase — physical activity decline , sleep of the regime violation and on a diet compliance not to do such as negative with consequences It comes . This is digitized marriage style and wrong food between controversial mutual dependency shows .

Another one example , in Sweden in 2020 take visited randomized 600 people in the study participant 12 weeks “ Lifesum ” app during through food diary

conducted the research . as a result from the app users 17% of participants among body weight healthy to the standard to bring achieved , daily calories consumption decreased by 12% (Pic. 8) [15] .

Pic. 8. Diary through weight to disappear

Same this Like , Pandemic during take visited international to analysis far away term online lessons , Zoom meetings and screen in front of many time transfer as a result unnecessary snacks number In particular , in Poland , in 2021 , visited questionnaire 37% of participants are online lessons on time more snack consumption to do (Pic. 9) [16] .



Pic. 9. Pandemic during the period unnecessary snack consumption to do

Conclusion as literally , digitally of the environment food to the behavior impact complicated , many factorial process is an individual technological literacy , psychological status , information filtering ability and social culture with closely It depends . Therefore modern valeological in approach digital culture increase , nutrition literacy digital on platforms formation important to the strategy rotation necessary .

2.2. ADVANTAGES AND DISADVANTAGES OF COMMON NUTRITION MODELS IN THE 21ST CENTURY

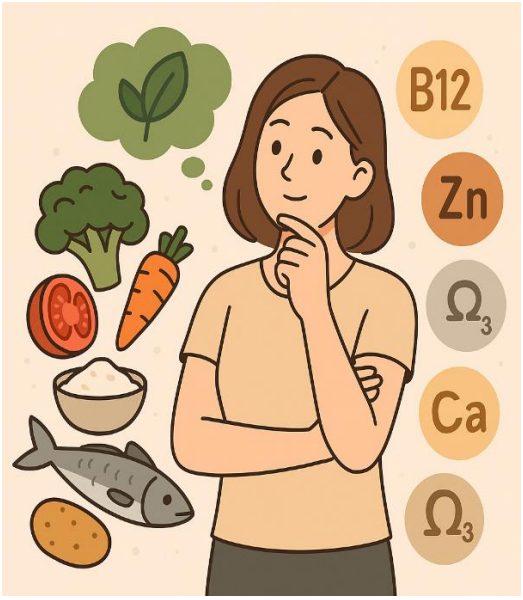
Modern in society food model human of health central from factors one is considered . 21st century technological rise , global information exchange , ecological concerns and marriage of style change in the background humanity in life food only physiological necessity not , maybe social , psychological and cultural identification important to the expression Today 's on the day one how much wide widespread food models appearance to be not only health in storage , maybe the population valeological to culture also great at directing role plays . But this models every always one kind at the level useful not — their every one to oneself typical advantages and negative to the sides Below is the 21st century the most wide widespread food of styles analysis is brought .

Medium Earth Mediterranean diet healthy food according to the most many recommendation It is a model that is made up of fruits and vegetables , whole grains , fish , olives, oil , nuts and legumes own inside Research this shows that this diet heart and blood vein diseases the risk noticeable at the level reduces glucose stabilizes , inflammation against impact shows and bone health supports . With this together , this diet every always economical in terms of comfortable not : sea products , olives oil such as components some in the regions expensive and enough at the level there is not to be possible (Pic. 10).

Picture 10. Medium Earth Mediterranean diet

Another one wide The most common model is a "vegetarian" or vegan diet. They are animal products (partially or full) ration remove to throw This approach is based on heart disease , hypertension , obesity intestine cancer and obesity reduce with related positive to the results take However , vitamin B12 , iron , zinc , calcium , omega - 3 fatty acids shortage danger high will be . Therefore, this the model chosen individuals scientific based plan based on ration formation and sometimes biological active additions acceptance to do demand (Pic.s 11 and 12).

Ketogenic diet — carbohydrates consumption limit fats based on energy working to release activating This is a model . approach short within the period weight reduce and in the blood glucose amount order to put such as positive effects gives . Even some medical in cases such as epilepsy or type 2 diabetes application possible . However this model is long term in use to the liver loading increases , cell regeneration slows down , fiber shortage and intestine activity slows down .



Pic. 11 and 12. Vegan Diet in the content products and this on a diet missing vitamins list

Last in years wide widespread from methods one This is intermittent fasting — temporary. hunger This method man 16/8, like 14/10 in cycles eats , that is of the day one in part food eats , the rest in part and only water drinks . Such food model metabolic health improve insulin sensitivity increase and cells renewal process (autophagy) encouragement such as positive to the results take is coming .

Picture 13. Temporary hunger approach 8/16, 10/14

But such diet everyone for suitable not : pregnant women , children , diabetics for dangerous to be can also be a head pain , weakness and psychological inconveniences brought (Pic. 13).

DASH (Dietary Approaches to Stop Hypertension) diet and medical diet as recommendation In this model salt , saturated fat , cholesterol limiting vegetables , less oily milk products and whole grain products main place Arterial blood pressure , heart diseases and metabolic syndrome in reduction effective to be despite it in practice far term continue to hold for much strong volitional resource and time demand is being done .

Also , in the 21st century fashion diets - mono- diets , detox programs , gluten -free or lactose -free approaches , biomedicine by unverified "influencer" diets - public between popular . Such approaches often short term result although they ration balance broken , far away within the period health for negative to the consequences take arrival possible .

This models analysis to do this shows that eating one to the model not justified , but personalized , biological needs , psychological to the situation and social to the conditions suitable to be necessary . Valeological approach exactly this demand makes : universal recipes for nutrition based on not , maybe every one individual opportunity and needs in consideration received without to form .

So so , in the 21st century every one food model known at the level useful to be possible , but its suitability to the person related . Doctor , dietitian and psychologists with consulted without ration to shape — health far term storage the most acceptable is the way .

2.3. EATING DISORDERS: OVEREATING, STRESS EATING, FAST FOODS

In the conditions of the intensive rhythm of modern human life, digital information overload, social pressure, lack of time and emotional stress, eating is not only a means of satisfying biological needs , but is also often used as a mechanism for maintaining mental balance, ensuring sociability or finding emotional relief. However, improper management of this situation leads to various eating disorders. In particular, overeating, stress-induced eating and addiction to fast

food are among the most pressing problems of the 21st century. These disorders, in addition to threatening physical health , can also reduce psychological state, metabolic processes and quality of life.

most common forms of eating disorders is overeating. This condition is characterized by the consumption of more calories than the human body needs. Often , the cause of this condition can be the lack of a rational plan, habitual eating, lack of sleep, imbalance of the hormones leptin and ghrelin, as well as psychological dissatisfaction. Scientific studies show that foods with a high glycemic index activate the reward centers in the brain, which weakens the mechanism for stopping eating. Such conditions lead to the storage of excess energy in the body in the form of fat . As a result, the risk of developing obesity, hypertension, insulin resistance, type 2 diabetes, hepatic steatosis and cardiovascular diseases increases sharply.

begins to use food as a means to stabilize their emotional state . In a state of frustration , nervousness, loneliness, anxiety or depression, the body produces a large amount of the hormone cortisol, which artificially increases the need for high-calorie, sweet, fatty or salty foods. This type of eating is not associated with physiological hunger , but serves as a psychological response. Studies show that emotional eating is more common among women than men. Long-term stress eating is accompanied not only by excess weight, but also by a deterioration in mood, food addiction , sleep disorders and feelings of guilt after eating. This leads to low self-esteem, social withdrawal and voluntary restrictions in a person (Pic. 14).

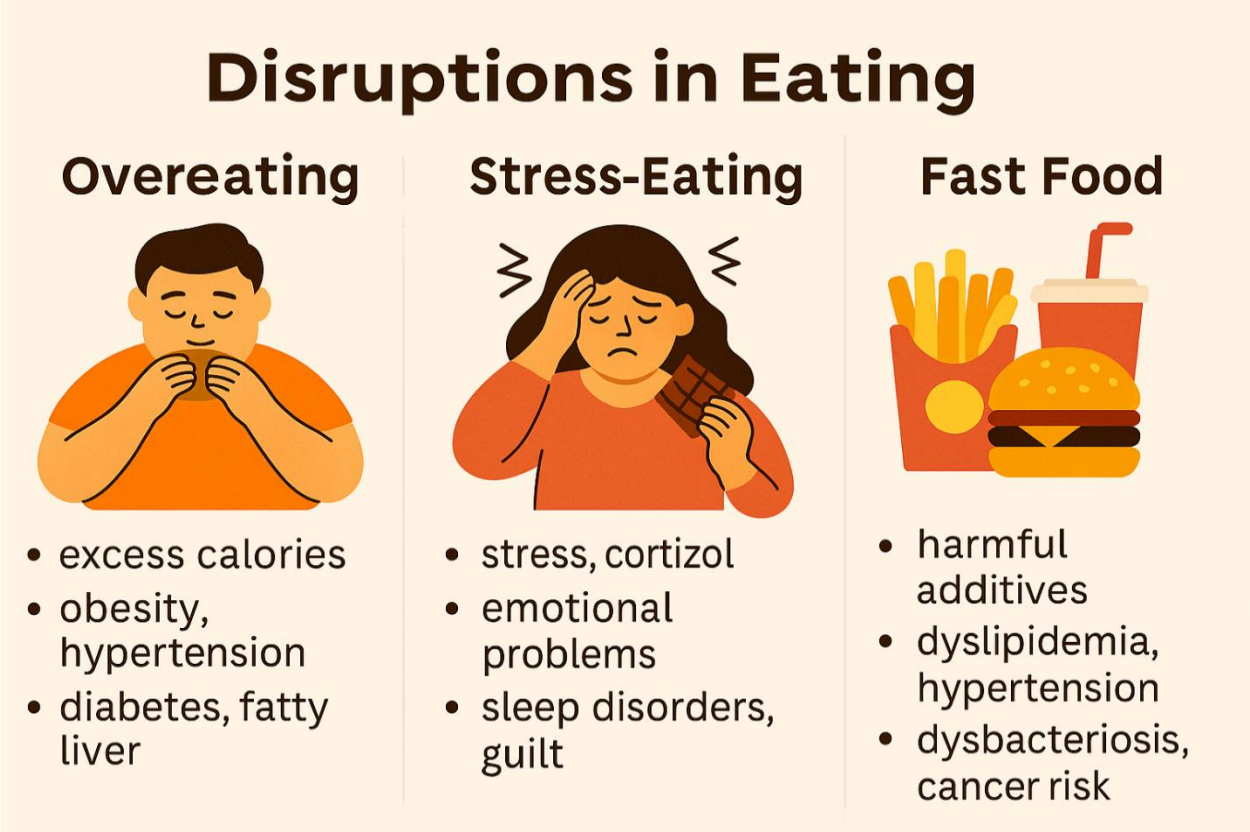
Pic. 14. Stress - eating

To this bright for example , in 2011 In the USA transferred clinical in research women 62% of participants reported stress in the case of sweetness or high oily to products appeal what did Stress cortisol hormone amount increases , this and to carbohydrate rich to meals need strengthens [17] .

to fast food . Fast food products are highly processed and contain high levels of sugar, trans fats, salt, and artificial additives. These products, although convenient in terms of time saving and taste , cause chronic metabolic stress in the body. Their regular consumption increases the risk of dyslipidemia, atherosclerosis, hypertension, liver dysfunction, dysbacteriosis, and even cancer. The marketing, visual appeal, and psychological reward effects of fast food make people addicted to it . Children and adolescents are especially susceptible to the effects of these foods, since their decision-making mechanisms regarding food are not yet fully formed (Pic. 15).

we can consider a study of the association between ultra -processed food (UPF) consumption and obesity among the Australian adult population .

the 2011–2012 National Nutrition and Physical Activity Survey (NNPAS) were used to analyze 24-hour food intake and anthropometric measurements of 7,411 participants aged 20 years and older. Results showed that ultra -processed foods accounted for 38.9% of total energy intake. Participants with higher UPF intake had significantly higher body mass index and waist circumference. High consumption of ultra-processed foods is associated with an increased risk of obesity and abdominal obesity among Australian adults [18] .



Pic. 15. Eating disorders

This with together , quickly life speed , one in place far performance , digital in the environment food culture decrease (i.e. computer opposite eating , screen-free not eating) and social network through advertisement to be done harmful food modern food behavior further This is complicating things . and valeology and preventive medicine in front of new tasks put : of people for food was psychological attitude analysis to make , food literacy increase , emotional balance to provide and healthy food culture recovery .

Conclusion as in other words , in food disorders not only individual health to the level , maybe society general valeological to the state also serious effect shows . This disorders often unclear starts , but own on time if not detected , metabolic syndrome , obesity , heart - blood vein diseases and spiritual health to the problems take It comes . because of healthy food culture in formation food behavior conscious management , stress resilience , information filtering and fast food against immunity reinforcement important strategic directions as consideration necessary .

2.4. Metabolic disorders the risk increasing main groups

associated with impaired metabolism in the body . The most common of them are: insulin resistance, type 2 diabetes, metabolic syndrome, dyslipidemia, arterial hypertension, abdominal obesity and fatty liver dystrophy (steatosis). These diseases have become a global health problem, and there are many factors that contribute to their development. Studies show that some groups are more prone to these types of disorders than others. The main groups at high risk of metabolic disorders are highlighted below.

The first group includes people with a sedentary lifestyle. Insufficient physical activity reduces basal metabolic rate, leads to a decrease in muscle mass, which leads to a decrease in insulin sensitivity and impaired glucose metabolism . According to a study by Tomasz Chomiuk et al. (2024) , increasing physical activity to at least 150 minutes per week reduces the risk of type 2 diabetes and cardiovascular disease by 30–40%. Inactivity also leads to excess weight gain, accelerating the development of metabolic syndrome [19] .

The second group is people who are overweight or obese. Abdominal obesity in particular increases the risk of metabolic diseases. Fat accumulated in the abdominal area is hormonally active and secretes inflammatory cytokines (e.g., TNF-α, IL-6), which increases insulin resistance. According to the World Health Organization (WHO, 2023), overweight people have a 3- to 7-fold increased risk of developing diabetes [20] .

The third risk group is those with unhealthy eating habits. Fast food, high-calorie foods, high in sugar and trans fats , carbonated drinks, and a lack of fiber in the diet disrupt metabolic stability. Research by Eurídice Martínez Steel et al. (2020) shows that ultra -processed foods increase the risk of metabolic syndrome by up to 50%. As a result of such a diet, chronic low-grade inflammation, called “hidden inflammation,” develops, which paves the way for the development of cardiovascular diseases, diabetes, and even cancer [21] .

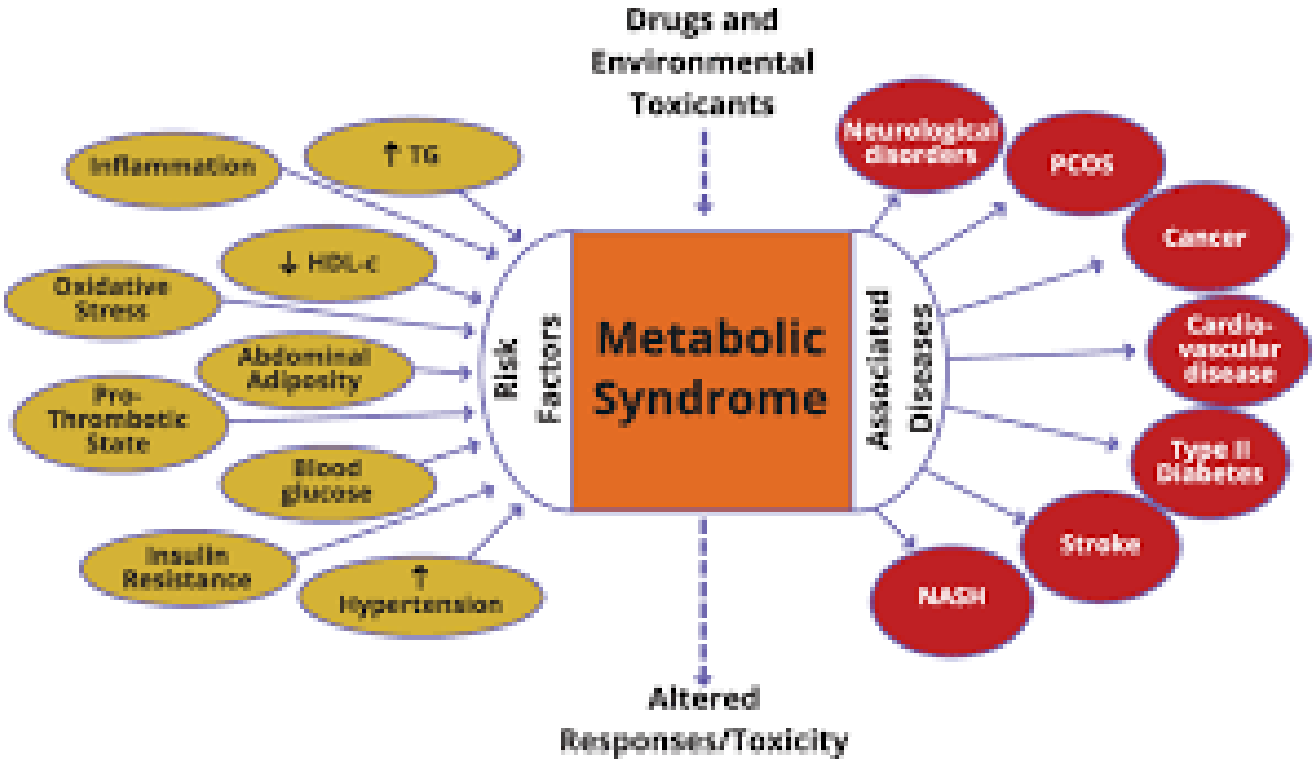
The fourth group is those who suffer from chronic stress and sleep deprivation. When the hormone cortisol is elevated, glucose production is activated,

which leads to unstable blood sugar and insulin resistance. Stress also increases psychological eating (i.e. emotional hunger) . Sleep deprivation disrupts the balance of the hormones leptin and ghrelin, which leads to increased appetite and weight gain [17] .

The fifth group is individuals with a genetic predisposition . If parents have diabetes, hypertension, or heart disease , then their children are more likely to develop metabolic syndrome. A study by Omar Silverman-Retana et al. (2020) found that if both parents have diabetes , the child has a 70% chance of developing the disease. Therefore, early screening and individual preventive measures are very important for individuals in this group [22] .

The sixth group is women with hormonal disorders. In particular, polycystic ovary syndrome (PCOS) is directly related to metabolic syndrome . Women with PCOS often have insulin resistance, which subsequently increases the risk of diabetes and dyslipidemia. Hypothyroidism, a decrease in estrogen levels during menopause, also leads to metabolic changes . Research by Weixuan Chen et al. (2021) shows that the rate of metabolic syndrome is twice as high in women with PCOS [23] .

The seventh group is the socio-economically disadvantaged. Those with low income, low education, and limited health resources face challenges in maintaining a healthy diet and physical activity. According to the OECD (Organization for Economic Co-operation and Development) Health Report (2023), the prevalence of type 2 diabetes and cardiovascular disease is 40% higher among the poor [24] (Pic. 16).



Picture 16. Main groups at increased risk of metabolic disorders

In conclusion, metabolic disorders are multifactorial diseases, in which lifestyle, social status, genetic background and psycho-emotional environment play a specific role. Identifying the above risk groups and applying targeted health strategies to them is one of the main tasks of modern preventive medicine.

2.5. The impact of advertising on daily diet

is an important element of consumer culture , acting not only as a means of selling products but also as a means of shaping social consciousness. In this regard, the impact of advertising on food culture is explained by the Social Learning Theory: people learn behavior by observing the social environment around them (including the media and advertisements).

2020 analysis by the World Health Organization (WHO), more than 80% of food products depicted in television and digital advertisements are high in calories, sugar and fat, and low in nutritional value, and are targeted at children and adolescents. This distorts young consumers' perceptions of healthy diets and directly influences their consumption behaviors.

Studies show that people exposed to food advertisements, especially when they are under cognitive load, are 28% more likely to choose unhealthy snacks. These advertisements have a direct impact on people's food choices [25] .

Additionally, research from Australia shows that children and adolescents are exposed to an average of 17 unhealthy food advertisements every hour on online platforms. These advertisements increase children's cravings for unhealthy foods and increase their overall calorie intake [26] .

Advertising is not just a means of information, but also a means of cognitive and affective (emotional) manipulation that penetrates deeply into the human mind. The visual elements of advertising - the use of color, sound, attractive models, the emphasis on semantic criteria such as " health " and "energy" - influence the process of conscious dietary choices. For example, words such as "100% natural", "organic", "fit" give the consumer the false impression that the product is healthy, even though many of them are highly processed [27] .

Additionally, research conducted by the Yale Rudd Center for Food Policy and Obesity has found that advertising for sugary drinks and fast foods is directly linked to higher rates of overweight and obesity among children and adolescents. In this case, the advertising not only promotes the product, but also promotes unhealthy eating patterns .

Although legal regulations on food advertising exist in many countries today, they are often not fully implemented or reach a limited audience. For example, recommendations from UNICEF and the World Health Organization recommend that food advertising aimed at children be strictly regulated, but this practice is not sufficiently established in many developing countries.

The free distribution of these advertisements artificially pressures people to make healthy eating choices and limits their right to consciously shape their own diet.

Academic research shows that the following approaches are effective in promoting a healthy eating culture:

- ❖ Improving media culture and information literacy - develops the ability to critically analyze advertising manipulation;
- ❖ Macroeconomic stimuli (subsidies, taxes) – by imposing taxes on unprofitable food products, they make them less economically profitable;
- ❖ Prioritizing the promotion of healthy products - subsidizing advertising space for healthy diet products by government and non-governmental organizations.

Based on the above analysis, it can be concluded that the modern advertising system is not only a tool for shaping consumer culture, but also a social phenomenon that has a strong cognitive and affective impact on people's conscious choices regarding nutrition . The widespread promotion of high-calorie, nutritionally poor products, especially in advertisements aimed at children and adolescents , distorts their perceptions of healthy eating and shapes unhealthy behaviors.

shows that advertising weakens rational choices by consumers in a state of cognitive load . Also, through pictorial and semantic manipulations, advertising forces consumers to make product choices based on deceptively positive impressions. As a result, the risk of obesity, cardiovascular disease, and other metabolic syndromes increases.

However, the media, education system, and health institutions should work together to prevent these risks. In particular, negative consequences can be eliminated by improving media culture and information literacy, applying tax and regulatory measures to negative advertising , and promoting healthy eating as a social norm.

Therefore, it is necessary to ensure a fundamental balance in society that serves to maintain and promote health by controlling advertising strategies and aligning them with the principles of a healthy diet .

CHAPTER III. THE IMPORTANCE OF A BALANCED NUTRITION FOR HEALTH AND DISEASE PREVENTION

3.1. Principles of balanced nutrition in the valeological approach

Valeology is a science that studies the theoretical and practical foundations of human health, its preservation and strengthening, and one of its main approaches is to ensure balanced nutrition. Within the framework of the valeological approach, nutrition is considered not just a means of satisfying physiological needs, but also a key factor that positively affects all vital processes of the body.

A balanced diet in valeology is based on the following principles:

1. Energy adequacy – the amount of calories consumed should be appropriate for a person's physical activity, age, gender, and health status. This principle states that the amount of calories a person consumes during the day should be consistent with their energy needs. These needs vary depending on physical activity, age, gender, weight, and health status.

Energy imbalance leads to obesity or underweight, as well as diseases such as metabolic syndrome and insulin resistance. For example, if a person with a sedentary lifestyle consumes too many calories, the excess energy is stored as fat.

A person who uses 2000 kcal of calories and consumes 2500 kcal can gain about 0.5 kg of fat per week. On the contrary, an energy deficit causes weakness, decreased immunity, and loss of muscle mass.

By maintaining energy balance, all body systems function optimally, body weight is maintained, and health is maintained. Therefore, calorie control is one of the central factors of a balanced diet.

2. Biochemical balance - according to this principle, the diet should maintain an optimal ratio of protein, fat, carbohydrates, vitamins, minerals, and water.

Each nutrient has its own function: proteins are necessary for tissue repair, carbohydrates are a source of energy, fats are important for the synthesis of cell membranes and hormones, and vitamins and minerals activate enzymatic reactions.

According to WHO recommendations, 50–60% of energy in the daily diet should come from carbohydrates, 10–15% from proteins, and 20–30% from fats. When the balance is disturbed, metabolic disorders, dehydration, or hypervitaminosis occur.

When biochemical balance is introduced into the diet based on an individual approach, the body's regenerative, immunological, and energetic activities are at optimal levels.

3. Regularity - meals should be eaten regularly, 3-4 times a day.

Regularity is important for stable insulin function, normal blood sugar levels, and the cyclical production of digestive enzymes. Irregular eating can lead to intestinal diseases and impaired glucose control.

Studies show that those who eat 1–2 meals a day have a 2-fold higher risk of metabolic syndrome. In contrast, eating 4 small meals a day provides easy digestion and constant energy levels.

The principle of regularity plays a positive role not only in physical health, but also in stabilizing mental balance and performance.

4. Individual approach - according to this principle, a diet should be structured based on a person's age, gender, professional activity, health, allergic conditions, and even psychotype.

Everyone's digestion, metabolism, and reaction to food is different. For example, dairy products may be problematic for someone with lactose intolerance, or hypothyroidism patients may have low calorie needs.

A non-personalized diet can harm health instead of improving it. Therefore, modern dietetics is developing individualized nutrition protocols based on genetic testing and metabolic scanning.

An individual approach ensures safe and effective nutrition that is tailored to a person's biological needs.

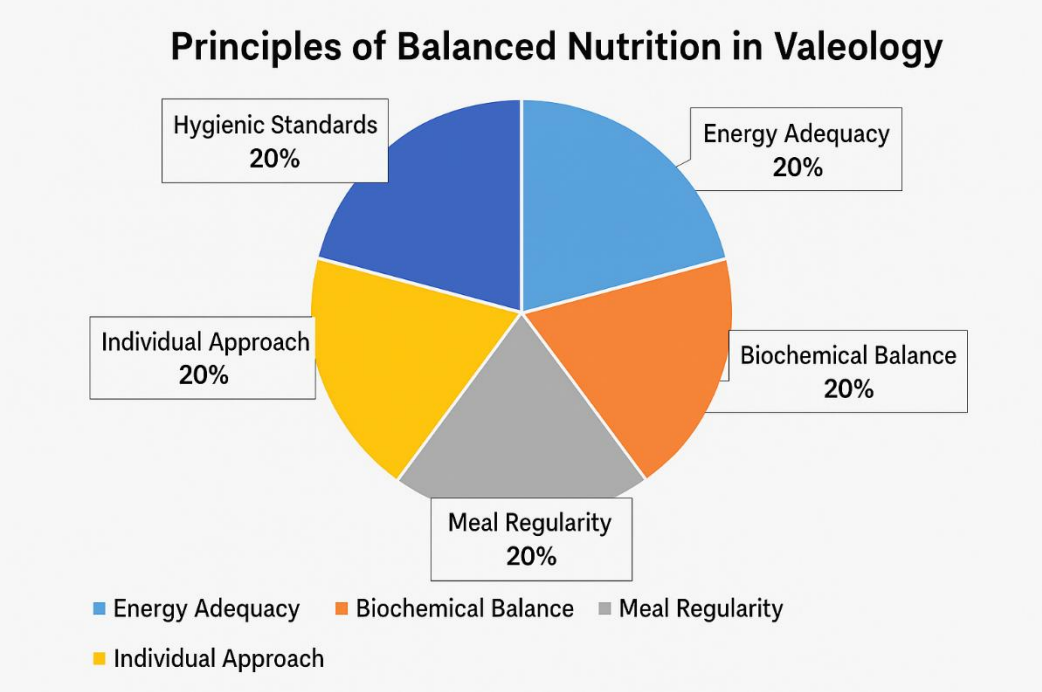
5. Hygienic criteria - this principle implies that food products meet safety, environmental friendliness, and quality standards.

Failure to comply with hygiene requirements can lead to serious health risks through poisoning, infections (salmonellosis, botulism) or chemical toxins (nitrates, pesticides).

The World Health Organization estimates that there are more than 600 million cases of food poisoning worldwide each year, placing a huge burden on the healthcare system.

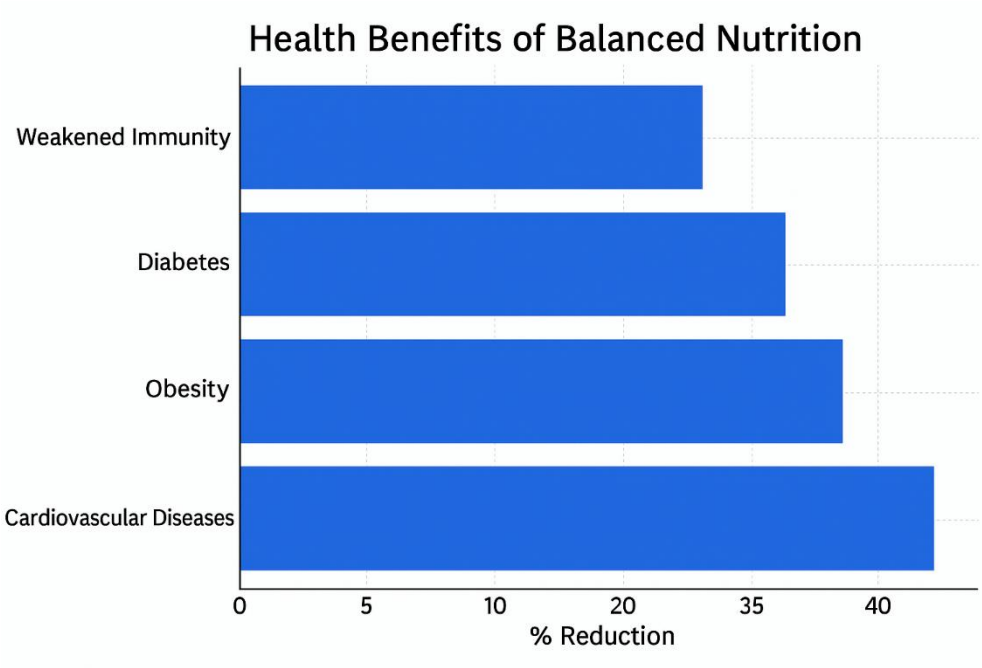
When hygiene principles are followed, not only individual health is protected, but also public health, food safety, and disease prevention (Diagram 1).

Diagram 1.



According to the valeological health model proposed by Russian scientist II Breygin, a balanced diet plays a central role in maintaining the stability of the immune system in the body, coordinating the psychophysiological state, and preventing age-related degenerative diseases. Studies show that individuals who adhere to a balanced diet reduce the risk of cardiovascular disease, obesity, and metabolic syndrome by up to 40% (WHO, 2022) (Diagram 2).

Diagram 2.



Balanced of food again one important principle – diversification , i.e. different kind food - food from products use through to the organism all necessary of substances delivery .

In valeology, the principle of "modularity" means flexibility and an individual approach to ensuring human health. According to this principle, when forming a healthy lifestyle, in particular, when determining the diet, the individual characteristics of each person are taken into account, not single, common rules for all.

This approach takes into account the following:

Seasonality – The body's needs change depending on the seasons:

In winter, the body needs more energy, so the need for fatty and protein-rich foods increases (for example, meat, butter, nuts).

In the summer, the body needs light, water-rich foods (e.g., vegetables, fruits, dairy products).

Location (climate and geographical conditions) – People living in different regions have different nutritional needs:

People living in snowy, cold regions tend to eat more high-calorie foods. Foods rich in omega-3 fatty acids (such as fish) play a key role in northern peoples, as these fats protect the body in the cold and support the cardiovascular system.

In hot climates, the need for low-calorie light products is high (for example, coconuts, pineapples, and cucumbers are common in India).

A person's health status - the diet is adjusted depending on the physical condition of each person:

People with allergies exclude certain foods from their diet (for example, people with a nut allergy do not eat nut products).

For people with diabetes, sugar levels are controlled, and complex carbohydrates predominate in their diet.

Based on valeological principles, the following practical recommendations have been developed:

1. Eat at least 400–500 grams of vegetables and fruits every day. Vegetables and fruits are rich in antioxidants, fiber, vitamins (A, C, K), and minerals (potassium, magnesium). These substances neutralize free radicals in the body, reduce cardiovascular disease, and improve digestion. According to the 2020 recommendations of the World Health Organization (WHO), consuming 400–500 g of vegetables and fruits per day significantly reduces the risk of heart disease, stroke, and some types of cancer [28] .

2. Minimize processed foods, fast foods, and sugar. Processed foods often contain trans fats, excess salt, preservatives, artificial flavors, and sugar, which can lead to insulin resistance, diabetes, obesity, and heart disease. Studies published in The Lancet have shown that regular consumption of ultra-concentrated foods increases the risk of metabolic syndrome [29] .

3. Include a variety of vegetables (blue, yellow, red) in your diet. Colorful vegetables are a source of various phytonutrients (e.g., lycopene in red tomatoes; beta-carotene in carrots and squash; anthocyanins in blueberries). These substances have anti-inflammatory, antioxidant, and immunostimulating effects on the body. According to the Harvard School of Public Health, a variety of vegetables is

important for a healthy diet, not only for their appearance but also as a source of a variety of micronutrients [30] (Pic. 17).

4. Consuming healthy fats (olives, nuts, fish oil). Omega-3 and omega-9 fatty acids maintain heart health, balance cholesterol levels, and support brain function. EPA (Eicosapentaenoic Acid) and DHA (Docosahexaenoic Acid) acids in fish oil are especially beneficial for the heart and nervous system. According to a 2021 conclusion from the American Heart Association, eating fish at least twice a week reduces the risk of heart attack [31] [32] .

5. Drink enough water (at least 1.5–2 liters per day). Water is necessary for all metabolic processes in the body. It is involved in thermoregulation, cell transport, the removal of toxins, and digestion. Dehydration leads to negative conditions such as decreased concentration, fatigue, and impaired kidney function. The National Academies of Sciences (USA) recommend 1.5–2 liters of water consumption as the minimum physiological requirement [33] .

Pic. 17. Enrich your diet with rainbow colors - Harvard School of Public Health

From the point of view of the valeological approach, a balanced diet is not only a healthy lifestyle, but also the basis for maintaining health and living a socially

active life. It plays an important role in improving the quality of life of each person, ensuring the harmonious harmony of biological, psychological and social factors.

3.2. Nutrition in metabolic syndrome, obesity and diabetes

Metabolic syndrome, obesity and type 2 diabetes are among the global health problems today. They are closely related to each other, and malnutrition is a key factor in the development of these conditions. Therefore, in the valeological approach, adherence to the principles of balanced and therapeutic nutrition in these diseases is of urgent importance.

Obesity is the starting point for metabolic syndrome and diabetes. Even losing 5–10% of your weight can improve insulin sensitivity, lower blood pressure and cholesterol. To do this, the total calorie intake in your diet should be less than your individual needs:

1. Calorie control and body weight management

Physical activity	Recommended energy (kcal/day) intake in food products
Low activity	1200–1500
Average activity	1500–1800

2. Glycemic index and carbohydrate quality

The glycemic index (GI) of carbohydrates is important in the case of diabetes and insulin resistance:

- Low GI (<55): vegetables, buckwheat, peas, oats
- Medium GI (56–69): brown rice, corn
- High GI (>70): white bread, sugary products – should be limited

Complex carbohydrates (whole grains, vegetables) normalize insulin production and ensure stable blood sugar levels.

3. Quality of oils – quality, not quantity, is important

Trans fats and unsaturated fats increase the risk of metabolic syndrome. Recommended fats:

- Omega-3: fish, chia seeds
- Omega-9: olive oil, avocado
- Nuts: walnuts, almonds – healthy in small amounts
- Dairy products should be chosen in low-fat versions.

4. Maintaining protein balance

In metabolic syndrome and diabetes, proteins play an important role in maintaining muscle mass, reducing hunger, and stabilizing glucose levels. Lean meats, eggs, legumes, and fish are the main sources.

- Proteins should make up 10–20% of the energy source in the daily diet.
- Insulin sensitivity improves when proteins are included in main meals (breakfast, lunch).

5. Fermented and probiotic products

Intestinal microflora is one of the important factors in metabolic syndrome. Dysbiosis (disorder of intestinal microflora) is observed in diabetes and obesity. Fermented products (kefir, yogurt, sauerkraut) are a source of probiotics:

- Reduces inflammation
- Slows down blood sugar fluctuations
- Strengthens immunity

6. Products rich in antioxidants.

Metabolic syndrome and diabetes have increased oxidative stress. To reduce it, foods rich in antioxidants (blueberries, green tea, tomatoes, red fruits) are recommended:

- Vitamins C, E and polyphenols enhance cell defenses.
- Reduces the risk of cardiovascular diseases that develop as a result of oxidative damage.

7. Limit sugar, salt, and processed foods

The most dangerous foods for these diseases are:

- Carbonated drinks, sweets, confectionery products
- Fast foods and preservatives

- High-salt products, snacks (pickles, chips)

It is recommended that the daily sugar intake should not exceed 25 g and salt should be less than 5 g (WHO, 2022).

8. Regularity and portion control

It is recommended to eat 4–5 times a day. Each portion should be small and the intervals between them should be 3–4 hours. This will prevent a sharp increase in blood sugar.

9. Water consumption and activity

Drinking 1.5–2 liters of water per day, as well as at least 150 minutes of physical activity per week (light walking, swimming) improves metabolic performance.

10. Intermittent fasting approach

In some cases, temporary fasting regimes (such as 16:8 – 16 hours fasting, 8 hours eating window) can help regulate blood sugar levels, improve insulin sensitivity, and reduce body fat.

- In this method, the body switches to converting fat reserves into energy during a "resting state."
- Scientific studies show that this method has positive results in controlling type II diabetes (JAMA, 2020).

11. Psychological and spiritual factors

- Stress, insomnia, and depression reduce insulin sensitivity in metabolic syndrome and diabetes. Therefore:
- 7–8 hours of sleep
- Stress-reducing techniques (meditation, nature walks)
- Emotional Eating Awareness
- are also important health-promoting factors.

12. Glucose and insulin assessment in the form of "glycemic load"

In many cases, not only the glycemic index (GI) of a product, but also its glycemic load (GL) is important, because GL indicates the total glucose load on the body, depending on the amount of carbohydrates in the product and its GI.

- For example, carrots have a higher GI (70), but a lower GI because they have a low amount of carbohydrates.
- Products with a low glycemic load (GY < 10) are preferable in diabetic diets.

13. The role of dietary fiber (cellulose) in glucose management

Dietary fibers, especially soluble fibers (e.g., oats, chia seeds, flax seeds), have the following beneficial properties:

- Slows down the absorption of glucose
- Lowers blood lipids (low-density lipoprotein, cholesterol)
- Prolongs the feeling of fullness
- Improves intestinal microflora

A daily intake of 25–30 g of dietary fiber is recommended in a diabetic diet.

14. Chrononutrition – the correspondence of meal times to biorhythms

The concept of chrononutrition, which has been developed in recent years, is of particular importance for patients with metabolic syndrome and diabetes. This approach involves organizing nutrition in accordance with the body's circadian (day and night) rhythms.

- Breakfast should be the most caloric and rich in complex carbohydrates.
- Dinner should be light and consist of products with a low glycemic load.

Studies show that increasing the calorie content of breakfast compared to dinner improves glucose control and increases insulin sensitivity.

15. Micronutrients: Magnesium, Chromium, and Vitamin D

Certain micronutrients are essential for optimal functioning of the hormones and enzyme systems associated with diabetes and metabolic syndrome:

- Magnesium (Mg): improves insulin sensitivity (green vegetables, nuts)
- Chromium (Cr): activates glucose metabolism (whole grains, seafood)
- Vitamin D: stimulates insulin release, has anti-inflammatory effects

Deficiencies of these substances can be observed in patients with diabetes; therefore, it is recommended to take them through the diet or in the form of supplements (only under the supervision of a doctor).

16. Adding valeological psycho-influential methods

In individuals with diabetes and metabolic syndrome, psychological stability determines the overall reactivity of the body. In valeology, the following methods are recommended along with diet:

- Breathing exercises and meditation – reduce levels of the stress hormone (cortisol)
- Light yoga or tai chi – improves insulin sensitivity
- Biofeedback techniques – increase control over internal physiological indicators

17. "Plate method" food distribution in diabetic nutrition

One of the simple and effective food control methods in valeology is the "Plate Method", which is a convenient visual tool, especially for diabetics:

Half of the plate (50%) – vegetables (broccoli, cabbage, carrots)

1/4 of the plate – protein products (chicken, eggs, legumes)

1/4 of the plate – complex carbohydrates (oats, brown rice)

18. Strategies to reduce glycemic variability

Glycemic variability refers to the sudden rise and fall of blood glucose levels throughout the day. Studies show that these changes increase the risk of cardiovascular complications.

- Ways to reduce glycemic variability:
- Eat vegetables before every meal (fibers first!)
- Consuming carbohydrates with proteins or fats
- Moderate walking (15 minutes) prevents a sharp rise in glucose after a meal

19. Microbiota-related diet therapy in patients with diabetes

Recent scientific studies have shown that the gut microbiota has a direct impact on the development of diabetes. Therefore, products rich in prebiotics and probiotics are being included as a key component in diabetic diets:

- Prebiotics (bananas, garlic, onions)
- Probiotics (kefir, yogurt)
- Synbiotics – a combination of both

Adding these substances to the diet reduces inflammation and improves glucose metabolism.

20. Complementary food strategies:

- Eating rice cold (resistant starch):

Cooked rice that has been cooled forms resistant starch, a substance that slows down the absorption of glucose.

- Adding vinegar or lemon:

Adding natural vinegar or lemon juice to salads helps lower the glycemic index of the food.

- Enrich your breakfast with protein:

Eating 20–30 g of protein at breakfast (e.g. eggs + almonds) increases insulin sensitivity throughout the day.

21. Differentiated approach for women and men

Metabolic syndrome manifests differently in men and women, so a gender-specific nutritional approach is important:

- In women: Estrogen-dependent fat accumulation is more likely to occur around the abdomen, which increases the risk of heart attack. Foods rich in phytoestrogens (flaxseed, soy) are beneficial.
- In men: metabolism slows down due to testosterone deficiency. Zinc (Zn) and vitamin D are important micronutrients.

22. Smart technologies and glucose monitoring

Digital health monitoring is widely used in modern valeological practice:

- CGM – Continuous Glucose Monitoring: real-time monitoring of blood glucose levels.
- Monitoring calories, food composition, and physical activity using mobile apps.

Through these technologies, an individual dietary model can be automatically adapted.

In the valeological approach, balanced nutrition is not just a means of satisfying physiological needs, but a complex process that strengthens health, supports psychological stability, and ensures social activity. This approach involves the formation of an individual nutrition model that is appropriate for the biological, social, and psychological characteristics of each person.

It is especially important to adhere to the principles of balanced and therapeutic nutrition in chronic diseases such as metabolic syndrome, obesity, and diabetes. Science-based approaches - glycemic load control, antioxidants, dietary fiber, probiotics, and coordinated meal timing (chrononutrition) - help improve glucose metabolism and insulin sensitivity.

When such dietary strategies are implemented in a way that is tailored to individual needs, the risk of disease is significantly reduced, the body's metabolic balance is restored, and the quality of life and functioning are improved. Therefore, the valeological nutrition model is recognized as an integral component of modern health systems.

3.3. Individual and age-related characteristics in diet planning

Although children's specific nutritional needs change as they grow, **nutrition always has a direct impact on physical, mental, and emotional growth and development .** Scientific research shows that a person's mental capacity and body size are strongly related to the nutrition received during early childhood.

If a child does not get enough essential nutrients – especially protein and calories – in the first years of life, he or she **will be stunted compared to other peers. may be inferior in terms of physical appearance, and their intellectual potential may lag behind** .

Children from 1 to 12 years old

Eating habits are formed during childhood. Bad eating habits formed during this period are difficult to change later. This, in turn, can lead to a child developing emotional and physical problems - irritability, depression, anxiety, fatigue, and various diseases.

Children often learn by imitation, so healthy eating habits and a calm, positive attitude of parents towards the child help to form good habits. Healthy and nutritious products should be constantly available not only during the main meal, but also for snack times. Daily meals, on the other hand, ensure that the diet contains a variety of products, ensuring that the body receives sufficient nutrients. Parents

should understand that children's appetites are not always stable. The growth rate is not consistent, and as children grow older, this rate slows down. For example, in the second year of life, a child gains an average of only 2–2.5 kg. In addition, during this period, the child's attention gradually shifts from the stomach to the environment. As a result, a decrease in appetite and interest in food is a natural phenomenon. Children aged 1–3 years undergo rapid changes in their bodies: their legs lengthen, their muscles develop, their bodies lose their “baby” shape, they learn to walk and talk, and they strive to eat independently and express themselves. For example, a two-year-old child’s frequent “No!” response is actually a declaration of independence: “I choose!”

As a child grows, he begins to express his thoughts in a social and healthy way. This indicates that his inner sense of independence is growing. Parents should accept this need as respectfully as possible. Children's taste sensations and preferences change over time. New products should be introduced gradually, in small quantities, and in an attractive form. Also, involving the child in the process of buying or preparing new food is one of the effective ways to increase his interest and arouse his desire to eat it. The food offered to children should be rich in nutrients, because they do not eat a lot at one meal. In children under 2 years of age, it is impossible to sharply limit the consumption of fat, because fats are an important source for the development of the body during this period.

High-fat products are also not recommended as snacks for children. Whole milk is recommended for children under 2 years of age, but low-fat or fat-free milk should be used from age 2. Guidelines for fat intake are as follows: Fat should make up 30%–35% of total calories for children 2–3 years of age, and 25%–35% for children 4–18 years of age. Of these fats, no more than 7% should come from saturated fat.

It is also recommended that children refrain from adding salt to their food at the table or eating foods that are high in salt. Young children are very sensitive to food temperature and may refuse hot food. However, they prefer crunchy, bland, and familiar foods. They are often wary of foods that are dipped in sauce or dressing.

Parents should be realistic about how much they expect their child to eat. Calorie needs depend on growth rate, physical activity, body size, metabolism, and general health. Children may engage in “food fights” or eating rituals, such as eating only one or two foods, or eating each food with a different spoon, or insisting that foods not touch each other.

Choking is common in young children, so avoid giving nuts, grapes, sausages, raw carrots, hard candy, or sticky peanut butter (Chocotella, Nutella, Chococreame) to children under 4 years of age. Offering a healthy snack every 2–3 hours will help keep your child's energy levels up. Children often prefer snacks that they can eat with their hands. These snacks should be as nutritious as the main meals. For example, cheese, fruit, milk, and unsweetened cereal are good choices. Mealtimes should be enjoyable. Children should not be forced to eat.

According to the principle developed by Ellyn Satter (1995), the main role of parents is to provide healthy and nutritious food in a pleasant environment, and the child's role is to decide for himself how much or whether to eat. If the child is hungry, he will eat anyway. Forcing him to eat can lead to eating disorders. This, in turn, is likely to lead to chronic overeating, anorexia nervosa, or bulimia.

Calorie and nutrient needs

Between the ages of 1 and 10, growth rates gradually slow down, so the calorie requirement per pound of body weight also decreases. For example, a 6-month-old girl requires about 54 calories for every pound of body weight, but by the age of 10, this requirement drops to about 35 calories.

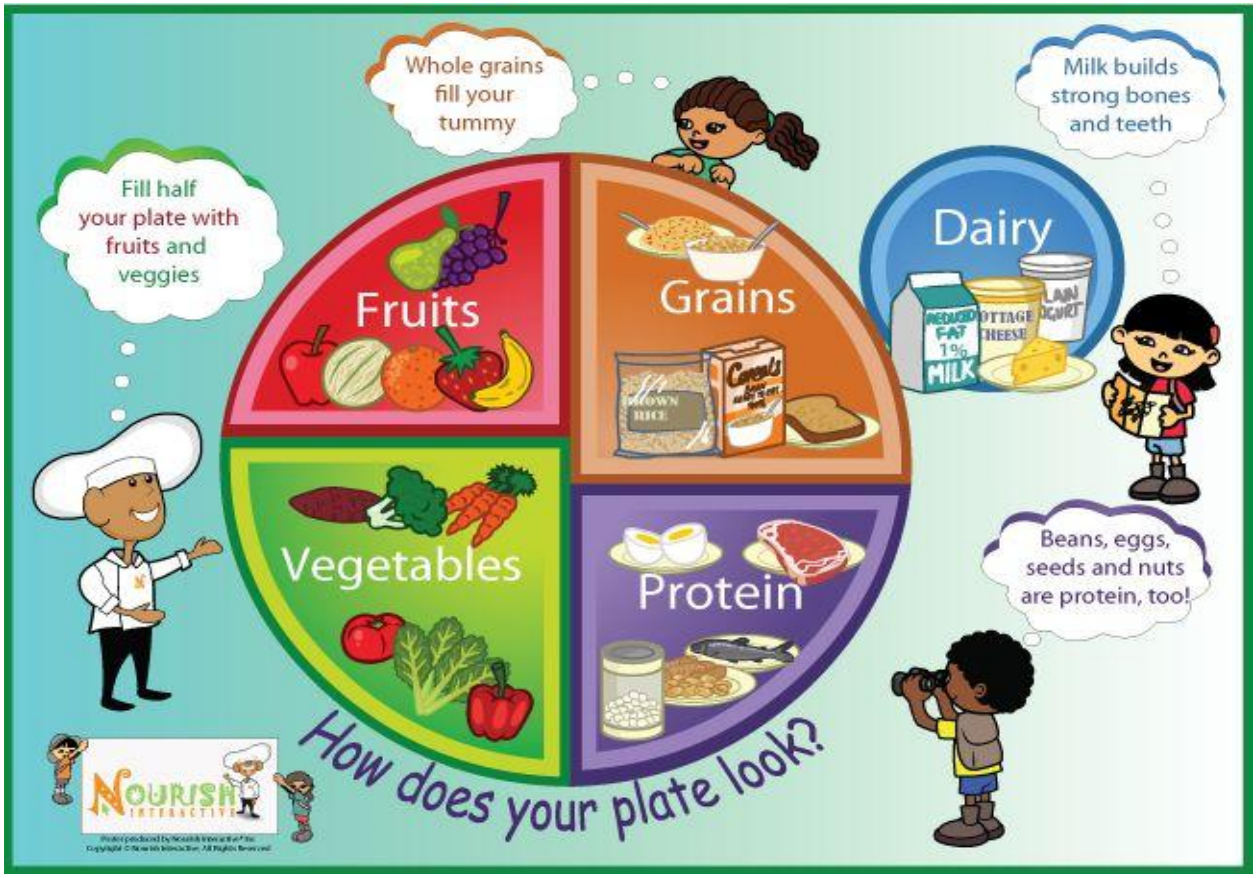
However, the need for nutrients does not decrease. On the contrary, as the body size increases from 6 months to 10 years, the need for vitamins and minerals increases. Therefore, it is important to provide children with foods that they want to eat, while also being healthy. Giving children choices – for example, the opportunity to choose from a variety of products at the table – has a positive effect on their psychosocial development.

In general, a young child needs 2–3 glasses of low-fat or nonfat milk, or an equivalent source of calcium, each day. However, excessive milk consumption

should not be allowed, as it can displace other iron-rich foods and lead to iron deficiency (Pic. 18).

Although the other food groups in the diet are the same as for adults, the portion sizes are smaller. It is necessary to limit sweets, as children crave them more than healthy products. In particular, it is necessary to reduce the amount of sugary fruit juices. It is also important for children to have products rich in water and fiber (fiber). 1 ml of water should be drunk for each calorie: if the daily intake is 1200 calories, this means 5 glasses of water. The need for fiber depends on age: after 3 years, it should be “age + 5 grams” and a maximum of “age × 10 grams”. Excessive consumption of fiber can lead to a child feeling full and not consuming the required amount of calories. If the child’s diet is low in fiber, it is necessary to introduce it gradually and at the same time increase the amount of fluid.

Childhood is the best time to develop healthy eating habits that will benefit you throughout your life, including fiber intake, which helps prevent constipation, colon cancer, and diverticulitis.



Pic. 18. The importance of rational nutrition in childhood

Adolescence

In general, individuals between the ages of 13 and 20 are considered adolescents. During this period, rapid growth occurs in the body, which leads to major changes. In girls, this process begins at the age of 10–13, and in boys at the age of 13–16. The growth rate can be 7.5 cm (in girls) and 10 cm (in boys) per year. Bones become denser, muscle and adipose tissue are formed, and blood volume increases.

Girls begin menstruating, and boys develop a voice. Both may develop acne on the face. Acne is not caused by specific foods, but by increased activity of the skin's sebaceous glands. These changes have a strong impact on the psychosocial development of the adolescent. Each adolescent develops in their own way. Some may consider themselves too fat, others too thin; others may be dissatisfied with their height or muscle mass. Some may experience serious psychological problems due to acne on the face. This period can be joyful, but in many cases psychological counseling is necessary.

Eating habits

Teenagers, especially boys, tend to have very large appetites. If healthy eating habits are established from childhood and healthy foods are available, teenagers should have no problem eating. Teenagers are imitators, just like children, but they tend to follow their peers, not adults, and follow popular and traditional habits.

Unfortunately, these popular products often have little nutritional value – for example, unhealthy snacks, sodas, and sweets. These products provide mostly carbohydrates and fat, but are low in protein, vitamins, and minerals, and high in salt.

If a teenager is eating poorly, adults should approach this in a gentle, explanatory manner. Since teenagers are naturally independent, they do not like direct prohibitions or orders. Before analyzing a teenager's food choices, it is necessary to explain that the products they choose are actually nutritionally unsuitable. Sometimes the food a teenager chooses can be healthy. If a teenager is

having difficulty maintaining weight, it is useful to give him recommendations for appropriate nutrition.

California Governor Arnold Schwarzenegger has signed a bill banning the sale of carbonated beverages in the state's high schools as part of a campaign to combat obesity. Under the new law, only the following beverages are permitted in schools:

- milk,
- drinks containing at least 50% fruit or vegetable juice,
- unsweetened drinking water.

This ban is scheduled to come into effect in 2007 and be fully implemented by 2009. The ban on carbonated drinks has already been implemented in elementary schools.

Another bill signed by the governor would increase the cost of fruits and vegetables in school meal programs.

Adult life and nutritional needs

The adult life span is broadly divided into three stages: middle age 1 (ages 18–40), middle age 2 (ages 40–65), and old age (ages 65 and older).

Middle age 1 is a period of dreams, plans, and activity. A person strives to find their place in society and professionally, has a lot of energy, is often interested in physical activity, and participates in sports. In middle age 2, physical activity slows down, which leads to a decrease in daily calorie needs for most people. During this period, these people usually have grown up children who are more independent and physical activity is reduced. Although appetite does not decrease, the risk of weight gain increases due to the decrease in calorie needs. In the period from middle age 1 to middle age 2, the first signs of osteoporosis (bone fragility) can be seen. A diet rich in calcium, vitamin D, and fluoride plays an important role in preventing this disease.

Rheumatoid arthritis (RA) usually appears between the ages of 30 and 50 and affects approximately 1% of the population (2.1 million people). The disease is three times more common in women than in men. RA mainly affects the joints in

the hands, elbows, knees, ankles, neck, and shoulders. Although dietary changes do not cure RA, a healthy diet rich in calcium, protein, and vitamin D is still recommended. Omega-3 fatty acids may be helpful in reducing inflammation, but it is important to consult a doctor before taking them.

Nutrient needs

The human growth process is completed by the age of 25. After that (except during pregnancy and breastfeeding), the body needs nutrients only for the maintenance, repair of tissues and energy production. During these years, the basic nutrient requirements of healthy people do not change much. The iron requirement for women is higher than that of men during the childbearing period. This is mainly due to blood loss during menstruation and the formation of the necessary blood reserve for mother and baby during pregnancy. After menopause, women's iron requirements become equal to those of men.

The protein requirement for a healthy adult is 0.8 grams per kilogram of body weight. Between the ages of 19 and 50, the calcium requirement is 1,000 mg and the vitamin D requirement is 5 micrograms. These substances are necessary for bone strength. Bone fragility begins around the age of 35 to 40 and can later lead to osteoporosis.

Therefore, it is recommended that women, especially, consume more calcium and vitamin D than the daily norm. Three glasses of milk almost cover the need for these substances. The use of milk or non-fat dairy products is also useful in limiting the amount of fat in the diet.

Special issues related to healthy eating

It is especially important to develop healthy eating habits in young and middle-aged women. Women are often concerned about weight, food costs, or preparation time, and as a result, they unknowingly end up lacking in nutrients. For example, a woman might eat a cupcake for lunch, while a man might eat a burger and salad. The cupcake is about 300 calories, with ice cream added to it for another 100 calories. The burger is 250–400 calories, the salad is 50, and the sauce is 100 calories. The calories are the same, but the nutritional value is dramatically different.

Today, people strive to limit fat, cholesterol, sugar, salt, and calories, but when choosing food, they often choose taste and convenience over utility. This leads to excessive consumption of fat, salt, sugar, and calories through fast foods, frozen foods, and desserts, and a lack of fiber.

Weight control

One of the most pressing issues for adults in America is weight control. Many people take this issue seriously for health and appearance reasons. Being overweight increases the risk of diabetes, metabolic syndrome, hypertension, surgical complications, and a shortened life expectancy. Psychological and social problems, low self-esteem, and diminished self-esteem are also consequences of obesity. Although the causes of obesity are not always clear, the most common cause is energy imbalance.

In other words, if a person consumes more calories than the body needs, weight will increase. For example, consuming 3,500 calories in excess will result in a weight gain of 0.45 kg. If you eat just 200 extra calories a day, you can gain 9 kg in 1 year. Although the need for nutrients does not change, since the calorie requirement decreases, people need to be careful about their diet choices.

If obesity is solely related to energy balance, the most effective way to address the problem is to eat less and increase physical activity. Exercise not only burns calories, but also builds muscle. Sometimes, even if you don't lose weight, your clothing size may decrease, which is a sign that you're losing fat. A person who wants to lose weight should first check with their doctor to make sure they are in good health.

Then, a healthy eating plan is created with a dietitian to suit your lifestyle. This plan uses a MyPyramid-based diet to help you develop healthy habits and make eating at home more convenient.

Based on the above, healthy eating from early childhood serves as the basis not only for physical growth, but also for mental and emotional development. Scientific studies show that adequate and balanced nutrition in childhood determines intellectual potential and physical growth. Unhealthy eating habits formed in

childhood later cause serious health problems. Nutrition is not limited to calorie intake alone. Parental attitude, giving the child choices, presenting new foods in an attractive way and involving them in their preparation - all this plays an important role in forming healthy eating habits in a child. It is necessary to take into account the amount of fat, protein, calcium, iron and water appropriate for each age.

During adolescence, independence, imitation, and social factors influence food choices. Maintaining a balance between proper nutrition and freedom of choice is an important task for parents and educators during this period. An educated approach, patience, and a nurturing approach are required to prevent obesity, bad habits, and eating disorders.

So, healthy eating is not just a simple food choice, but a foundation for the health of future generations.

CHAPTER 4. Formation of a culture of healthy eating: practice and valeological recommendations

4.1. Eating behavior assessment: questionnaires and test methodology

The first and most important step towards building a healthy eating culture is to assess eating behavior. Because a person's attitude towards food, consumption habits and psychological desires directly affect their overall health. In an analytical approach, healthy and unhealthy habits are identified through the assessment of eating behavior and targeted recommendations are developed on an individual or group basis.

Questionnaires, tests, monitoring charts, and interviews are widely used to determine eating behavior. Through these methods, participants can:

- Variety of products in the diet
- Relationship to calorie and nutrient balance
- Level of adherence to meal times and regimen
- Emotional eating (stress eating) situations
- The need for snacks and unhealthy foods is identified.

Main methodological tools

- FFQ (Food Frequency Questionnaire) — questionnaires that determine the frequency of food consumed over a period of time. Usually administered on a weekly or monthly basis. The FFQ is a method that measures the variety, quantity, and frequency of food intake in a diet. It is effective and time-saving when working with medium to large groups. The most famous studies in the world — the Nurses' Health Study and the Harvard Health Professionals Follow-up Study — are based on the FFQ methodology. This method provides reliable results in assessing long-term nutrient intake. Its disadvantages include high subjectivity, and a person may make mistakes in remembering their intake.
- 24-hour dietary recall — the participant is asked about all the products consumed during the day. This method determines the exact amount of calories, protein, fat, carbohydrates, vitamins and minerals. It is the most recommended

individual analysis method by dietitians. The USDA (United States Department of Agriculture) and NHANES (National Health and Nutrition Examination Survey) programs compile dietary statistics based on 24-hour recall. Disadvantage: Does not represent the overall trend of daily eating habits (based on 1 day only).

- DEBQ (Dutch Eating Behavior Questionnaire) assesses emotional, external, and restrictive eating behaviors. The DEBQ measures a person's psychological eating profile. For example, whether a person eats more when stressed, or whether they are interested in food while watching TV - these are behavioral reactions. It is widely used by psychologists and dietitians. Studies have estimated the reliability of the DEBQ test in identifying anorexia, bulimia, and emotional eating to be over 85%. Reveals the psychological aspects of eating. It does not measure substance use, only behavior.
- Food diary — the participant writes a daily list of foods for 3–7 days. This method is relevant for the accuracy of the real diet. This method is based on real-time assessment and provides the most accurate picture of daily diet and energy balance. The British Dietetic Association recommends food diaries as a diagnostic and treatment tool for obesity, diabetes and cardiovascular disease. It is widely used in clinical practice. The entire diet is monitored. It takes a lot of time, and the participant must be meticulous.
- Information on eating habits is collected through questionnaires with a Likert scale rating of "Never", "Rarely", "Sometimes", and "Always". Eating behaviors (e.g., “I eat even when I’m not hungry”) assess motivational, stress-based, or habitual consumption of food. This method, which is common in psychological surveys, is used by the WHO and FAO in food security studies. Easy, fast, and convenient for statistical analysis. It does not measure the amount of food, only the behavior.

Analysis of assessment results

The questionnaire and test results are analyzed based on the following criteria:

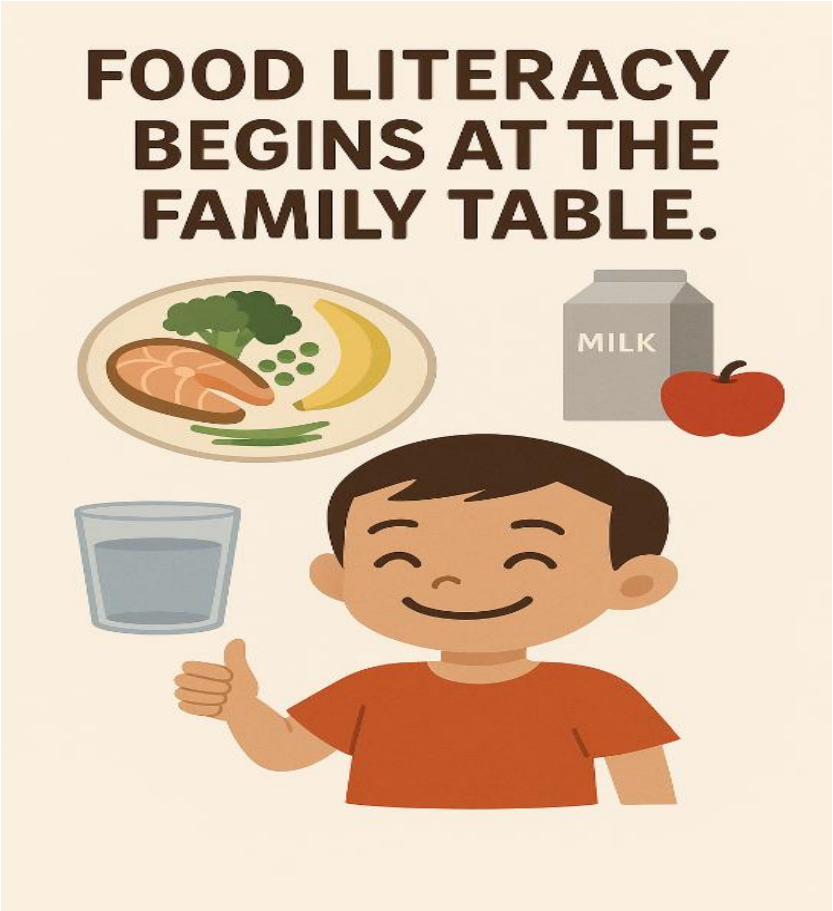
Criteria	Evaluation view	Recommendation
Nutritional balance	Percentage of macro and micronutrients	Approximation to the normal distribution
Dietary diversity	At least 5–7 types of products	Expanding the variety of daily meals
Stress eating	Emotional Eating Index	Implementing stress management techniques
Snack and dessert consumption	How many times a day?	Substitute with healthier alternatives
Water drinking habit	Daily fluid intake	Implementing the 1 ml of water per 1 calorie rule

In conclusion, the assessment of eating behavior is the starting point for the formation of a healthy lifestyle. With the help of questionnaires and test methods, the weak points of an individual or group in nutrition are identified, a balanced diet is created, psychological approaches are applied, and valeological preventive measures are developed. This method is of great importance not only in therapeutic, but also in pedagogical and educational terms.

4.2. The role of family, school, higher education institutions and medical personnel in shaping a nutritional culture

The family, especially parents, plays a key role in shaping healthy eating habits during childhood. Research shows that parents' eating habits and attitudes directly influence children's eating behavior. For example, parents' regular consumption of fruits and vegetables leads to the formation of positive attitudes towards these products in children.

In addition, the family is the first socialization environment for a person. From childhood, attitudes towards food, consumption patterns, and food selection criteria are formed based on the family model. Regular family meals, eating together at the common table, parental example, and positive encouragement methods all reinforce the basic values of healthy eating in the child's mind (Pic. 20). According to studies, children in families that maintain the habit of eating together are much less likely to suffer from obesity, psychological stress, and unbalanced nutrition.



Pic. 20. Food literacy begins at the family table

In addition, by involving the child in food preparation, discussing products, and conducting educational cooking classes, the family turns food literacy into a practical skill.

Also, eating healthy foods and creating a positive environment during family meals helps children develop healthy eating habits, which will help them maintain a healthy lifestyle in the future.

Schools play an important role in shaping children's eating habits. The quality of school meals, nutrition education, and the healthiness of the food environment around the school all influence children's eating behavior.

Schools can teach children the importance of healthy eating by implementing healthy eating programs. These programs should focus on increasing fruit and vegetable consumption, reducing sugary beverage consumption, and developing healthy eating habits.

The school period is a stage of expansion of children's social consciousness and is the most effective platform for the systematic formation of healthy eating habits. At this stage, children are taught not only biological knowledge, but also the skills of dieting, etiquette, hygiene, and independent choice.

According to WHO recommendations, a culture of health can be fostered in schools through healthy eating corners, healthy breakfast initiatives, healthy drink vending machines, and interactive lessons.

School canteens and menus should also be monitored based on state standards. Providing healthy meals is not only a nutritional tool, but also a means of education.

Universities, especially medical and health education institutions, prepare future professionals by providing in-depth knowledge of healthy eating. Research shows that medical students have limited knowledge of nutrition, which may affect their future practice.

Therefore, universities need to strengthen nutrition education programs, introduce practical exercises and interactive teaching methods. This will help students acquire sufficient knowledge and skills on healthy eating.

Therefore, at the university and college level, it is important to:

- trainings and seminars on healthy eating (Pic. 21),
- switching student canteens to a healthy menu,
- establishing psychological and nutritional counseling centers,
- training in self-monitoring through digital applications.

At this stage, it is necessary to form a valeological culture, raising it to the level of a philosophy of life.

Pic. 21. Seminar class session among university students on healthy eating.

Healthcare professionals, especially doctors and dietitians, help patients improve their health by advising them on healthy eating. However, many healthcare professionals lack sufficient knowledge about nutrition, which limits their ability to provide patients with appropriate advice.

Therefore, it is important for healthcare professionals to organize ongoing nutrition education programs, update their knowledge, and develop practical skills. This will help them provide quality advice to patients and help them develop healthy eating habits.

Medical professionals influence eating culture through:

- ❖ individual advice (e.g. diabetic diet),
- ❖ popularized health day events,
- ❖ Disseminating information through nutrition brochures, booklets, social videos,
- ❖ Providing recommendations at rural medical stations and family clinics.

According to research, patients are 2.4 times more likely to follow a diet if a healthcare professional explains it to them.

It is clear that the cooperation of families, schools, universities and health workers is important in forming a culture of healthy eating. Each has a specific role, and by working together, they can develop healthy eating habits in society. This will improve overall health and prevent diseases.

4.3. Valeological enlightenment: trainings, programs, mobile applications in rational nutrition

21st century medicine interprets health not only as the absence of disease, but also as a combination of a conscious lifestyle, prevention, psychological stability and nutritional culture. In this process, valeological education - that is, a system of conscious knowledge and skills on a healthy lifestyle - is becoming the main tool for integrating rational nutrition into everyday life. The most effective methods for implementing this education are: interactive trainings, systematic health programs and mobile applications based on digital technologies (Pic. 21).

1. Trainings: a psychopedagogical tool for teaching mindful eating

Trainings promoting rational nutrition go beyond teaching diet formulas. They guide the participant to make independent decisions when choosing food, identify psychological factors in nutrition, and form healthy habits through self-observation.

The training usually includes:

- Practical knowledge of macro- and micronutrients;
- Glycemic index and portion control;
- “Mindful eating” – mindful eating techniques;
- Distinguish between food enjoyment vs. emotional hunger;
- Analysis of feeding reflexes under stress.

Studies have shown that 6 weeks of psychoeducational training on healthy eating increased participants' ability to control calories, avoid sweets, and listen to their feelings of fullness by 40% [34] .

In addition, special programs on rational nutrition are being implemented in the state, education and health systems. They can be aimed at age categories, social strata or special groups (for example, children, adolescents, pregnant women).

Practical programming examples:

- Healthy School Menus Program (within the European Union);
- "Smart Food Week" at universities;
- Healthy eating corners in workplaces, shift ration analysis projects;

Such programs typically consist of the following components:

- Nutrition reference materials;
- Dietary consultation and monitoring;
- Optimization of seasonal menus;
- Seminar, webinar, open lectures.

Studies show that obesity rates in schoolchildren and students who participated in a healthy eating program decreased by 12% in 6 months.

It is worth noting that when it comes to rational nutrition, modern mobile applications play the role of not only a control tool, but also a digital assistant that encourages the user to take conscious action. Such applications calculate the diet, remind to drink water, scan the composition of food, and even analyze eating habits and make suggestions.

Popular apps:

- YAZIO – track calories, macronutrients, weight changes;
- Lifesum – diets, recipes and daily assessment (Pic. 22);
- MyFitnessPal – food scanner, integration with exercises;
- Fasting Tracker – for temporary fasting approaches.

In a study by Lindström et al. (2020), 17% of 600 participants in Sweden who used the Lifesum app for 12 weeks achieved a healthy weight and 12% reduced their calorie intake [35] [36] .

Advantages of mobile applications:

- Monitoring changes through visual graphs;
- Motivational alerts;

- Increasing food literacy;
- Identifying and reducing stress-related eating reflexes.

Pic. 22. Trainings, programs, mobile applications in rational nutrition

In short, rational nutrition means a culture of conscious, balanced and sustainable nutrition, taking into account the biological needs of each person. When introducing it into society, trainings awaken motivation, programs integrate it into the social system, and mobile applications create a convenient digital tool for daily monitoring and initiative. In this way, valeological enlightenment and rational nutrition are firmly intertwined, becoming the main principle of health.

4.4. Correction of valeological diet based on the author's model: experimental experience

The purpose of the experiment: to form rational eating habits among students aged 18–25 and observe positive dynamics in metabolic indicators using the developed valeological-informational training program.

Study type: Observational study based on experimental intervention

Research design:

The study was designed as a randomized controlled trial. Participants were randomly assigned to two groups: the main group (intervention) and the control group (who continued with their standard lifestyle).

Participants: 80 students (40 – main group, 40 – control group)

Selection criteria: individuals aged 18–25, studying at the Fergana Institute of Public Health, without chronic somatic or psychiatric diseases

Experimental model usages:

Training component:

- 6-week psycho-pedagogical training on healthy eating (Through tests - a sample test and evaluation criteria are provided in the appendix)
- Daily monitoring component:
- Food journal (manually and via app)

Evaluation criteria:

The main parameters assessed before and after the experiment were:

- ✓ Anthropometric: body weight, BMI, waist circumference
- ✓ Biochemical: glucose
- ✓ Test

Statistical analysis:

- Statistical software: SPSS v.26

Ethical consent: All participants provided verbal and written informed consent. Personal information was kept confidential. The study was approved by the university's scientific ethics committee.

The result of 6 weeks of psycho-pedagogical training on healthy eating

A 6-week psycho-pedagogical training program developed based on the author's model for the formation of a healthy eating culture has become an effective experimental tool. This model aims to strengthen the culture of eating in the minds of students by combining theoretical knowledge, practical skills and a psychological approach to rational nutrition.

During the training, participants were educated based on the following weekly modules:

Week 1 – The connection between nutrition and health: Concepts of eating culture and valeological approach, analysis of the food pyramid.

Week 2 – Food composition and micronutrients: Studying product labels, distinguishing beneficial sources, and analyzing diets through practical exercises.

Week 3 – Psychological nutrition and emotional factors: Emotional hunger, stress eating, "mindful eating" techniques.

Week 4 – Glycemic Index, Portion Control, and Calorie Balance

Week 5 – External factors: fast food, advertising, family: Role play, situation analysis, family model analysis.

Week 6 – Reflection and Results: Final test, development of a personal nutrition plan, assessment of knowledge and skills.

At the end of the training, 80 students were tested to assess their knowledge of healthy eating habits. The students were divided into two groups:

✓ Group 1 (40 people) – participants in 6-week psycho-pedagogical healthy eating training;

✓ Group 2 (40 people) – students who did not participate in the training, but took the final test.

The test results were divided into four categories based on the following scoring criteria:

Rating level	Score ranges	Definition
Excellent	81–100 points	High literacy
Good	61–80 points	Adequate literacy
Medium	41–60 points	Average level of knowledge

Low	21–40 points	Insufficient level
Very low	0–20 points	No basic concepts

Results of the training group:

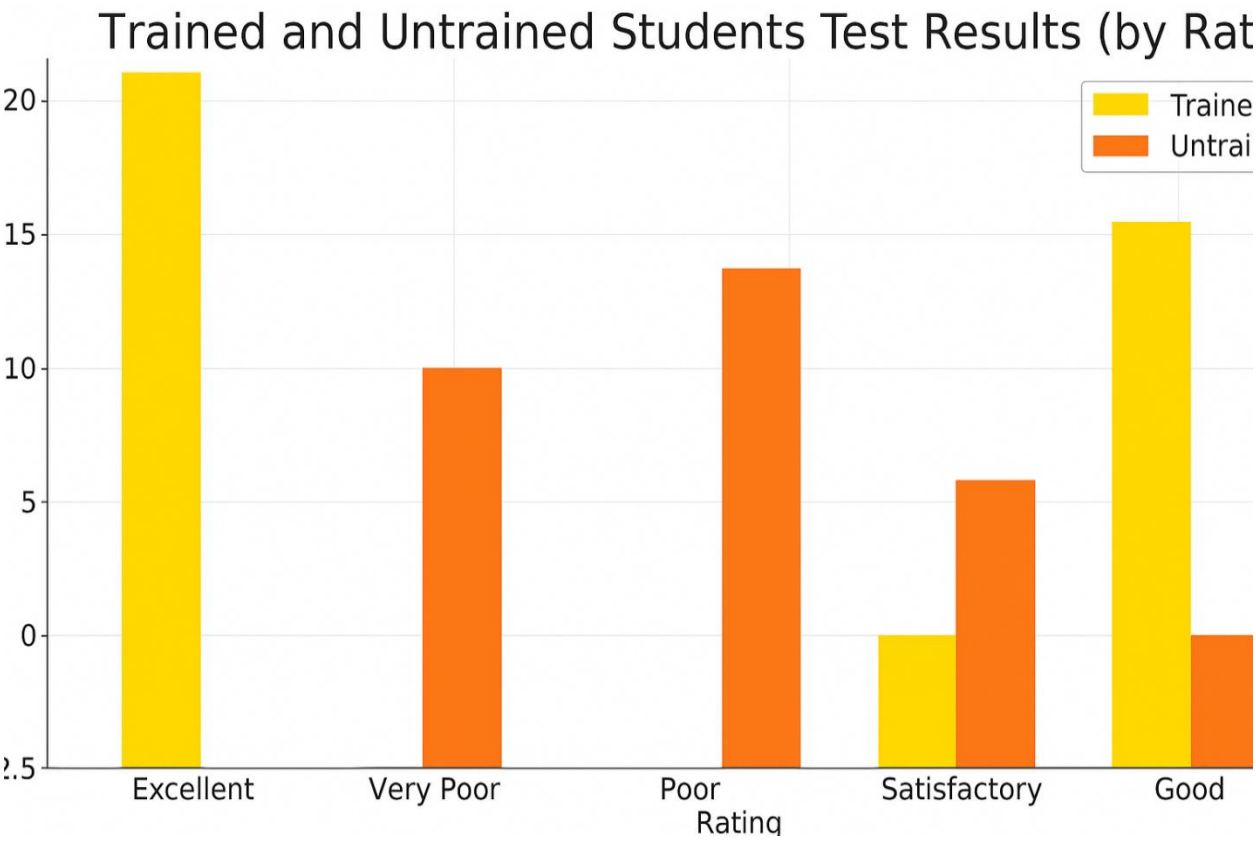
- Those who received excellent grades: 18 (45%)
- Good: 14 people (35%)
- Medium: 6 people (15%)
- Low: 2 people (5%)
- Very low: 0 people (0%)

These results show that more than 80% of the students who participated in the training had high and sufficient knowledge. Only 5% had a lack of knowledge, which may be due to individual reasons.

Results of the untrained group:

- Excellent: 5 people (12.5%)
- Good: 10 people (25%)
- Medium: 12 people (30%)
- Low: 9 people (22.5%)
- Very low: 4 people (10%)

In this group, the number of those who received high marks was small (only 12.5%), and the share of those who received low or very low marks reached 32.5%. This shows that students who did not participate in the training are much weaker in terms of knowledge about healthy eating culture (Diagram 3).



The training sessions served as an effective and effective tool for improving students' knowledge. The interactive approach, visual materials provided during the training, discussions, and practical tasks enhanced students' literacy. It is advisable to implement this approach more widely in universities, schools, and the healthcare system.

Body weight, body mass index (BMI), and blood glucose results

The results of an experiment conducted to determine the effectiveness of a rational nutrition program based on a valeological approach showed that significant positive changes were observed in three main body indicators - body weight, body mass index (BMI), and blood glucose levels.

During the 6-week program, participants were monitored using the following approaches: mindful eating training, a healthy eating program, monitoring through digital monitoring apps, and weekly motivational sessions. Results showed that participants, with an average initial body weight of 76.2 kg, lost 72.3 kg. This represented an average healthy weight loss of 3.9 kg, or 5.1%. This change was

accompanied by a decrease in fat accumulation, especially in the abdominal area, and the preservation of muscle mass (Table 2).

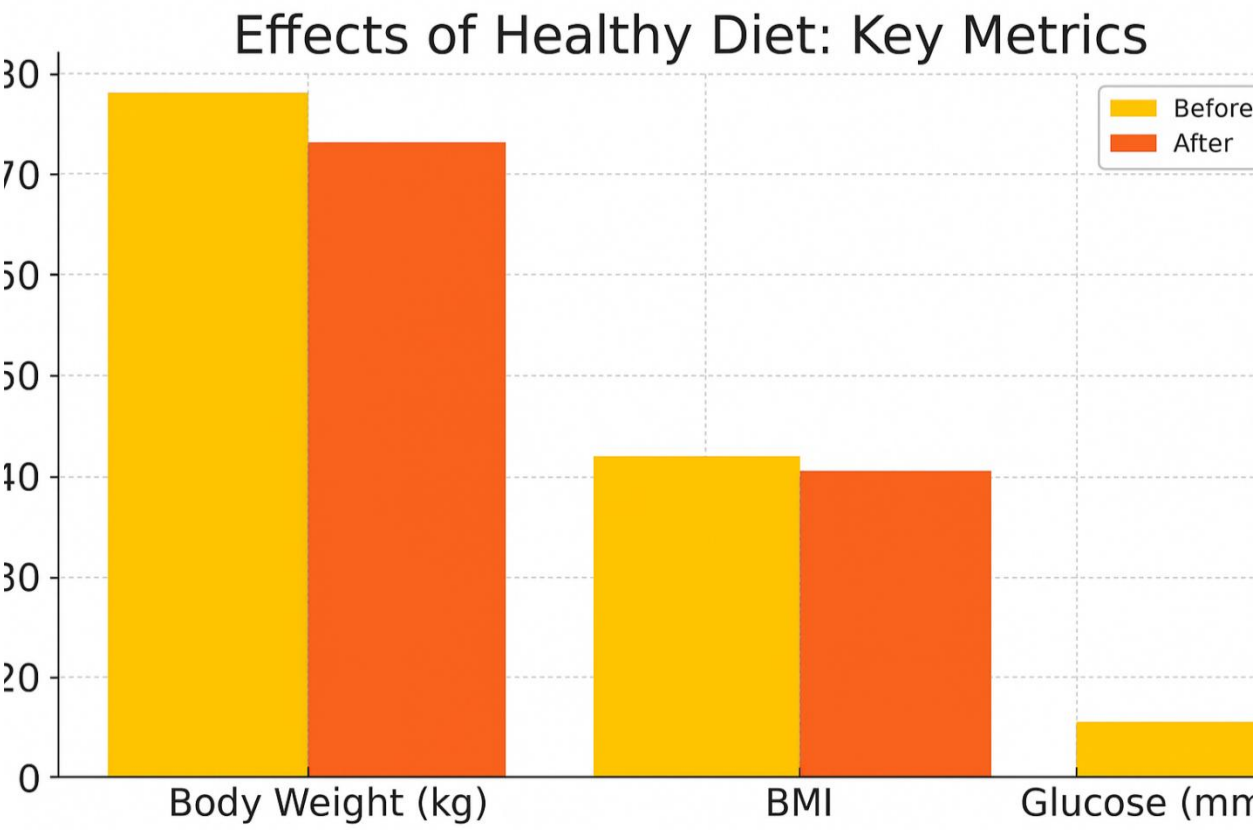
Table 2. Table of Experimental Results

	Indicator	Experience	After the experience
1	Body weight (kg)	76.2	72.3
2	BMI	27.5	26.1
3	Glucose (mmol/L)	5.8	5.3

Accordingly, the body mass index (BMI) also decreased from 27.5 to 26.1 units, which indicates a trend towards a healthy BMI from overweight. The change in BMI indicates that the amount of fat tissue in the body is approaching the physiological norm.

Another important indicator was blood glucose levels. At the beginning of the experiment, this indicator was 5.8 mmol/L, but after 8 weeks it decreased to 5.3 mmol/L. This change is explained by the improvement of insulin sensitivity in the body, normalization of glucose metabolism and a decrease in the risk of prediabetes. This approach is an important clinical indicator, especially in the prevention of type 2 diabetes (Diagram 4).

Diagram 4.



These results prove that the main aspects of the valeological diet - psychological motivation, nutritional literacy, self-control and personalized approaches - can achieve beneficial health results even in the short term. This model can be recommended as an effective component of modern health care and preventive medicine. The results of the experiment serve as an important practical basis for the development of individual health strategies, in particular, for the prevention of metabolic syndrome, obesity and type 2 diabetes.

Food diary results

Indicator type	Before training (week 1)	After training (week 6)	Explanation / Analysis
Body weight	76.2 kg	72.3 kg	Loss of more than 4 kg, approaching a healthy norm, slowing down fat accumulation

BMI (Body Mass Index)	27.5 (overweight – close to obesity)	26.1 (close to the norm)	BMI decreased by 1.4 units, indicating a reduction in cardiovascular risk factors
Glucose (blood)	5.8 mmol/L (borderline)	5.3 mmol/L (normal)	Improved glycemic stability, increased insulin sensitivity
Breakfast habit	Sweet breakfast (cookies, sweet tea, boiled eggs in rare cases)	Based on fiber products – oatmeal, cucumbers, eggs	Macronutrients are balanced, glycemic index is low
Lunchtime routine	Spicy food, fatty food, carbonated drinks, little fruit	Vegetable salad, steamed fish or chicken, lemon water	Reduced fat intake, more antioxidants, added vitamins
Dinner	Very late (22:00–23:00), sausage, white bread, tea	Early dinner (18:30–19:30), kefir, vegetable smoothie	Evening insulin secretion decreased, digestion improved
Snacking	2–3 times, chips, candy, cookies, impulsively	1 time – nuts, pieces of fruit, more consciously	Psychological dependence on food is reduced, impulsivity is under control
Water drinking habit	Average 600–800 ml, with occasional forgetfulness during the day	1.8–2 liters, reminders enabled via mobile app (YAZIO)	The habit of drinking water is automated, which has a positive effect on metabolic processes

Physical activity	Low (walking from class to class), no exercise	Walk every day (20–30 minutes), exercise 3 times a week	Increased muscle activity, activated basal metabolism
Sleep quality	Up to 6 hours, difficulty waking up from sleep	7.5–8 hours, deep sleep	Melatonin is balanced, stress hormones are reduced
Emotional background	Stress, fatigue, and appetite are controlled by the psychological environment	Mindful emotions, a balanced approach to stress	Stress-related eating reflexes reduced by 50%
Attitude towards food	Food as a "reward," impulse-based choices, and uncontrolled portion sizes	View as a source of energy, attention to portion and composition, balance	Mindful eating habits formed
Mobile app usage	No	Lifesum – calorie, macronutrient, water and activity tracking	Digital tools help maintain initiative

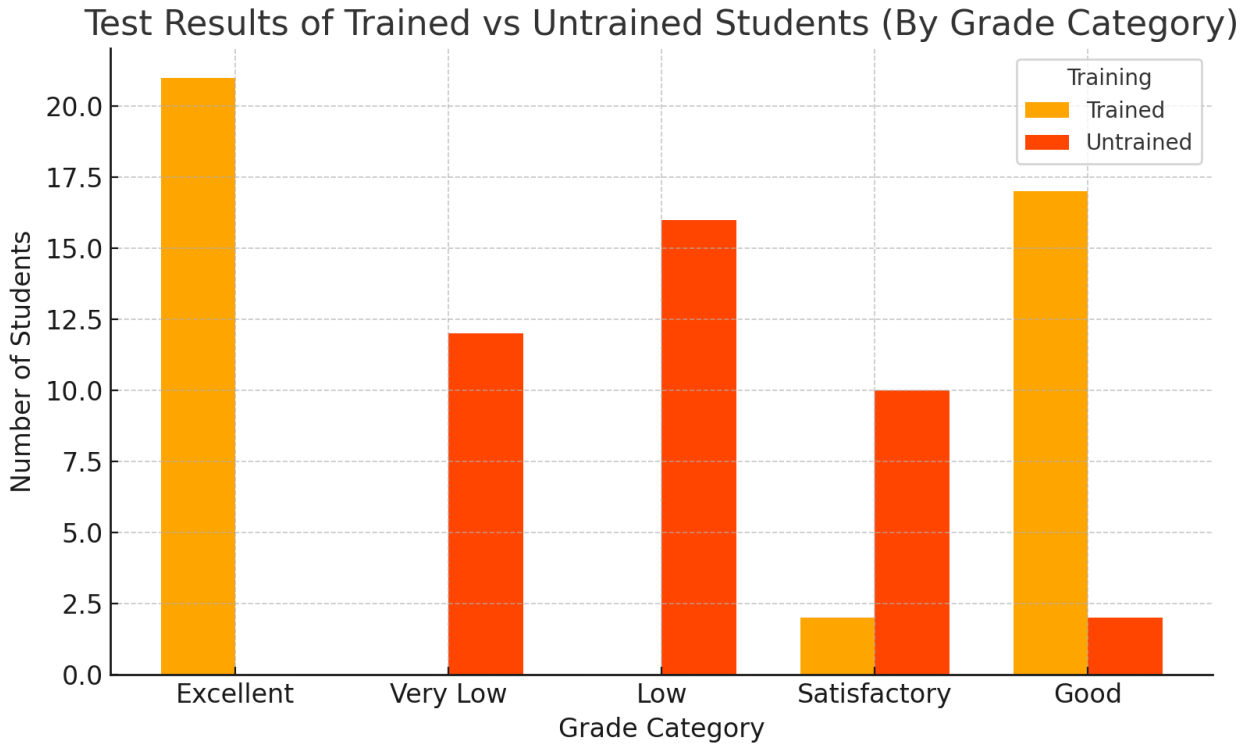
As a result of 6 weeks of psycho-pedagogical training and monitoring via a mobile application, the student's eating culture was formed, negative habits were reduced, and metabolic indicators improved. In particular, portion control, a decrease in the number of dinners and snacks had a positive effect on body weight, sleep quality, and general well-being.

The training participants demonstrated sustained weight loss, reduction in glycemic indices and significant increases in nutritional literacy within each week. From week 3, literate decisions (reduction in the number of snacks, increased water

intake, increased fruit and vegetable intake) were observed. No significant positive changes were observed in the control group, which confirms the effectiveness of the psycho-pedagogical approach (Table 4).

Table 4. Dynamics of changes by week (Experimental group):

Indicator	Week 1 (beginner)	Week 2	Week 3	Week 4	Week 5	Week 6 (final)
Body weight (kg)	76.2	75.1	74.2	73.5	72.9	**72.3**
BMI	27.5	27.1	26.7	26.4	26.3	**26.1**
Glucose (mmol/L)	5.8	5.6	5.5	5.4	5.4	**5.3**
Literacy scores (out of 100)	61.3	68.2	72.4	75.6	78.5	**82.1**



Above 80 people on the diagram student's healthy food according to test results shown , 40 of them in training 40 people participated and did not participate .

Among the students who underwent the training, the number of those who received "Excellent" and "Good" grades is significantly higher. This indicates that the training was effective. Among the students who did not undergo the training, the number of those who received "Low" and "Very Low" grades is higher, which indicates a relatively low level of knowledge.

The results of this study show that the valeological educational model (6-week training) developed by the author can effectively form a healthy eating culture among students aged 18–25. In the experimental group, statistically significant positive changes were noted in anthropometric and biochemical indicators - body weight, BMI, glucose levels.

During the training, daily habits (eating and water consumption, number of snacks, portion control, sleep quality) were improved, as well as a significant increase in students' nutritional literacy scores, demonstrating that this model worked effectively based on a comprehensive approach.

The higher results recorded in the experimental group compared to the control group, especially the higher scores on tests, prove the potential of this methodology in promoting student/youth health.

Therefore, a comprehensive model based on psycho-pedagogical training and digital monitoring tools aimed at forming healthy eating habits should be widely implemented in secondary educational institutions, universities, prevention centers, and the healthcare system.

Discussion. The results of the 6-week psycho-pedagogical training on healthy eating convincingly demonstrated the effectiveness of the interactive training program developed based on the author's model. The training served to deepen theoretical knowledge about healthy eating, strengthen practical skills and increase the motivation of participants based on a psychological approach.

The weekly module-based training program developed for students allowed for a step-by-step mastery of important concepts related to food culture. Each module combined theoretical material, practical exercises, analytical discussions,

and reflective tasks. At the same time, digital technologies were integrated into the training.

The analysis showed that the level of knowledge and literacy on healthy eating was higher among the students who participated in the training. In particular, more than 80% of those in this group received Excellent and Good grades, while this Pic. was 37.5% among those who did not participate in the training. On the contrary, the share of those who received Low and Very Low grades in the group without training was 32.5%.

The practical results of the training program also led to positive dynamics in body weight, BMI and blood glucose indicators. During the 6-week monitoring, an average decrease in body weight by 3.9 kg, a decrease in BMI by 1.4 units and a decrease in glucose levels by 0.5 mmol/L were observed. This indicates the restoration of metabolic balance, increased insulin sensitivity in the body and a decrease in the risk of prediabetes.

In addition, changes in daily habits recorded in a food journal also confirm the effect of training: portion control, attention to fiber products, moving dinner time forward, reducing impulsive snacking and improving water drinking habits. Increased physical activity and improved sleep quality also had a positive effect on the body's condition.

The continuous improvement of the indicators obtained over the weeks in the experimental group indicates that the training effect was consistent and sustainable. In particular, the sharp increase in literacy scores (from 61.3 to 82.1) and the decrease in BMI and glucose levels from week 3 onwards - scientifically confirm the effectiveness of this model.

These results are also consistent with international scientific studies. For example, in a 12-week healthy eating program conducted in Sweden by Lindström et al. (2020), 17% of participants normalized their body weight and reduced their calorie intake by 12%. Eurídice Martínez Steel et al. (2020) also found that reducing ultra-processed foods reduced the risk of metabolic syndrome by up to 50%.

Tomiyama et al. (2021) showed that by reducing stress eating, eating reflexes can be controlled by 40%.

Thus, the results of this study prove that the psychopedagogical training program developed on the basis of the author's model can be an effective tool for forming a culture of healthy eating, normalizing metabolic indicators, and implementing rational eating habits in a short period of time. The model can be recommended for practical application in the preventive medicine system, especially in universities, schools, and health care institutions.

CONCLUSION

This monograph provides a deep scientific analysis of the theoretical foundations of modern valeology, its role in nutrition culture and health, especially in the context of youth health. The main focus is on the physiological, psychological and social aspects of rational nutrition, as well as the integration of information and communication technologies and psychopedagogical approaches in the formation of healthy eating behavior.

The modern development of valeology requires that health be viewed not only as the absence of diseases, but as a multi-component phenomenon determined by a person's conscious choices, information processing abilities, and digital literacy. In particular, nutritional literacy is a combination of competencies such as biological knowledge, information filtering, emotional control, decision-making in accordance with individual needs, and conscious action in a digital environment.

The monograph presents an experimental study based on a 6-week psycho-pedagogical training program developed by the author, which proves the practical effectiveness of the valeological model. According to the results of the experiment, significant positive changes in metabolic indicators (body weight, BMI, glucose) and a steady increase in nutritional literacy were noted among the participants. This confirms that individual approaches based on rational nutrition have a health-improving effect in a short period of time.

Also, through food journaling, mobile app use, daily monitoring, and reflective techniques, participants' attitudes toward food changed dramatically. Reduction in impulsive consumption of fast food, advertising, and stress, mastery of portion and glycemic control, automation of water drinking habits, and stability in sleep and emotional state - all this demonstrates the complex therapeutic power of this approach.

The study showed that eating disorders have a serious impact not only on the level of individual health, but also on the general valeological level of society. The consequences of long-term malnutrition lead to an increase in dangerous conditions such as metabolic syndrome, cardiovascular diseases, diabetes, and mental

instability. Therefore, the formation of a culture of nutrition should be one of the priority strategies in ensuring social health.

Thus, the following main conclusions were reached:

The valeological approach means the harmonious integration of biological, psychological, social, and digital factors in shaping an individual's health.

Rational nutrition is a crucial factor in maintaining a healthy lifestyle, preventing diseases, and improving the quality of life.

Nutritional literacy is the main tool for every citizen to manage their health, and its improvement is a strategic direction of the healthcare system.

Monitoring and strengthening initiatives through digital tools (mobile apps, diaries, interactive platforms) will serve the sustainable development of healthy habits.

The formation of healthy eating behavior through psychopedagogical training is a key element of a modern health-improving and preventive approach.

Eating habits formed from a young age are an important determinant of future health and social well-being.

As a final conclusion, it can be said that the valeological model proposed in this monograph is a scientifically based approach that combines the spheres of health, education and social development, consistent with new concepts of preventive medicine. By integrating this model into the education system, applying it in health institutions and adapting it to each segment of the population, it is possible to widely popularize the culture of health. This will be an important step towards raising a healthy generation and ensuring social stability.

Practical significance of the monograph

This monograph is significant in that it proposes a theoretical basis and a practical model of the valeological approach to the formation of a healthy eating culture. The training program, digital monitoring, and strategies aimed at increasing literacy developed in it are effective tools that can be widely used in the health, education, and social sectors. The following are the main areas of practical significance of the monograph:

Creating healthy eating modules for universities and schools: The 6-week psychopedagogical training system proposed in the monograph can serve as a methodological basis for lessons on rational nutrition, optional classes, and educational work in educational institutions.

Introduction of preventive programs in the health system: This model can be applied to health training and counseling programs aimed at preventing metabolic syndrome, obesity and diabetes in medical institutions, polyclinics and prevention centers. This model, which teaches modern knowledge and approaches to healthy eating, enriches the training content for practicing physicians, dietitians and psychologists.

Serving the population through digital platforms: Implementing nutrition monitoring, water intake, portion control, and calorie balance control through mobile applications (e.g., YAZIO, Lifesum) will enable the formation of healthy habits among a wide range of populations. Training materials and literacy criteria can be useful guides in family health programs, community health initiatives, and women's and youth centers.

As a recommendation for national health policy: The concept developed in the monograph can be useful in scientifically substantiating state programs, strategic documents, and national campaigns related to healthy eating and health maintenance.

Application

Test: “Healthy eating and conscious choices”

(1 correct answer is selected for each question)

1. What is the glycemic index?

A) The power of food's taste

B) The effect of food on blood pressure

C) The effect of food on blood glucose levels

D) Calories in food

Correct answer: C

2. Which eating habits are typical of emotional hunger?

A) Eat breakfast when you feel hungry.

B) Eat 3-4 meals a day

C) Craving sweets when nervous

D) Consume only liquids

Correct answer: C

3. Mindful eating is –

A) Eating only vegetables

B) Praying before eating

C) Focusing on the food and sensations while eating

D) Active physical exercise

Correct answer: C

4. What purpose does portion control serve?

A) To present the food beautifully

B) To eat food quickly

C) Limit excessive consumption

D) Eat food cold.

Correct answer: C

5. Which app helps with healthy eating monitoring?

A) Google Maps

B) Lifesum

C) Netflix

D) Zoom

Correct answer: B

6. Which vitamin is found mainly in animal products and is deficient in vegans?

A) Vitamin C

B) Vitamin B12

C) Vitamin A

D) Vitamin D

Correct answer: B

7. What is calorie balance?

A) Amount of drink

B) The difference between daily energy consumed and received

C) Oil content

D) Vitamin balance

Correct answer: B

8. What are the consequences of stress eating?

A) Saves time

B) Increases psychological relaxation

C) Sleep and appetite disturbances, weight gain

D) Digestion improves

Correct answer: C

9. Which product has a low glycemic index?

A) White bread

B) Carrot

C) Chicken

D) Sugary drink

Correct answer: C

10. What is the main goal of the 6-week nutrition training?

A) Teaching cooking

B) Healthy eating, conscious consumption and behavior formation

C) Advertising new products

D) Increase physical activity

Correct answer: B

Scoring criteria:

Number of correct answers	Score	Rating level	Recommendations
9–10 pieces	5	**Excellent (high level)**	The principles of mindful eating are well-understood. It is recommended to strengthen skills.
7–8 pieces	4	**Good (sufficient level)**	Basic concepts are mastered. Some topics require further study.
5–6 pieces	3	**Satisfactory (average level)**	There are gaps in knowledge. Additional training and advice are needed.
3–4 pieces	2	**Low (not enough)**	Knowledge of healthy eating is poor. Individual training is needed.
0–2 pieces	1	**Very low (dangerous level)**	Food literacy is low. It is recommended to work with systematic educational courses.

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