

MINISTRY OF HEALTH CARE OF UKRAINE

ODESA NATIONAL MEDICAL UNIVERSITY

Department of physical rehabilitation, sports medicine and physical training

APPROVED

Vice-rector for scientific and pedagogical work

Eduard BURYACHKIVSKY

September 01, 2024



**WORK PROGRAM OF THE DISCIPLINE
«SPORTS NUTRITION »**

Level of higher education: second (master's)

Field of knowledge: 22 "Health care"

Specialty: 226 «Pharmacy, industrial pharmacy»

Educational and professional program: Pharmacy

The work program is based on the educational and professional program "Pharmacy, Industrial Pharmacy" for the training of specialists of the second (master's) level of higher education in the specialty 226 "Pharmacy, Industrial Pharmacy" of the field of knowledge 22 "Health Care", approved by the Academic Council of ONMedU (Minutes No. 10 of June 27, 2024).

DEVELOPERS:

Head of the Department MD, Professor Iushkovska O.G.

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The work program was approved at the meeting of the Department of physical rehabilitation, sports medicine and physical education
Protocol № 1 dated 08.26.2024.

Head of the department



Olga IUSHKOVSKA

Approved by the guarantor of
the educational and professional program



Liana UNGURIAN

Approved by the subject cycle methodical commission for therapeutic disciplines of ONMEDU
Protocol № 1 dated 08.30.2024.



Olena VOLOSHYNA

Reviewed and approved at the meeting of the department _____

Protocol №. __ dated _____ . ____ 20____

Head of the department

_____ Olga IUSHKOVSKA

Reviewed and approved at the meeting of the department _____

Protocol: №. __ dated _____ . ____ 20____

Head of the department

_____ Olga IUSHKOVSKA

1. Description of the academic discipline:

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
Total number: Credits - 3 Hours - 90 Contentful modules - 2	Discipline 22 "Health care"	<i>Full-time education</i>
		<i>Elective discipline</i>
	Specialty 226 "Pharmacy, industrial pharmacy"	<i>Year of training:5</i>
		<i>Semesters: IX - X</i>
	Level of higher education second (master's)	<i>Lectures (0 hours)</i>
		<i>Seminars (30 hours)</i>
		<i>Practical (0 hours)</i>
		<i>Laboratory (0 hours)</i>
		<i>Independent work (60 hours)</i>
		<i>including individual tasks (0 hours)</i>
		<i>The form of the final control is the Credit</i>

2. The purpose and tasks of the educational discipline, competence, program learning outcomes.

Objective: acquainting applicants with the basic concepts of the science of human nutrition and nutrition, acquisition of knowledge by applicants about the basics of human physiology, energy metabolism of the body, the role of food substances and the basic principles of rational and dietary nutrition, problems of ecology and environmental protection.

Task

1. Study the history of the development of nutrition science;
2. to give acquirers of an idea of the subject of nutrition, the importance of the main food substances and micronutrients;
3. Master the theoretical foundations of nutrition science;
4. Acquaint acquirers with a digestive system, the physiological role of proteins, fats, carbohydrates, vitamins and minerals;
5. to give to those seeking information on the organization of food for various population groups;
6. Introduce acquirers with the basic principles of rational nutrition; to teach applicants to navigate the issues of nutrition science, to work with scientific literature and documents on relevant issues;
7. To study the basic principles of rational nutrition, according to the individual characteristics of the human body, taking into account the nature of his work, gender and age characteristics, climate-geographic living conditions;
8. Familiarize yourself with different concepts of human nutrition; to study the relationship between human health and nutrition
9. Formation of competencies in the field of medical rehabilitation, in particular, nutrition;
10. Formation of skills in the use of modern resources and technologies of non-medicinal methods of treatment and prevention of diseases and their complications at various stages of rehabilitation (including inpatient, polyclinic, sanatorium-resort),
11. Formation of motivation among the population, patients and their family members aimed at preserving and strengthening their health and the health of others;
12. Training of pregnant women, children and their parents, the elderly in the basic hygiene measures of a health-improving nature, which contribute to the prevention of the occurrence of diseases and strengthening of health on the basis of properly constructed nutrition;
13. To contribute to the assimilation of knowledge, the formation of abilities, skills and competencies in the field of nutrition.

The process of studying the discipline is aimed at forming elements of the following competencies:

- General competencies (GC):

GC01. Ability to think abstractly, analyze and synthesize, learn and be modernly educated.

GC02. Knowledge and understanding of the subject area and understanding of professional activity.

GC03. Ability to communicate in the national language both orally and in writing.

GC05. The ability to evaluate and ensure the quality of performed works.

GC06. Ability to work in a team.

GC08. The ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and the development of society, techniques and technologies, to use various types and forms of motor activity for active recreation and maintaining a healthy way of life

GC09. Ability to use information and communication technologies.

GC10. The ability to act socially responsibly and consciously.

GC11. Ability to apply knowledge in practical situations.

GC12. The desire to preserve the environment.

GC14. Ability to adapt and act in a new situation.

GC15. Knowledge and understanding of the subject area and understanding of professional activity

GC16. The ability to conduct experimental research at the appropriate level.

GC17. The ability to make decisions and act in accordance with the principle of inadmissibility of corruption and any other manifestations of dishonesty.

- Special (SC):

SC02. Ability to collect, interpret and apply data necessary for professional activity, research and implementation of innovative projects in the field of pharmacy.

SC04. The ability to clearly and unambiguously convey one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to people who are studying.

SC07. The ability to carry out sanitary and educational work among the population for the purpose of prevention of common diseases, prevention of dangerous infectious, viral and parasitic diseases, as well as for the purpose of promoting timely detection and support of adherence to the treatment of these diseases according to their medical and biological characteristics and microbiological features.

SC08. The ability to consult on prescription and non-prescription drugs and other products of the pharmacy assortment; pharmaceutical care during the selection and sale of medicinal products of natural and synthetic origin by assessing the risk/benefit ratio, compatibility, taking into account biopharmaceutical, pharmacokinetic, pharmacy dynamic and physicochemical and chemical features, indications/contraindications for use guided by data on the health status of a specific the patient

SC30. Ability to diagnose emergency conditions.

SC32. Ability to perform medical manipulations.

Program learning outcomes (PRO):

PRO12. Provide pre-medical assistance to patients in emergency situations and victims in extreme situations.

PRO27. To perform professional activities using creative methods and approaches.

PRO28. To carry out professional communication in the state language, to use oral communication skills in a foreign language, analyzing specialized texts and translating foreign language information sources.

PRO29. To carry out professional activities using information technologies, "Information databases", navigation systems, Internet resources, software and other information and communication technologies.

PRO37. Contribute to the preservation of health, in particular the prevention of diseases, the rational prescription and use of medicines. To conscientiously fulfill one's professional duties, to comply with the legislation on the promotion and advertising of medicinal products. Possess psychological communication skills to achieve trust and mutual understanding with colleagues, doctors, patients, consumers

As a result of studying the academic discipline, the student of higher education must:

Know:

- the importance of nutrition in the practical activity of a doctor;
- basic principles and rules of healthy eating;
- basic graphic models of a healthy diet;
- classification of food substances;
- norms of physiological needs for energy and food substances; chemical composition of food products;
- various methods of comprehensive analysis of the diet;
- basics of diet correction;
- the importance of nutrition in disease prevention;
- basic principles of correcting excess body weight;
- basics of using biologically active food additives;
- basics of healthy nutrition for pregnant women;
- basics of natural feeding of children of the first year of life;
- basics of artificial feeding of children of the first year of life;
- basic rules for introducing complementary foods to children of the first year of life;
- basics of healthy nutrition for children older than one year;
- the basics of healthy nutrition for the adult and elderly population, patients with various diseases;
- basics of healthy nutrition for athletes.

Be able:

- Determine the necessary nature of nutrition according to the regime of work and rest.
- Determine the need for energy and nutrients according to the regime of work and rest.
- Calculate the need for proteins, fats and carbohydrates.
- Make a program of nutritional support depending on the needs of the body.
- Conduct a survey about the diet and diet and write down the one-day diet, indicating the time of eating, the number of meals, the name of products and dishes, and their approximate amount in grams.
- Carry out a qualitative and quantitative analysis of the diet: using the food pyramid with a detailed qualitative analysis of each floor of the pyramid; using the program "Calculator of the daily ration", using the program "Analysis of the state of human nutrition"; chemical composition and caloric content of food products".
- Establish physiological needs for energy and nutrients: based on the tables "Physiological Needs Norms" and based on calculation methods.
- Make a plan to correct the diet and diet.
- Teach the basics of healthy eating and adequate physical activity.
- Have a conversation about the importance of nutrition for disease prevention.

3. Content of the academic discipline

Content module 1.

General principles of nutrition

Topic 1. Food as one of the most important environmental factors affecting the human body. Biological and ecological aspects of the nutrition problem. Nutrition as a social problem. Organization of rational nutrition of the population as an integral part of the general task of forming a healthy lifestyle of people. Main priorities in the field of nutrition improvement. Ways to eliminate micronutrient deficiency. Causes of vitamin deficiency. Products are sources of vitamins.

Topic 2. Feeding the adult working population. Climatic, national, economic and other features of nutrition. "Food pyramid". Types of food (traditional and non-traditional). Energy exchange. Body energy expenditure and energy demand. Food as a source of energy. Intracellular metabolism: microsomal oxidation, antioxidant system, energy metabolism. Basic information about macro- and micronutrients. Clinical manifestations of hypo- and hypervitaminosis. Rational and adequate nutrition. Concepts, principles, organization. Feeding the adult working population. Climatic, national, economic and other features of nutrition. "Food pyramid". Types of food (traditional and non-traditional). Nutritional value of food products. Energetic and qualitative aspect of nutrition.

Topic 3. Peculiarities of human nutrition in modern conditions. Relevance of the use of biologically active supplements (BAD). The role of food additives in the composition of food products. The influence on organisms of the course of pathological processes. Biologically active complexes: definition, classification, groups. The validity of the use of biologically active complexes. Tasks that are solved with the help of BAC. Classification of nutritional supplements. Differences between dietary supplements and medicines. The main regulatory documents that regulate the use of nutritional supplements.

Topic 4. Hygienic requirements for the organization of rational human nutrition. Hygienic aspects of the occurrence of food poisoning in the population. Physiological completeness of diets. Meaning and principles of diet therapy. Ensuring the sick person's need for nutrients and energy. The use of sparing, training and unloading methods in nutrition. Nutritional changes in connection with pharmacotherapy. Food safety. Food products with GMOs and GMIs: relevance of the problem, medical aspects of obtaining and using. Nutritional and biological value of food products of animal and vegetable origin, their ecological, hygienic and epidemiological characteristics

Topic 5. Anatomical and physiological features of digestive organs of different age groups, their changes in various diseases. Basic principles of healthy eating. Norms of physiological needs for energy and nutrients in normal conditions and in diseases. Importance of nutrition in the prevention of diseases and correction of excess body weight; basics of using biologically active food additives. Nutrition and diseases. Five groups of diseases related to nutrition. Atherosclerosis, mechanism of development. Nutrition of cardiac patients. Diets of long-term use in the treatment of patients with diabetes. Dietary principles of building rations in the treatment of patients with ZhKB and MKL

Topic 6. Classification of food substances; norms of physiological needs for energy and nutrients; chemical composition of products; various methods of complex analysis of the diet. Determining the level of basic metabolism and the need for proteins using express calculations. Determination of caloric content, protein, fat and carbohydrate content using the "Daily Diet Calculator" program. Comparison of the content of energy and nutrients in the diet and individual norms of physiological needs. The size of the main exchange. Calculation of the need for macronutrients. Physiological needs of the main micronutrients. Tables of chemical composition and calorie content of food products. Fortified food products.

Topic 7. Replaceable and non-replaceable nutrients. Functional nutrition and functional products. Balanced nutrition. Non-traditional food. Five groups of food standards. Importance of proteins in nutrition. Protein deficiency of the body. Simple and complex proteins, replaceable and essential amino acids. Importance of fats in food. Saturated and unsaturated fatty acids. PNZHK, TIZHK. Phospholipids. cholesterol Importance of carbohydrates in nutrition. Simple and complex carbohydrates. Food fibers. Importance of vitamins in nutrition. General properties of vitamins. Hypovitaminosis. Primary and secondary vitamin deficiency, causes. Fat-soluble and water-soluble vitamins, their functions in the body and main sources. Water exchange and drinking regime. Violation of water exchange

Topic 8. Specialized nutrition. Feeding different population groups. The role of nutrients in rehabilitation. The concept of environmental pathology. The influence of environmental factors on the body. Medical and environmental rehabilitation: enterosorbents and products with sorption properties; preventive immunocorrection (vitamin complexes, adaptogens of plant origin). Correction of dysbiosis (probiotics and prebiotics). Use of adaptogens of plant and animal origin. Biogenic stimulants Substances of energetic action. Dietary supplement with plastic action. Food

products with an anabolic effect. Nootropics, antioxidants. Vitamins and vitamin complexes. Macro and micro elements, correction of dysmicroelementosis.

**Content module 2.
Peculiarities of nutritional support for athletes**

Topic 9. Principles of rational nutrition in sports. Determination of daily energy consumption as an indicator of the quantitative aspect of nutrition. Specific dynamic action of food substances. Additional energy costs. Balanced diet with basic nutrients. Mode and organization of athletes' nutrition. Principles of organization of the drinking regime Peculiarities of the organization of nutrition of athletes taking into account the stage of the training process. Organization of athletes' nutrition taking into account the specifics and metabolic orientation of the training process. Features of nutrition of young athletes. Products of increased biological value and biologically active substances in the nutrition of athletes. General principles of using special food products in sports. The role of macro and microelements in the nutrition of athletes. Vitamins and their role in metabolism during muscle activity.

Topic 10. The use of carbohydrate-mineral and protein complexes in the nutrition of athletes. Regulation of energy and plastic exchanges by a complex of ergogenic substances. Tactical and strategic means. Dietary supplements used in the restorative, basic, general and special period. Use of adaptogens of plant and animal origin. Biogenic stimulants Substances of energetic action. BAV of plastic action. Food products with an anabolic effect.

Topic 11. Pharmacology of sports. The main features of pharmacological support at the stages of preparation for competitions, during competitions and subsequent recovery. Pharmacological support of sports qualities. Pharmacological drugs used in sports. Vitamins, pharmacokinetics, indications, hypo- and vitamin deficiency, dosage regimen, side effects, contraindications, drug interactions. Multivitamin complexes. Minerals (macro and microelements). Correction of dysmicroelementosis in athletes. Coenzymes. amino acids. Nootropics, antioxidants. Hydrobionts. BAD for athletes.

Topic 12. Medical and environmental rehabilitation: enterosorbents and products with sorption properties; preventive immunocorrection (vitamin complexes, adaptogens of plant origin); rational nutrition with the use of environmentally friendly products; correction of dysbiosis (probiotics and prebiotics).

4. The structure of the academic discipline.

Names of topics	Number of hours				
	That's all	including			
		lectures	seminars	practical	laboratory
Content module 1. General principles of nutrition					
Topic 1. Food as one of the most important environmental factors affecting the human body. Biological and ecological aspects of the nutrition problem. Nutrition as a social problem. Organization of rational nutrition of the population as an integral part of the general task of forming a	6		2		4

<p>healthy lifestyle of people. Main priorities in the field of nutrition improvement. Ways to eliminate micronutrient deficiency. Causes of vitamin deficiency. Products are sources of vitamins.</p>						
<p>Topic 2.Feeding the adult working population. Climatic, national, economic and other features of nutrition. "Food pyramid". Types of food (traditional and non-traditional). Energy exchange. Body energy expenditure and energy demand. Food as a source of energy. Intracellular metabolism: microsomal oxidation, antioxidant system, energy metabolism. Basic information about macro- and micronutrients. Clinical manifestations of hypo- and hypervitaminosis. Rational and adequate nutrition. Concepts, principles, organization. Feeding the adult working population. Climatic, national, economic and other features of nutrition. "Food pyramid". Types of food (traditional and non-traditional). Nutritional value of food products. Energetic and qualitative aspect of nutrition.</p>	6		2			4
<p>Topic 3.Peculiarities of human nutrition in modern conditions. Relevance of the use of biologically active supplements (BAD). The role of food additives in the composition of food products. The influence on organisms of the course of pathological processes. Biologically active complexes: definition,</p>	12		4			8

classification, groups. The validity of the use of biologically active complexes. Tasks that are solved with the help of BAC. Classification of nutritional supplements. Differences between dietary supplements and medicines. The main regulatory documents that regulate the use of nutritional supplements.						
Topic 4. Hygienic requirements for the organization of rational human nutrition. Hygienic aspects of the occurrence of food poisoning in the population. Physiological completeness of diets. Meaning and principles of diet therapy. Ensuring the sick person's need for nutrients and energy. The use of sparing, training and unloading methods in nutrition. Nutritional changes in connection with pharmacotherapy. Food safety. Food products with GMOs and GMIs: relevance of the problem, medical aspects of obtaining and using. Nutritional and biological value of food products of animal and vegetable origin, their ecological, hygienic and epidemiological characteristics	6		2			4
Topic 5. Anatomical and physiological features of digestive organs of different age groups, their changes in various diseases. Basic principles of healthy eating. Norms of physiological needs for energy and nutrients in normal conditions and in diseases. Importance of nutrition in the prevention	12		4			8

of diseases and correction of excess body weight; basics of using biologically active food additives. Nutrition and diseases. Five groups of diseases related to nutrition. Atherosclerosis, mechanism of development. Nutrition of cardiac patients. Diets of long-term use in the treatment of patients with diabetes. Dietary principles of building rations in the treatment of patients with ZhKB and MKL						
Topic 6. Classification of food substances; norms of physiological needs for energy and nutrients; chemical composition of products; various methods of complex analysis of the diet. Determining the level of basic metabolism and the need for proteins using express calculations. Determination of caloric content, protein, fat and carbohydrate content using the "Daily Diet Calculator" program. Comparison of the content of energy and nutrients in the diet and individual norms of physiological needs. The size of the main exchange. Calculation of the need for macronutrients. Physiological needs of the main micronutrients. Tables of chemical composition and calorie content of food products. Fortified food products.	6		2			4
Topic 7. Replaceable and non-replaceable nutrients. Functional nutrition and functional products. Balanced nutrition. Non-traditional food. Five groups of food standards.	6		2			4

<p>Importance of proteins in nutrition. Protein deficiency of the body. Simple and complex proteins, replaceable and essential amino acids. Importance of fats in food. Saturated and unsaturated fatty acids. PNZHK, TIZHK. Phospholipids. cholesterol Importance of carbohydrates in nutrition. Simple and complex carbohydrates. Food fibers. Importance of vitamins in nutrition. General properties of vitamins. Hypovitaminosis. Primary and secondary vitamin deficiency, causes. Fat- and water-soluble vitamins, their functions in the body and main sources. Water exchange and drinking regime. Violation of water exchange</p>						
<p>Topic 8.Specialized nutrition. Feeding different population groups. The role of nutrients in rehabilitation. The concept of environmental pathology. The influence of environmental factors on the body. Medical and environmental rehabilitation: enterosorbents and products with sorption properties; preventive immunocorrection (vitamin complexes, adaptogens of plant origin). Correction of dysbiosis (probiotics and prebiotics). Use of adaptogens of plant and animal origin. Biogenic stimulants Substances of energetic action. Dietary supplement with plastic action. Food products with an anabolic effect.</p>	6		2			4

Nootropics, antioxidants. Vitamins and vitamin complexes. Macro and micro elements, correction of dysmicroelementosis.						
<i>Together according to content module 1</i>	60		20			40
Content module 2.						
Peculiarities of nutritional support for athletes						
Topic 9. Principles of rational nutrition in sports. Determination of daily energy consumption as an indicator of the quantitative aspect of nutrition. Specific dynamic action of food substances. Additional energy costs. Balanced diet with basic nutrients. Mode and organization of athletes' nutrition. The principles of the organization of the drinking regime. The peculiarities of the organization of nutrition of athletes, taking into account the stage of the training process. Organization of athletes' nutrition taking into account the specifics and metabolic orientation of the training process. Features of nutrition of young athletes. Products of increased biological value and biologically active substances in the nutrition of athletes. General principles of using special food products in sports. The role of macro- and microelements in the nutrition of athletes. Vitamins and their role in metabolism during muscle activity.	6		2			4
Topic 10. The use of carbohydrate-mineral and protein complexes in the nutrition of athletes. Regulation of energy and plastic exchanges by a	6		2			4

<p>complex of ergogenic substances. Tactical and strategic means. Dietary supplements used in the restorative, basic, general and special period. Use of adaptogens of plant and animal origin. Biogenic stimulants Substances of energetic action. BAV of plastic action. Food products with an anabolic effect.</p>						
<p>Topic 11.Pharmacology of sports. The main features of pharmacological support at the stages of preparation for competitions, during competitions and subsequent recovery. Pharmacological support of sports qualities. Pharmacological drugs used in sports. Vitamins, pharmacokinetics, indications, hypo- and vitamin deficiency, dosage regimen, side effects, contraindications, drug interactions. Multivitamin complexes. Minerals (macro and microelements). Correction of dysmicroelementosis in athletes. Coenzymes. amino acids. Nootropics, antioxidants. Hydrobionts. BAD for athletes.</p>	12		4			8
<p>Topic 12.Medical and environmental rehabilitation: enterosorbents and products with sorption properties; preventive immunocorrection (vitamin complexes, adaptogens of plant origin); rational nutrition with the use of environmentally friendly products; correction of dysbiosis (probiotics and</p>	6		2			4

prebiotics).					
<i>Together according to the meaningful module 2</i>	30		10		20
Total hours:	90		30		60

5. Topics of lectures / seminars / practical / laboratory classes

5.1. Topics of lectures

Lectures are not included in the program.

5.2. Topics of seminar classes

No s/p	Topic name	Number hours
1.	Topic 1. Seminar class 1. Food as one of the most important environmental factors affecting the human body. Biological and ecological aspects of the nutrition problem. Nutrition as a social problem. Organization of rational nutrition of the population as an integral part of the general task of forming a healthy lifestyle of people. Main priorities in the field of nutrition improvement. Ways to eliminate micronutrient deficiency. Causes of vitamin deficiency. Products are sources of vitamins.	2
2.	Topic 2. Seminar class 2. Feeding the adult working population. Climatic, national, economic and other features of nutrition. "Food pyramid". Types of food (traditional and non-traditional). Energy exchange. Body energy expenditure and energy demand. Food as a source of energy. Intracellular metabolism: microsomal oxidation, antioxidant system, energy metabolism. Basic information about macro- and micronutrients. Clinical manifestations of hypo- and hypervitaminosis. Rational and adequate nutrition. Concepts, principles, organization. Feeding the adult working population. Climatic, national, economic and other features of nutrition. "Food pyramid". Types of food (traditional and non-traditional). Nutritional value of food products. Energetic and qualitative aspect of nutrition.	2
3.	Topic 3. Seminar class 3. Peculiarities of human nutrition in modern conditions. Relevance of the use of biologically active supplements (BAD). The role of food additives in the composition of food products. The influence on organisms of the course of pathological processes. Biologically active complexes: definition, classification, groups. The validity of the use of biologically active complexes. Tasks that are solved with the help of BAC. Classification of nutritional supplements. Differences between dietary supplements and medicines. The main regulatory documents that regulate the use of nutritional supplements.	2
4.	Topic 3. Seminar lesson 4. Biologically active complexes: definition, classification, groups. The validity of the use of biologically active complexes. Tasks that are solved with the help of BAC. Classification of nutritional supplements. Differences between dietary supplements and medicines. The main regulatory documents that regulate the use of nutritional supplements.	2
5.	Topic 4. Seminar lesson 5. Hygienic requirements for the organization of rational human nutrition. Hygienic aspects of the occurrence of food poisoning in the population. Physiological completeness of diets. Meaning and principles of diet therapy. Ensuring the sick person's need for nutrients and energy. The use of sparing, training and unloading methods in nutrition. Nutritional changes in connection with pharmacotherapy. Food safety. Food products with GMOs and GMIs: relevance of the problem, medical aspects of obtaining and using. Nutritional and biological value of food products of animal and vegetable origin, their ecological, hygienic and epidemiological characteristics.	2

6.	Topic 5.Seminar lesson 6. Anatomical and physiological features of digestive organs of different age groups, their changes in various diseases. Basic principles of healthy eating. Norms of physiological needs for energy and nutrients in normal conditions and in diseases. Importance of nutrition in the prevention of diseases and correction of excess body weight; basics of using biologically active food additives.	2
7.	Topic 5.Seminar lesson 7. Nutrition and diseases. Five groups of diseases related to nutrition. Atherosclerosis, mechanism of development. Nutrition of cardiac patients. Diets of long-term use in the treatment of patients with diabetes. Dietary principles of building rations in the treatment of patients with ZhKB and MKL	2
8.	Topic 6.Seminar lesson8. Classification of food substances; norms of physiological needs for energy and nutrients; chemical composition of products; various methods of complex analysis of the diet. Determining the level of basic metabolism and the need for proteins using express calculations. Determination of caloric content, protein, fat and carbohydrate content using the "Daily Diet Calculator" program. Comparison of the content of energy and nutrients in the diet and individual norms of physiological needs. The size of the main exchange. Calculation of the need for macronutrients. Physiological needs of the main micronutrients. Tables of chemical composition and calorie content of food products. Fortified food products.	2
9.	Topic 7.Seminar lesson9. Replaceable and non-replaceable nutrients. Functional nutrition and functional products. Balanced nutrition. Non-traditional food. Five groups of food standards. Importance of proteins in nutrition. Protein deficiency of the body. Simple and complex proteins, replaceable and essential amino acids. Importance of fats in food. Saturated and unsaturated fatty acids. PNZHK, TIZHK. Phospholipids. cholesterol Importance of carbohydrates in nutrition. Simple and complex carbohydrates. Food fibers. Importance of vitamins in nutrition. General properties of vitamins. Hypovitaminosis. Primary and secondary vitamin deficiency, causes. Fat- and water-soluble vitamins, their functions in the body and main sources. Water exchange and drinking regime. Violation of water exchange	2
10.	Topic 8.Seminar lesson 10. Specialized nutrition. Feeding different population groups. The role of nutrients in rehabilitation. The concept of environmental pathology. The influence of environmental factors on the body. Medical and environmental rehabilitation: enterosorbents and products with sorption properties; preventive immunocorrection (vitamin complexes, adaptogens of plant origin). Correction of dysbiosis (probiotics and prebiotics). Use of adaptogens of plant and animal origin. Biogenic stimulants Substances of energetic action. Dietary supplement with plastic action. Food products with an anabolic effect. Nootropics, antioxidants. Vitamins and vitamin complexes. Macro and micro elements, correction of dysmicroelementosis.	2
11.	Topic 9.Seminar lesson 11. Principles of rational nutrition in sports. Determination of daily energy consumption as an indicator of the quantitative aspect of nutrition. Specific dynamic action of food substances. Additional energy costs. Balanced diet with basic nutrients. Mode and organization of athletes' nutrition. The principles of the organization of the drinking regime. The peculiarities of the organization of nutrition of athletes, taking into account the stage of the training process. Organization of athletes' nutrition taking into account the specifics and metabolic orientation of the training process. Features of nutrition of young athletes. Products of increased biological value and biologically active substances in the nutrition of athletes. General principles of using special food products in sports. The role of macro- and microelements in the nutrition of athletes. Vitamins and their role in metabolism during muscle activity.	2
12.	Topic 10. Seminar lesson 12. The use of carbohydrate-mineral and protein complexes in the nutrition of athletes. Regulation of energy and plastic exchanges by a complex of ergogenic substances. Tactical and strategic means. Dietary supplements used in the restorative, basic, general and special period. Use of adaptogens of plant and animal origin. Biogenic stimulants Substances of energetic action. BAV of plastic action.	2

	Food products with an anabolic effect.	
13.	Topic 11.Seminar lesson13. Pharmacology of sports. The main features of pharmacological support at the stages of preparation for competitions, during competitions and subsequent recovery. Pharmacological support of sports qualities. Pharmacological drugs used in sports.	2
14.	Topic 11.Seminar lesson 14. Vitamins, pharmacokinetics, indications, hypo and avitaminosis, dosage regime, side effects, contraindications, drug interaction. Multivitamin complexes. Minerals (macro- and microelements). Correction of dysmicroelementosis in athletes. Coenzymes. amino acids. Nootropics, antioxidants. Hydrobionts. BAD for athletes.	2
15.	Topic 12.Seminar lesson 15. Medical and environmental rehabilitation: enterosorbents and products with sorption properties; preventive immunocorrection (vitamin complexes, adaptogens of plant origin); rational nutrition with the use of environmentally friendly products; correction of dysbiosis (probiotics and prebiotics).	2
	Together	30

5.3. Topics of practical classes

Practical classes are not included in the program.

5.4. Topics of laboratory classes

Laboratory classes are not included in the program.

6. Independent work of a student of higher education

No	Title of the topic / types of tasks	Number of hours
1.	Topic 1. Preparation to seminar lesson 1	4
2.	Topic 2. Preparation to seminar class 2	4
3.	Topic 3. Preparation to the seminar class3 - 4	8
4.	Topic 4. Preparation to the seminar class5	4
5.	Topic 5. Preparation to the seminar class6-7	8
6.	Topic 6. Preparation to seminar class 8	4
7.	Topic 7. Preparation to seminar class 9	4
8.	Topic 9. Preparation to seminar class 10	4
9.	Topic 10. Preparation to seminar class 11	4
10.	Topic 11. Preparation to seminar class 12	4
11.	Topic 11. Preparation to seminar class 13-14	8
12.	Topic 12. Preparation to seminar class 15	4
	Together	60

7. Teaching methods

Seminar classes: conversation, story, explanation, demonstration, briefing.

Independent work: independent work with recommended basic and additional literature, with electronic information resources, independent work with a bank of test tasks, partially searching, research, presentation of the results of own research, performance of individual tasks.

8. Forms of control and assessment methods (Including criteria for evaluating learning outcomes)

Current control: oral survey, testing, assessment of performance of practical skills,

assessment of communication skills, assessment of class activity.

Final control: balance

Evaluation of the current educational activity at the seminar session:

1. Evaluation of theoretical knowledge on the subject of the lesson:
 - methods: survey.
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.
 2. Evaluation of practical skills and manipulations on the subject of the lesson:
 - methods: assessment of the correctness of the performance of practical skills
 - the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.
- The grade for one practical session is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded using the statistical method.

Current assessment criteria at the seminar session

Rating	Evaluation criteria
"5"	The applicant worked systematically during the semester, showed versatile and deep knowledge of the program material, was able to successfully perform the tasks provided for by the program, mastered the content of the main and additional literature, realized the interrelationship of individual sections of the discipline, their importance for the future profession, showed creative abilities in understanding and using educational program material, showed the ability to independently update and replenish knowledge.
"4"	The applicant has demonstrated complete knowledge of the educational program material, successfully performs the tasks prescribed by the program, has mastered the basic literature recommended by the program, has shown a sufficient level of knowledge in the discipline and is capable of their independent updating and renewal in the course of further training and professional activity.
"3"	The applicant has demonstrated knowledge of the basic curriculum material in the amount necessary for further education and subsequent work in the profession, copes with the tasks provided for by the program, made some mistakes in answers and during the performance of test tasks, but has the necessary knowledge to overcome the mistakes made under the guidance scientific and pedagogical worker.
"2"	The applicant did not demonstrate sufficient knowledge of the main educational program material, made fundamental mistakes in the performance of tasks provided for by the program, cannot use the knowledge in further studies without the help of a teacher, did not manage to master the skills of independent work.

Evaluation of independent work of applicants:

The independent work of the students is evaluated during the current control of the topic in the corresponding lesson. Mastery of topics that are presented only for independent work is checked during classroom classes.

Credit is given to the applicant who completed all tasks of the work program of the academic discipline, took an active part in seminar classes, completed and defended an individual assignment and has an average current grade of at least 3.0 and has no academic debt.

Assessment is carried out: at the last lesson before the beginning of the examination session - with the tape system of learning, at the last lesson - with the cycle system of learning. The credit score is the arithmetic average of all components on a traditional four-point scale and has a value that is rounded using the statistics method with two decimal places after the decimal point.

9. Distribution of points received by students of higher education

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

Conversion table of a traditional assessment into a multi-point scale

Traditional four-point scale	Multipoint 200-point scale
Excellent ("5")	185 - 200
Good ("4")	151 - 184
Satisfactory ("3")	120-150
Unsatisfactory ("2")	Below 120

A multi-point scale (200-point scale) characterizes the actual success of each applicant in learning the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Acquirers who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to students who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is assigned to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale	Statistical indicator
AND	Top 10% achievers
IN	The next 25% of earners
WITH	The next 30% of earners
D	The next 25% of earners
THERE ARE	The next 10% of earners

10. Methodological support

- Working program of the academic discipline
 - Syllabus
 - Methodical developments for practical classes
 - Methodical recommendations for independent work of higher education applicants
 - Tests for theoretical and thematic evaluation of passed topics by applicants.
- Educational and methodical literature

11. Questions for preparing for the final inspection

Content module 1. General foundations of nutricology

1. Biological aspects of the nutrition problem.

2. Organization of rational nutrition as an integral part of forming a healthy lifestyle.
3. Deficiency of micronutrients and its prevention
4. Products are sources of vitamins.
5. Energy expenditure of the body and need for energy.
6. Intracellular metabolism: microsomal oxidation, antioxidant system, energy metabolism.
7. Clinical manifestations of hypo- and hypervitaminosis.
8. Nutritional value of food products.
9. Energetic and qualitative aspect of nutrition.
10. Relevance of the use of biologically active additives.
11. Biologically active complexes.
12. Classification of biologically active complexes.
13. Differences between dietary supplements and medicines.
14. Food products with GMOs and GMIs.

Content module 2.

Peculiarities of nutritional support for athletes

1. Principles of rational nutrition in sports.
2. Peculiarities of the nutrition organization of athletes taking into account the stage of the training process.
3. Organization of athletes' nutrition taking into account the specifics and metabolic orientation of the training process.
4. Products of increased biological value and biologically active substances in the nutrition of athletes.
5. General principles of using special food products in sports.
6. The role of macro and microelements in the nutrition of athletes.
7. The use of protein complexes in the nutrition of athletes.
8. Regulation of energy and plastic exchanges by a complex of exogenous substances.
9. Dietary supplements used in the restorative, basic, general and special period.
10. Food products with an anabolic effect.
11. Pharmacology of sports.
12. The main features of pharmacological support at the stages of preparation for competitions, during competitions and subsequent recovery.
13. Pharmacological support of sports qualities.
14. Pharmacological drugs used in sports.

11. Recommended Books

Main

1. William McArdle, Frank I. Katch, Victor L. Katch. Exercise Physiology: Nutrition, Energy, and Human Performance. Ninth, North American Edition, 2022. 1176 p.
2. Anita Bean. The Complete Guide to Sports Nutrition (Complete Guides). Bloomsbury Sport; 9th edition, 2022. 416 p.

Additional

1. Louise Burke, Vicki Deakin, Michelle Minehan. Clinical Sports Nutrition McGraw Hill. 6th Edition. 2021. 687 p.
2. Chad M. Kerksick, Elizabeth Fox. Sports Nutrition Needs for Child and Adolescent Athletes. CRC Press. 1st Edition, 2021. 314 p.

12. Information resources

1. <https://www.yakaboo.ua/sportivnaja-farmakologija-i-dietologija.html#tab-attributes>
2. <https://essuir.sumdu.edu.ua/handle/123456789/75098>

3. https://nadpsu.edu.ua/wp-content/uploads/2018/10/sbirnik_3_2017_pdn.pdf
4. http://nbuv.gov.ua/UJRN/snsv_2013_5_4