

MINISTRY OF HEALTH OF UKRAINE
ODESSA NATIONAL MEDICAL UNIVERSITY
Department of Physiology and Biophysics

Syllabus of the discipline
"Physiological Foundations of Rational Nutrition"

Scope of the discipline	Total number of hours per discipline: 90 hours, 3 Loans. Semester: V, VI 3rd year of study.
Days, time, place of the discipline	According to the class schedule, classrooms 1-6 of the Department of Physiology and Bphophysics m. Odesa, st. Olgievskaya, 4.
Teacher(s)	Head of the Department: Leonid GODLEVSKY – Doctor of Medical Sciences of Ukraine, Doctor of Medical Sciences, Professor; Associate Professor: Olga KASHCHENKO – Candidate of Medical Sciences;
Contact Inform	+38 (048) 717-89-16; +38 (048) 712-31-02 – phones of the Department of Physiology and Biophysics medphys@onmedu.edu.ua - e-mail of the Department of Physiology and Biophysics Consultations and making up for missed classes in person or during distance learning on the Microsoft Teams platform: Thursday 14.30-16.00, Saturday 09:00 -13.00. A link to the online consultation is provided to each group separately during classes.

COMMUNICATION

Communication with applicants will be carried out in the classroom (face-to-face) or during distance learning using:

- Internet platforms: Microsoft Teams
- messengers: Zoom, Viber, Telegram, Skype
- Social Media: Facebook
- website of the department: <https://onmedu.edu.ua/kafedra/biofiziki-informatiki-medichnoi-aparaturi/>
- E-mail of the department: medphys@onmedu.edu.ua
- phone 048-712-31-35

ANNOTATION OF THE DISCIPLINE

The subject of study of the discipline is the processes of metabolism, digestion, nutrition, patterns of influence of food components on the state of health and functions of organs and systems, types of balanced diets under conditions of different functional states of the body.

Prerequisites and postrequisites of the discipline: the discipline Physiology is part of the cycle of disciplines of general training. It is based on the study of applicants: medical biology – which provides knowledge of biological processes in the human body and the ability to assess their regularity; medicinal chemistry – which provides knowledge of human biochemical processes and the ability to assess their state and role in the human body; biological chemistry – which provides knowledge of the structure and functions of chemical compounds in the human body and the ability to assess their activity and role; human anatomy – which provides knowledge of the structure and functions of organs and systems of the body and the ability to apply the acquired knowledge in clinical practice; histology, cytology and embryology – which provides knowledge of the structure and functions of cells and tissues of organs and systems of the body.

Postrequisites: lays the foundations for the study of pathological physiology, pharmacology, propaedeutics of internal and children's diseases, surgery, therapy, hygiene, neurology, medical rehabilitation and social assistance, which involves the integration of teaching with these disciplines and the formation of skills to apply knowledge of physiology in the process of further education and in professional activities;

The purpose of the discipline: the formation of future specialists' competencies in the field of modern physiological bases of metabolic processes, digestion, nutrition, patterns of influence of food components on the state of health and functions of organs and systems, the development of balanced diets and their correction in various functional states of the body.

Objectives of the discipline:

- deepening knowledge of the morpho-functional organization of the human digestive system, the mechanisms of its neuro-humoral regulation
- study of the peculiarities of metabolism and energy of a healthy person under different conditions of functional states of the body;
- determination of the body's needs for proteins, fats, carbohydrates depending on the physiological state of the body (pregnancy, lactation), age, gender, professional activity. •
- study of the influence of food components and their metabolites on the functioning of the main physiological systems of the body
- study of nutrient conversion processes
- study of the basic principles that underlie the modern approach to rational nutrition;

Expected results:

As a result of studying this elective discipline, the applicant must:

To know:

- Fundamentals of the structure and function of the digestive organs and mechanisms of their regulation
- Features of metabolism of a healthy person under different functional conditions
- physiological norms of the body's needs for nutrients depending on the physiological state of the body
- The main stages of nutrient conversion processes in the human body
- Principles and stages of compiling food rations

Be able to:

- interpret the results of studies of digestive processes
- analyze the influence of the nature of nutrition on the functioning of the main systems
- assess a person's energy expenditure and nutritional status based on anthropometric data
- analyze the nutritional and biological value of food;
- calculate the physiological norms of nutrition and determine the adequacy of the actual nutrition of a person to the individual needs of the body
- compile and justify the diets of people of different age and gender groups
- assess and develop sound recommendations for rational diet adjustment

DESCRIPTION OF THE DISCIPLINE

The discipline will be taught in the form of seminars (30 hours), organization of independent work of applicants (60 hours).

Teaching methods: explanatory and illustrative - conversation, explanation, discussion, discussion of problem situations; visual - illustrative, representative (including multimedia presentations); Practical methods: case method, business game, partial-search method (heuristic), test tasks, solving situational tasks (including calculations); independent work with methodological developments, schemes, tables, recommended basic and additional literature, information resource departments, preparation for classroom classes; Independent performance of an additional (bonus) research task of the applicant: preparation of a scientific report at a meeting of the scientific circle, conference, preparation and publication of abstracts of the applicant's scientific work, participation in the interuniversity Olympiad, competition of scientific papers.

The content of the discipline

Content module 1. The influence of food on the morpho-functional state of the human body

Topic 1. Introduction to "Physiological Foundations of Rational Nutrition". Functions of food. Physiological Bases of Human Digestive System Research Methods

Topic 2. Physiological bases of digestion and assimilation of food. The physiological role of the taste and olfactory systems in the digestion process. The role of the stomach in the physiological processes of digestion. The role of pancreatic juice, bile, juice of the small and large intestines in digestive processes. Study of the mechanisms

of neuro-humoral regulation of digestion. The role of APUD system components in digestive processes. Physiological bases of hunger and satiety.

Topic 3. The effect of nutrition on the functioning of internal organs and systems.

Mechanisms of support of the body's immune defense by the human gastrointestinal tract

Topic 4. Energy and plastic needs of the physiological functions of the body.

Physiological bases of the study of basic, working metabolism and processes of human thermoregulation

Topic 5. Physiological characteristics of basic foods. Importance of Water, Animal and Plant Products

Content module 2. Physiological importance of nutrients

Topic 6. Physiological features of protein metabolism.

Topic 7. Physiological features of carbohydrate metabolism.

Topic 8. Physiological features of fat metabolism.

Topic 9. The role of vitamins and minerals in human metabolism.

Topic 10. Physiological mechanisms of water-salt and acid-base balance.

Content module 3. Blood, circulatory and lymphatic circulation system. Assessment of a person's nutritional status

Topic 12. Principles of compiling an individual balanced diet. Features of the preparation of food rations in the conditions of public catering. Norms, modes of public catering.

Topic 13. Features of the compilation of food rations of different ages, gender and professional groups of the population. Features of the preparation of food rations in people of different ages

Topic 14. Physiological bases of preventive and therapeutic nutrition. Specific action of foods and dishes. Characteristics of dietary products. The use of vegetables and fruits in dietary nutrition.

Topic 15. Final control of practical skills and theoretical knowledge. Protection of an individual task. Credit.

List of recommended reading

1. Grzegotsky, M. R. Physiology: Educational and Methodological Manual for Practical Classes and Independent Work / M. R. Grzegotsky [and others].– Vinnytsia: New Book.– 2019.- 464 p.
2. Physiology. Short course. 2nd ed. Moroz V.M., Yoltukhivskyi M.V., Shandra O.A. [et al.] - Ed. Moroz V.M., Yoltukhivskyi M.V. – Vinnytsia: New Book.– 2020.- 408 p.
3. Physiology [textbook] /V. M. Moroz, O.A. Shandra.– 5th ed. - Vinnytsya: Nova Kniga. - 2020. - 728p.
4. Filimonov, V. I. Human Physiology: Textbook. – 4th ed., Kyiv: Medicine, 2021. - 488 p.
5. Physiology: textbook for students. higher. honey. Sci. Sci. Cl. / V. G. Shevchuk [et al.], ed. V. G. Shevchuk. -View. 5, repr. and supplements. – Vinnytsia: New Book.

EVALUATION

Forms and methods of current control: oral control of theoretical knowledge: individual survey on the issues of the relevant topic (including questions for self-preparation on the topic); control of practical tasks: evaluation of the solution of situational tasks (including calculations) on the topic of the lesson; Written test control: assessment of the performance of test tasks on the topic of the lesson.

Criteria for Current Assessment in the Seminar Session

Score	Evaluation criteria
Perfectly «5»	<p>The applicant takes an active part in the seminar; demonstrates in-depth knowledge, gives complete and detailed answers to questions; takes an active part in the discussion of problem situations, uses additional educational, methodological and scientific literature; knows how to form their attitude to a particular problem; expresses his/her own opinions, gives appropriate examples; is able to find the most adequate forms of resolving contradictions.</p> <p>The test tasks are completed in full, all 100% of the answers to the questions are correct, the answers to open questions are complete and substantiated.</p> <p>The applicant freely solves situational tasks (including calculations), confidently demonstrates practical skills on the topic of the lesson and correctly interprets the data obtained, expresses his own creative opinion on the topic of the task, demonstrates creative thinking.</p>
Well «4»	<p>The applicant participates in a seminar session; has a good command of the material; demonstrates the necessary knowledge, but answers questions with some mistakes; participates in the discussion of problem situations, uses the main educational, methodological and scientific literature; expresses his/her own opinion on the topic of the lesson.</p> <p>The test tasks are completed in full, at least 70% of the answers to the questions are correct, the answers to the open-ended questions are generally correct, but there are some errors in the definitions.</p> <p>The applicant correctly solves situational tasks (including calculations), but makes minor inaccuracies and demonstrates more standardized practical skills on the topic of the lesson with the correct interpretation of the data obtained, expresses his own opinion on the topic of the task, demonstrates critical thinking.</p>
Satisfactory «3»	<p>The applicant sometimes participates in a seminar session; partially speaks and asks questions; makes mistakes when answering questions; shows passive work at seminars; shows fragmentary knowledge of the conceptual apparatus and literary sources.</p> <p>The test was completed in full, at least 50% of the answers are correct,</p>

	<p>the answers to open questions are not logical, with obvious significant errors in the definitions.</p> <p>The applicant does not have enough knowledge of the material to solve situational tasks (including calculations), hesitantly demonstrates practical skills on the topic of the lesson and interprets the data obtained with significant errors, does not express his opinion on the topic of the situational task.</p>
Not satisfactory «2»	<p>The applicant does not participate in the seminar, is only an observer; never speaks or asks questions, is not interested in studying the material; gives incorrect answers to questions, shows unsatisfactory knowledge of the conceptual apparatus and literary sources.</p> <p>Testing failed.</p> <p>The situational task has not been completed.</p>

Forms and methods of final control: a test is given to an applicant who has completed all sections of the educational program of the elective discipline, took an active part in seminars, has an average current grade of at least 3.0 and has no academic debt.

Possibility and conditions for obtaining additional (bonus) points: not provided.

INDEPENDENT WORK OF HIGHER EDUCATION APPLICANTS

Independent work involves preparation for each practical lesson and test.

ACADEMIC DISCIPLINE POLICY

Deadline & Retake Policy:

- Absences from classes for unreasonable reasons are worked out according to the schedule for the teacher on duty.
- Absences for valid reasons are worked out according to an individual schedule with the permission of the dean's office.

Academic Integrity Policy:

It is mandatory to observe academic integrity by applicants, namely: – independent performance of all types of work, tasks, forms of control provided for by the work program of this discipline;

- references to sources of information in the case of using ideas, developments, statements, information;
- compliance with the legislation on copyright and related rights;
- providing reliable information about the results of their own educational (scientific) activities, the research methods used and the sources of information.

Unacceptable in educational activities for participants in the educational process are:

- the use of family or official ties to obtain a positive or higher grade in the

implementation of any form of control of learning outcomes or preferences in scientific work;

- use of prohibited auxiliary materials or technical means (cheat sheets, notes, micro-headphones, phones, smartphones, tablets, etc.) during control measures;
- passing the procedures for monitoring the results of training by fictitious persons.

For violation of academic integrity, students may be held accountable for the following academic liability:

- decrease in the results of the assessment of an individual survey, the performance of test tasks, the score for solving situational tasks, the performance of an individual task, a test, etc.;
- repeated assessment (test tasks, situational tasks, individual tasks, tests, etc.);
- appointment of additional control measures (additional situational tasks, individual tasks, tests, etc.);
- additional verification of other works authored by the violator.

Attendance & Tardiness Policy:

Health condition: applicants with acute infectious diseases, including respiratory diseases, are not allowed to study. Being late for class is not acceptable. An applicant who is late for a lesson can attend it, but if the teacher put "nb" in the journal, he must work it out in the general order.

Use of Mobile Devices:

The use of any mobile devices is prohibited. In case of violation of this paragraph, the applicant must leave the lesson and the teacher puts "nb" in the journal, which he must work out in the general order.

Mobile devices can be used by applicants with the permission of the teacher, if they are needed to complete the task.

Behavior in the audience:

The behavior of students and teachers in the classrooms should be working and calm, strictly comply with the rules established by the Regulations on Academic Integrity and Ethics of Academic Relations at Odessa National Medical University, in accordance with the Code of Academic Ethics and Relations of the University Community of Odessa National Medical University, Regulations on the Prevention and Detection of Academic Plagiarism in Research and Educational Work of Higher Education Applicants, scientists and teachers of the Odessa National Medical University