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Federal State Budget Educational Institution
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Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY
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"14th" of April 2025

SUBJECT GUIDE FOR TEACHERS AND STUDENTS FOR

Б1.О.42 Human physiology – Physiology of maxillofacial area

(Name of discipline)

Specialty	**31.05.03 Dentistry for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing health care in patients with dental pathology)
Mode of study	**Full-time**
Period of mastering the BEP	**5 years** (nominal length of study)
Department	of Human Physiology and Pathophysiology

Vladivostok, 2025

Subject guide for teachers and students for **Б1.О.42 Human physiology – Physiology of maxillofacial area** is based on:

1) Federal State Educational Standard of Higher Education for the specialty approved by the Order No. 988 of Ministry of Science and Higher Education of the Russian Federation dated August 12, 2020.

2) Curriculum for the 31.05.03 Dentistry for international students (in English), profile 02 "Healthcare" (in the field of providing health care in patients with dental pathology), approved by the Academic Council of FSBEI HE PSMU of the Ministry of Health of Russia Report No. 8/24-25 dated March 31, 2025.

Subject guide for teachers and students for the discipline was developed by the writing team of the Department of Human Physiology and Pathophysiology of the FSBEI HE PSMU of the Ministry of Health of Russia, under the guidance of the Head of the Department of Human Physiology and Pathophysiology, Doctor of Medical Sciences, Professor Markelova E.V.

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1. GENERAL PROVISIONS

Subject guide for **Б1.О.42 Human physiology – Physiology of maxillofacial area** is a set of recommendations and explanations that facilitate to optimal organization of mastering this discipline.

Regular analysis of lecture materials and work with end-of-the-text questions are necessary for better understanding of the material and systematization of knowledge of **Б1.О.42 Human physiology – Physiology of maxillofacial area**. Particular attention should be paid to emerging questions, confusing terms, and conflicts of points of view during the independent review of the lecture material. If necessary, a student should contact the teacher for advice. Lecture material streamlines students' thinking, while practical classes provide deeper insight into the material of the discipline.

Special attention should be paid to the content of the main provisions and conclusions, explanation of phenomena and facts, and clarification of the practical application of theoretic aspects of topic when preparing for a practical class. During this process students should aim to understand and remember the main provisions of the material under consideration, examples provided, as well as understand the illustrative material.

Collections of assessment tools are used to organize independent study of topics (questions) of the discipline.

Independent work of students is facilitated by the following:

1. availability and accessibility of the necessary educational and reference material;
2. a system of regular quality control of completed independent work;
3. availability of teacher's advice.

Subject guides for self-study are presented as literary sources and visual aids (portfolios for different sections of the discipline, microscope slides, subject guides for the students). Subject guides for independent work of students include a list of library resources of the educational institution and other materials accessible to students.

Independent work is a type of in-person extracurricular work of teachers and students of **Б1.О.42 Human physiology – Physiology of maxillofacial area**. Control of independent work is conducted by the leading teacher. Evaluation of independent work results is taken into account when conducting interim examination of students throughout the **Б1.О.42 Human physiology – Physiology of maxillofacial area** course.

Continuous assessment during the **Б1.О.42 Human physiology – Physiology of maxillofacial area** course is implemented in order to check indicators of achieving competencies, to stimulate students' academic work, and improve methods of mastering new knowledge. Continuous assessment during the **Б1.О.42 Human physiology – Physiology of maxillofacial area** course is conducted during the semester to assess all types and sections of the academic discipline that encompass the competencies developed by the discipline: classroom questioning, working with tests, working with mini cases studies, completing and preparing practical assignments. Continuous assessment of students' knowledge and results of their preparation for practical classes is conducted during every class session.

Interim assessment aims to determine the level of mastery of competency indicators. It is conducted in the exam format after the student has mastered all sections of **Б1.О.42 Human physiology – Physiology of maxillofacial area** and takes into account learning outcomes for all types of student work over the entire period of mastering the **Б1.О.42 Human physiology – Physiology of maxillofacial area** course.

Time allotted for interim assessment is indicated in the schedule.

Assignments given during practical classes, as well as assignments aimed to prepare students for continuous and interim assessment, are included in the collection of assessment tools for **Б1.О.42 Human physiology – Physiology of maxillofacial area**. If necessary, students should contact the teacher for advice. It is necessary to thoroughly think over questions that need clarification before seeking teacher's advice.

2. SUBJECT GUIDES FOR LECTURE CLASSES

Table 1. Subject Guides for **Б1.О.42 Human physiology – Physiology of maxillofacial area** Lectures

Topic No.1 General physiology of excitable systems	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about the fundamental processes that ensure the functioning of living systems; 2. define the basic concepts of physiology (excitation and excitability, etc.); 3. examine the methods of assessing the excitability of the neuromuscular system.	
Lecture plan, order of presentation of its sections: - Subject of physiology and its objectives - Membrane potentials - Excitability - Graded potential and action potential - Basic law of excitation - Action of the constant electric current on tissues - Parabiosis	
Recommended reading: 1. Избранные лекции по нормальной физиологии = Selected Lectures on Normal Physiology: учебное пособие на русском и английском языках. M. M. Lapkin, E. A. Trutneva / M.: GEOTAR-Media, 2021. – 544 с. URL: http://www.studentlibrary.ru/ 2. Normal physiology: textbook = Нормальная физиология: учебник на английском языке Dorokhov Ye. V., Karpova A.V., Semiletova V.A. et al. / M.: GEOTAR-Media, 2021. – 512 с. URL: http://www.studentlibrary.ru/ 3. Normal physiology: textbook. Ed. K. V. Sudakov./ M.: GEOTAR-Media, 2022. – 728 с. URL: http://www.studentlibrary.ru/	
Topic No.2 Physiology of digestion. Digestion in the oral cavity	
Duration of the lecture (in academic hours):	2
Purpose of the lecture: 1. tell students about the functional nutrition system and the importance of digestion processes in it, to give an idea of the conveyor organization of digestion in various parts of the gastrointestinal tract, the composition and properties of digestive juices, the mechanisms regulating the secretory and motor activity of the digestive system; 2. define the cerebral, gastric, and intestinal phases of digestive juice secretion, emphasize digestion in the oral cavity, and define chewing reflexes; 3. examine the methods of assessing chewing function.	
Lecture plan, order of presentation of its sections: - Digestive system functions - Digestion in the oral cavity. Chewing. Saliva - Digestion in the stomach - Pancreas. Pancreatic enzymes - Liver. Bile - Intestinal motility and secretion - Regulation of digestive functions - Absorption	

Recommended reading:

1. Избранные лекции по нормальной физиологии = Selected Lectures on Normal Physiology: учебное пособие на русском и английском языках. M. M. Lapkin, E. A. Trutneva / M.: GEOTAR-Media, 2021. – 544 с. URL: http://www.studentlibrary.ru/
2. Normal physiology: textbook = Нормальная физиология: учебник на английском языке Dorokhov Ye. V., Karpova A.V., Semiletova V.A. et al. / M.: GEOTAR-Media, 2021. – 512 с. URL: http://www.studentlibrary.ru/
3. Normal physiology: textbook. Ed. K. V. Sudakov./ M.: GEOTAR-Media, 2022. – 728 с. URL: http://www.studentlibrary.ru/

3. SUBJECT GUIDES FOR PRACTICAL CLASSES

Table 2. Subject Guides for Practical **Б1.О.42 Human physiology – Physiology of maxillofacial area** Classes

Topic No.1 General physiology of excitable systems. Excitation and excitability	
Duration of the practical class (in academic hours):	2
Purpose of the practical class: 1. consolidate acquired knowledge about the essence of the excitation process, the role of various ions and the cell membrane in the formation of biopotentials, the features of action potential and graded potential; 2. during the discussion, outline the basic principles of the ion-membrane theory of the origin of biopotentials and the laws of excitation; 3. thoroughly go over definitions and concepts of excitation, excitability, conductivity, functional lability; depolarization, repolarization, hyperpolarization, passive and active ion transport; 4. study patterns of response of excitable systems to stimuli of varying strength, changes in excitability during excitation; changes in membrane potential with changes in the concentration of ions on both sides of the membrane.	
Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, personal computers with the "virtual physiology" computer software, and subject guides for the discipline.	
Independent work of the student: **Extracurricular work (preparation for the practical class):** 1. Working with educational literature 2. Sketching a graph of the relationship between the phases of the action potential and the phases of excitability, writing down the differences between local and spreading excitation in preparation for the lesson **Independent work in class:** Registration of the resting potential and action potential, identification of the threshold strength of the stimulus, identification of the properties of graded potential with the "virtual physiology" software	
Methods of evaluation of acquired knowledge and skills: classroom questioning, discussion of reports on the independent work results, working with tests, working with case studies.	
Recommended reading: 1. Избранные лекции по нормальной физиологии = Selected Lectures on Normal Physiology: учебное пособие на русском и английском языках. M. M. Lapkin, E. A. Trutneva / M.: GEOTAR-Media, 2021. – 544 с. URL: http://www.studentlibrary.ru/	

2. Normal physiology: textbook = Нормальная физиология: учебник на английском языке Dorokhov Ye. V., Karpova A.V., Semiletova V.A. et al. / M.: GEOTAR-Media, 2021. – 512 c. URL: http://www.studentlibrary.ru/
3. Normal physiology: textbook. Ed. K. V. Sudakov./ M.: GEOTAR-Media, 2022. – 728 c. URL: http://www.studentlibrary.ru/

Topic No.7 Digestion in various parts of the gastrointestinal tract

Duration of the practical class (in academic hours):	2

Purpose of the practical class:
1. consolidate acquired knowledge about the chemical and physical processing of food substances as they move through the gastrointestinal tract;
2. during the discussion, outline the influence of various digestive juices on the digestive process;
3. thoroughly go over definitions and concepts of hunger and satiety, autolytic, symbiotic and digestion with proper enzymes; cavitary and parietal digestion;
4. study patterns of changes in food content in different parts of the digestive conveyor;
5. develop concept of the role of the oral cavity in digestion processes in order to be able to evaluate the effectiveness of chewing using the chewing test of I.S. Rubinov.

Practical classes requirements: classrooms equipped with multimedia equipment, blackboards, personal computers with the "virtual physiology" computer software, and subject guides for the discipline.

Independent work of the student:
Extracurricular work (preparation for the practical class):
1. Working with educational literature
2. To compile an overview table of the action of digestive juices on nutrients in preparation for the lesson
Independent work in class:
Determination of the properties of saliva and the effectiveness of chewing using I.S. Rubinov's test

Methods of evaluation of acquired knowledge and skills: classroom questioning, discussion of reports on the independent work results, working with tests, working with case studies.

Recommended reading:
1. Избранные лекции по нормальной физиологии = Selected Lectures on Normal Physiology: учебное пособие на русском и английском языках. M. M. Lapkin, E. A. Trutneva / M.: GEOTAR-Media, 2021. – 544 c. URL: http://www.studentlibrary.ru/
2. Normal physiology: textbook = Нормальная физиология: учебник на английском языке Dorokhov Ye. V., Karpova A.V., Semiletova V.A. et al. / M.: GEOTAR-Media, 2021. – 512 c. URL: http://www.studentlibrary.ru/
3. Normal physiology: textbook. Ed. K. V. Sudakov./ M.: GEOTAR-Media, 2022. – 728 c. URL: http://www.studentlibrary.ru/

4. GUIDELINES FOR CONTINOUS AND INTERIM ASSESSMENT

Table 3. Guidelines for Conducting Continuous and Interim Assessment during the **Б1.О.42 Human physiology – Physiology of maxillofacial area** Course

Type of assessment	Assessment format

Continuous assessment	- conducting and evaluating oral or written quizzes during lectures and practical classes; - assessment and evaluation of completion and results of assignments given during practical classes; - assess and evaluate completion and results of individual assignments and exam tasks given during practical classes; - assessment and evaluation of lecture notes quality.
Interim certification	is conducted in exam format; it allows to assess the development of students' competencies correlating with types of professional activity.

5 ASPECTS OF THE IMPLEMENTATION OF THE COURSE FOR STUDENTS WITH DISABILITIES AND SPECIAL NEEDS

5.1. Availability of accessible environment

For students with disabilities and special needs, if a written application is submitted, lectures and practical classes are carried out taking into account health limitations, individual capabilities and medical status (hereinafter referred to as individual characteristics) of the student. Compliance with the following general requirements is ensured: teaching aids for collective and individual use are provided, required technical assistance is provided by an assistant, buildings and premises where lectures and practical classes are taking place meet accessibility requirements, other arrangements lack of which makes it impossible or difficult to master the discipline are made.

5.2. Compliance with general requirements

When lectures and practical classes are carried out at the written application of the student, the following general requirements are met: lectures and practical classes for students with disabilities and special needs take place at the same location as for students who do not have disabilities, if this does not cause difficulties for students; an assistant (assistants), who provide(s) students with the necessary technical assistance taking into account individual characteristics of the student, is (are) provided; necessary teaching aids are provided, taking into account individual characteristics of the student.

5.3. Availability of the internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia to students with disabilities in a form accessible to them.

All internal policies and procedures of FSBEI HE PSMU of the Ministry of Health of Russia concerning the discipline are made available to students with disabilities in a form accessible to them.

5.4. Increase in the duration of interim assessment of students with disabilities and special needs in relation to the established duration

Format of the interim assessment of academic performance within the scope of the discipline for students with disabilities and special needs is selected taking into account individual characteristics (orally, by writing on paper, by typing on a computer, as a test, etc.). The duration of the interim assessment in relation to the established duration is increased at the written application of the student with disabilities. Time limit for the student's preparation for the test is increased by at least 0.5 hours

6. STAFFING REQUIREMENTS OF THE DISCIPLINE

Academic teaching personnel that ensure the implementation of the discipline education process meet the requirements of the Federal State Educational Standard of Higher Education for the 31.05.03 Dentistry for international students (in English) specialty; list of the aforementioned personnel is available on the website of the educational organization.

