

FEDERAL STATE BUDGET EDUCATIONAL INSTITUTION
OF HIGHER EDUCATION
"ROSTOV STATE MEDICAL UNIVERSITY"
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

Faculty of Education of foreign students, residents and postgraduates

CONFIRM
Supervisor
educational program
/ E.S. Belousova /
(signature) (FULL NAME.)
" 31 " *Belousova* 20_23



DISCIPLINE WORKING PROGRAM

PATHOPHYSIOLOGY

Speciality 31.05.01 General medicine

Form of education full-time

Rostov-on-Don
2023

I. GOALS AND OBJECTIVES OF MASTERING THE DISCIPLINE

1.1. **Goals** mastering the discipline "Patophysiology":

- developing in students the ability to effectively solve professional medical tasks based on pathophysiological data analysis **about pathological processes, conditions, reactions and diseases using knowledge about general patterns and mechanisms of their occurrence, development and completion, as well as formulating principles (algorithms, strategies) and methods for their identification, treatment and prevention;**
- formation of methodological, methodological and practical bases **rational thinking and effective** professional action of a doctor.

1.2. **Tasks** studying the discipline "Patophysiology":

- familiarize students with basic concepts and modern concepts of general nosology;
- teach the ability to analyze scientific literature and official statistical reviews, prepare reviews of scientific literature / abstracts on modern scientific problems; participation in statistical analysis and preparation of reports on the completed research; comply with basic information security requirements;
- study the etiology, pathogenesis, principles of detection, treatment and prevention of the most socially significant diseases and pathological processes;
- teach the ability to conduct pathophysiological analysis of data on pathological syndromes, pathological processes, forms of pathology and individual diseases;
- formulate methodological and methodological foundations of clinical thinking and rational action of a doctor;
- involve individual research and scientific and applied tasks in the field of health care in the study of etiology and pathogenesis, diagnosis, treatment, rehabilitation and prevention of diseases;
- develop the student's communication skills with the team.

II. REQUIREMENTS FOR THE RESULTS OF MASTERING THE DISCIPLINE The process of studying the discipline "Patophysiology" is aimed at developing the following competencies in accordance with the Federal State Educational Standard of Higher Education and the EP of Higher Education in this specialty:

general professional competencies (GPC):

OPK-5. Able to assess morphofunctional, physiological conditions and pathological processes in the human body to solve

professional tasks.

III. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF EP VO

3.1. The academic discipline "Patophysiology" is basic.

3.2. The formation of the above competencies is facilitated by the study of the following previous disciplines: anatomy; topographic anatomy; histology, embryology, cytology; normal physiology; microbiology, virology; pharmacology; pathological anatomy; vaccinology; medical microbiology.

3.3. The discipline "Patophysiology" creates the prerequisites for the formation of these competencies in the following disciplines: immunology; clinical pathological anatomy; clinical pharmacology; psychiatry, medical psychology; propaedeutics of internal diseases; radiology diagnostics; phthysiology; general surgery; dentistry; fundamental medicine.

IV. CONTENT AND STRUCTURE OF DISCIPLINE

Labor intensity of the discipline in ze 7 hour 252

4.1. Sections of the discipline studied in 5-6 semesters.

No. chapter A	Name section	Number of hours					
		Total	Contact Job				SRS
			L	WITH	ETC	LR	
Semester 5							
1	General nosology		2		6		2
2	Damaging action factors external environment		0		6		2
3	Typical pathological processes		14		36		40
	Form intermediate certifications - test		16		48		44
Semester 6							
4	Private pathological physiology		16		48		44
	Form intermediate certifications - exam	36					
	<i>Total by discipline:</i>	252	32		96		88

* **SRO**- independent work of students **L**-lectures

WITH- seminars (in disciplines in accordance with the standard and RUP)

LR -laboratory work (in disciplines in accordance with the curriculum)

ETC- practical classes (in disciplines in accordance with the curriculum, in includes clinical practical training)

4.2. Contact work

Lectures

No. section	No. lectures	Lecture topics	Qty hours
Semester 5			
1	1	Subject, tasks and methods of pathological physiology. General nosology, etiology, pathogenesis. The doctrine of reactivity.	2
3	2	Typical peripheral circulatory disorders. Etiology and pathogenesis of arterial and venous hyperemia, thrombosis, embolism, ischemia, stasis.	2
3	3	Hypoxia. Classification. Disorders of metabolism and biological functions during hypoxia. General principles of treatment of hypoxia.	2
3	4	Inflammation. Etiology, pathogenesis, biological the meaning of inflammation. Features of the formation of acute and chronic inflammation. Principles of therapy.	2
3	5	Fever. Etiology, pathogenesis, biological significance. Principles of pathogenetic therapy.	2
3	6	Immunopathological processes. Violation phagocytosis, immunodeficiencies.	2
3	7	The concept of allergies, its types. Etiology and pathogenesis of allergic reactions of immediate and delayed type.	2
3	8	Shock How typical pathological process. Classification of shock stages and their characteristics. Pathogenetic principles of shock therapy.	2
Total for the semester hours			16
Semester 6			
4	1	Erythron pathology. Anemia. Erythrocytosis.	2
4	2	Typical disorders of the properties and functions of the heart. Cardiac arrhythmias. Etiology, pathogenesis, manifestations.	2
4	3	Violation of systemic blood pressure. Hypo- and hypertension. Etiology. Classification. Pathogenesis.	2

4	4	Pathophysiology of the liver. Hepatocellular liver failure, causes, mechanisms, manifestations.	2
4	5	Pathophysiology of the kidneys. Main syndromes in kidney pathology. Renal and extrarenal manifestations in kidney pathology.	2
4	6	Pathophysiology of the endocrine system. Pathology of the hypothalamus, pituitary gland, adrenal glands.	2
4	7	Diabetes. Etiology, types. Clinical and laboratory manifestations. Complications. Principles	2
4	8	Pathophysiology of the nervous system. Sensory link disorders.	2
Total for the semester hours			16
<i>Total hours discipline:</i>			32

Seminars, practical work

No. section	No. seminar, ETC	Topics of seminars, practical work	Number in hours	Forms current control
Semester 5				
1	1	Subject, tasks and methods of pathological physiology. General nosology, etiology, pathogenesis.	3	Tests, situational tasks, oral survey
1	2	The role of reactivity in pathology.	3	Tests, situational tasks, oral survey
2	3	Radiation injury. Causes, mechanisms, outcomes. Electrical trauma, damage mechanisms.	3	Tests, situational tasks, oral survey
3	4	Violations peripheral blood circulation Kinds, manifestations. Hyperemia. Ischemia. Etiology, pathogenesis, outcomes.	3	Tests, situational tasks, oral survey
3	5	Violations peripheral blood circulation Thrombosis, embolism, stasis. Etiology, pathogenesis, outcomes.	3	Tests, situational tasks, oral survey

No. section	No. seminar, ETC	Topics of seminars, practical work	Number in hours	Forms current control
3	6	Hypoxia. Etiology, pathogenesis. Principles of therapy.	3	Tests, situational tasks, oral survey
3	7	Pain. Pathophysiology pain. Stress. Etiology, pathogenesis, biological meaning. Endogenous mechanisms pain relief.	3	Tests, situational tasks, oral survey
3	8	Metabolic pathology. Acid-base imbalance.	3	Tests, situational tasks, oral survey
	9	REPEATED LESSON.	3	Tests, situational tasks, oral survey
3	10	Inflammation. Etiology, pathogenesis, biological meaning. Alteration. Exudation.	3	Tests, situational tasks, oral survey
3	eleven	Inflammation. Proliferation. Clinical manifestations. Biological significance. Principles of therapy.	3	Tests, situational tasks, oral survey
2	12	Action changed temperature on organism. Hyperthermia, hypothermia.	3	Tests, situational tasks, oral survey
3	13	Fever. Etiology, pathogenesis. Principles of therapy.	3	Tests, situational tasks, oral survey
3	14	Pathology nonspecific factors protection. Immunopathology.	3	Tests, situational tasks, oral survey
3	15	Etiology, pathogenesis of allergic reaction. Autoallergy. Paraallergic reactions and their mechanism. Principles of prevention and treatment.	3	Tests, situational tasks, oral survey
	16	REPEATED LESSON.	3	Tests, situational tasks, oral survey
Total for the semester hours			48	
Semester 6				

No. section	No. seminar, ETC	Topics of seminars, practical work	Number in hours	Forms current control
4	1	Etiology, pathogenesis and consequences of acute and chronic blood loss.	3	Tests, situational tasks, oral survey
4	2	Pathophysiology of the erythronic system. Anemia. Classification. Mechanism of development, general manifestations.	3	Tests, situational tasks, oral survey
4	3	Pathophysiology of leucon. Classification, causes and mechanisms of development. Shifts in the leukocyte formula. Leukemia, types, etiology, pathogenesis, blood picture. Pathology of hemostasis.	3	Tests, situational tasks, oral survey
4	4	Typical mechanisms of disturbance of the properties and functions of the heart. Violations of automatism and excitability of the myocardium. Etiology, pathogenesis, manifestations.	3	Tests, situational tasks, oral survey
4	5	Typical mechanisms of cardiac dysfunction. Disorders of myocardial conduction and contractility. Etiology, pathogenesis, manifestations.	3	Tests, situational tasks, oral survey
4	6	Pathology disorders systemic arterial pressure. Hyper- and hypotension. Mechanism formation <small>atherosclerosis and ischemic heart disease.</small>	3	Tests, situational tasks, oral survey
4	7	The concept of circulatory failure, its forms. Heart failure. Signs and indicators of heart failure. Mechanisms compensation. Myocardial hypertrophy, development mechanisms, consequences, mechanisms of decompensation.	3	Tests, situational tasks, oral survey
	8	REPEATED LESSON	3	Tests, situational tasks, oral survey
4	9	Pathophysiology external breathing. Main reasons, mechanisms her formations, compensatory reactions. Dyspnea, its types, pathogenesis. Periodic types of breathing, mechanisms.	3	Tests, situational tasks, oral survey
4	10	Pathophysiology of digestion in the oral cavity, ventricle, and intestines. Intestinal hormones and their role in gastrointestinal dysfunction.	3	Tests, situational tasks, oral survey

No. section	No. seminar, ETC	Topics of seminars, practical work	Number in hours	Forms current control
4	elevan	Failure liver, causes, mechanisms, manifestations. Metabolic disorders and various body functions in liver failure. The concept of jaundice. Disorders of bilirubin metabolism in jaundice of suprahepatic, hepatic and subhepatic origin. Etiology, pathogenesis, manifestations.	3	Tests, situational tasks, oral survey
4	12	Renal failure, etiology, pathogenesis, indicators. Mechanisms violations main functions kidney Uremia, its types, development mechanisms. Changes in blood composition with uremia.	3	Tests, situational tasks, oral survey
4	13	Pathophysiology endocrine systems. General principles of regulation and disorders of humoral mechanism management. Pathology hypothalamic-pituitary-adrenal systems. Manifestations, consequences. Pathology of the gonads.	3	Tests, situational tasks, oral survey
4	14	Pathology of the thyroid and parathyroid glands. Pathology of the endocrine function of the pancreas. Etiology and pathogenesis of diabetes mellitus, main metabolic disorders, organs and systems, principles of pathogenetic therapy.	3	Tests, situational tasks, oral survey
	15	REPEATED LESSON	3	Tests, situational tasks, oral survey
4	16	Disturbances in the body due to damage to the cortex and subcortical formations of the brain. Etiology and pathogenesis of nervous system dysfunctions.	3	Tests, situational tasks, oral survey
Total for the semester hours			48	
<i>Total hours discipline:</i>			96	

4.3. Independent work of students

No. section	Type of independent work of students	Number in hours	Forms current control
Semester 5			
3	Formation of a thematic scheme of the pathogenesis of a typical pathological process	10	Survey
3	Correction of a ready-made thematic scheme of the pathogenesis of a typical pathological process	10	Survey
3	Criticism of the ready-made thematic scheme of the pathogenesis of a typical pathological process	10	Survey
3	Evaluation of a ready-made thematic scheme of the pathogenesis of a typical pathological process	10	Survey
3	Teacher's comments on group work during a practical lesson	4	
Total hours per semester		44	
Semester 6			
4	Formation of a thematic scheme of the pathogenesis of a particular pathological process	10	Survey
4	Correction of a ready-made thematic scheme of the pathogenesis of a particular pathological process	10	Survey
4	Criticism of the ready-made thematic scheme of the pathogenesis of a particular pathological process	10	Survey
4	Evaluation of a ready-made thematic scheme of the pathogenesis of a particular pathological process	10	Survey
4	Teacher's comments on group work during a practical lesson	4	
Total hours per semester		44	
<i>Total hours discipline:</i>		88	

V. ASSESSMENT FUND FOR CURRENT CONTROL, INTERMEDIATE CERTIFICATION

The fund of assessment tools for determining the level of development of competencies as a result of mastering the discipline is an appendix to the work program.

VI. EDUCATIONAL AND METHODOLOGICAL SUPPORT DISCIPLINES

6.1. Main literature.

1. Ovsyannikov V.G. General pathology: pathological physiology: Part I: General pathophysiology: a textbook for university students / V.G. Ovsyannikov. – Federal State Budgetary Educational Institution of Higher Education Rost State Medical University of the Ministry of Health of Russia, department. pathological physiology. - Ed. 4th. – Rostov n/d: Rostov State Medical University Publishing House, 2017. – 288 p. The same [Electronic resource]. – Access from EUB RostSMU.
2. Ovsyannikov V.G. General pathology: pathological physiology. Part II: Pathophysiology of organs and systems of the body: textbook / V.G. Ovsyannikov Rostov n/a: Publishing house of Rostov State Medical University, 2017. – 265 p. The same [Electronic resource]. – Access from EUB RostSMU.

6.2. Additional literature.

1. Litvitsky P.F. Pathophysiology, 7th edition, revised and expanded / P.F. Litvitsky - Moscow: GEOTAR-Media, 2021. - 864 p. Access from the EBS "Doctor Consultant". – text: electronic.
2. Physiology and pathology of hemostasis: textbook. manual / ed. N. I. Stuklova. - Moscow: GEOTAR-Media, 2016. - 112 p. Access from the EBS "Doctor Consultant". – text: electronic

6.3 Internet resources

	ELECTRONIC EDUCATIONAL RESOURCES	Access to the resource
	Electronic library RostSMU. – URL: http://109.195.230.156:9080/opacq/	Access is not limited
	Student Advisor [Kits: "Medicine. Healthcare. IN"; "Medicine. Healthcare. SPO"; "Psychological Sciences"]: Electronic library system. – Moscow: LLC "Student Consultant". - URL: https://www.studentlibrary.ru + opportunities for inclusive education	Access is not limited
	Doctor's consultant. Electronic medical library: Electronic library system. – Moscow: LLC "Higher School of Organization and Management of Healthcare. Comprehensive medical consulting." - URL: http://www.rosmedlib.ru + opportunities for inclusive education	Access is not limited
	Scientific electronic library eLIBRARY. - URL: http://elibrary.ru	Open access
	National Electronic Library. - URL: http://neb.rf/	Access from computers libraries

	Springer Nature database. - URL: https://link.springer.com/ By IP addresses of RostSMU and remotely after registration, remotely via KIAS RFBR https://kias.rfbr.ru/reg/index.php (<i>National project</i>)	Access is not limited
	Wiley Online Library /John Wiley & Sons. - URL: http://onlinelibrary.wiley.com ByIP addresses of RostSMU and remotely after registration(<i>National project</i>)	Access limited
	Wiley. Full-text collection of electronic journals Medical Sciences Journal Backfile: archive. -URL: https://onlinelibrary.wiley.com/ ByIP addresses of RostSMU and remotely after registration(<i>National project</i>)	Indefinite subscription
	Sage Publication: [full text collection of e-books eBook Collections]. - URL: https://sk.sagepub.com/books/discipline ByIP RostSMU addresses(<i>National project</i>)	Indefinite subscription
	Ovid Technologies: [Full-text archived collection of journals Lippincott Williams and Wilkins Archive Journals]. - URL: https://ovidsp.ovid.com/autologin.cgi by IP addresses of RostSMU (<i>National project</i>)	Indefinite subscription
	Questel database Orbit Premium edition: patent database search http://www.orbit.com/ ByIP addresses of RostSMU(<i>National project</i>)	Access limited
	Wiley: official website; chapter "Open Access"/John Wiley & Sons. - URL: https://authorservices.wiley.com/open-research/open-access/browsejournals.html	Content open access
	Russian education. Single window of access: federal portal.-URL: http://www.edu.ru/ .- New educational environment.	Open access
	Federal Center for Electronic Educational Resources. - URL: http://srtv.fcior.edu.ru/	Open access
	Electronic Library of the Russian Foundation for Basic Research(RFBR). -URL: http://www.rfbr.ru/rffi/ru/library	Open access
	Federal Electronic Medical Library of the Ministry of Health Russia. - URL: https://femb.ru/femb/	Open access
	Cochrane Library: official website ; chapter "Open Access". - URL: https://cochranelibrary.com/about/open-access	Content open access
	Cochrane Russia : Russian department Cochrane cooperation/RMANPO. - URL: https://russia.cochrane.org/	Content open access
	Webmedinfo.ru: website [open information and educational medical resource]. - Moscow. - URL: https://webmedinfo.ru/	Open access
	Univadis from Medscape: international honey. portal. -URL: https://www.univadis.com/ [Regularly updated database of unique information and educational medical resources].	Free registration
	Med-Edu.ru: medical educational video portal. -URL: http://www.med-edu.ru/ . Free registration.	Open access
	Doctor's world: professional portal [information resource for doctors and students]. - URL: https://mirvracha.ru .	Free registration
	DoctorSPB.ru: information-reference portal about medicine [for students and doctors]. - URL: http://doctorspb.ru/	Open access
	BEARWEST :portal of a Russian doctor [library, database knowledge]. - URL: https://medvestnik.ru	Open access

	PubMed: electronic search engine [for biomedical research from the National Center for Biotechnology Information (NCBI, USA)]. - URL: https://pubmed.ncbi.nlm.nih.gov/	Open access
	Cyberleninka Open Science Hub: open scientific electronic library of publications in foreign languages. - URL: https://cyberleninka.org/	Content open that access
	Scientific heritage of Russia: e electronic library / MSC RAS.- URL: http://www.e-heritage.ru/	Open access
	KOOB.ru: electronic library of medical books psychology. -URL: http://www.koob.ru/medical_psychology/	Open access
	Presidential Library : website. -URL: https://www.prlib.ru/collections	Open access
	SAGE Openaccess: open access resources /Sage Publications. - URL: https://uk.sagepub.com/en-gb/eur/open-access-at-sage	Content open that access
	EBSCO & Open Access: open access resources. -URL: https://www.ebsco.com/open-access	Content open that access
	Lvrach.ru: honey. scientific-practical portal [largest prof. resource for doctors and honey community, created on the basis of scientific and practical. magazine "Attending Physician"]. - URL: https://www.lvrach.ru/	Open access
	ScienceDirect: official website; chapter "Open Access"/Elsevier. - URL: https://www.elsevier.com/open-access/open-access-journals	Content open access
	Taylor & Francis. Dove Medical Press. Open access journals: open access journals.- URL: https://www.tandfonline.com/openaccess/dove	Content open access
	Taylor & Francis. Open access books: open access books. - URL: https://www.routledge.com/our-products/open-access-books/taylor-francis-oa-books	Content open access
	Thieme. Open access journals: open access journals/Thieme Medical Publishing Group. - URL: https://open.thieme.com/home	Content open that access
	Karger Open Access: open access journals/S. Karger AG. - URL: https://www.karger.com/OpenAccess/Alljournals/Index	Content open that access
	Archive scientific magazines / NP NEICON. - URL: https://arch.neicon.ru/xmlui/	Open access
	Russian doctor: website [news for doctors and medical archive. magazines]/ID "Russian doctor" - URL: https://rusvrach.ru/	Open access
	Directory of Open Access Journals: [full text journals121 countries of the world, incl. in medicine, biology, chemistry]. - URL: http://www.doaj.org/	Open access
	Free Medical Journals. - URL: http://freemedicaljournals.com	Open access
	Free Medical Books . - URL: http://www.freebooks4doctors.com	Open access
	International Scientific Publications. - URL: http://www.scientific-publications.net/ru/	Open access
	Eco-Vector: portal of scientific journals/Russian IT platform GC "ECO-Vector". - URL: http://journals.eco-vector.com/	Open access

	Medline.Ru: scientific biomedical journal : online electronic edition. - URL: http://www.medline.ru	Open access
	Medical Bulletin of the South of Russia: electron. magazine/RostSMU. - URL: http://www.medicalherald.ru/jour	Open access
	Journal of Urology ("Urology Herald"): electron. magazine / RostSMU. - URL: https://www.urovest.ru/jour	Open access
	South Russian Journal of Therapeutic Practice /RostSMU. - URL: http://www.therapeutic-j.ru/jour/index	Open access
	Categories clinical recommendations of the Russian Ministry of Health. -URL: https://cr.minzdrav.gov.ru/	Open access
	FBUZ " Information and methodological center » Rospotrebnadzor: official website. - URL: https://www.crc.ru	Open access
	Ministry of Health of the Russian Federation: official website. - URL: https://minzdrav.gov.ru	Open access
	Federal Service for Supervision in the field of healthcare: official website. - URL: https://roszdravnadzor.gov.ru/	Open access
	World Health Organization: official website. -URL: http://who.int/ru/	Open access
	Ministry of Science and Higher Education Russian Federation: official website. - URL: http://minobrnauki.gov.ru/ (search engine Yandex system)	Open access
	Modern problems of science and education: electron. magazine. Online publication. - URL: http://www.science-education.ru/ru/issue/index	Open access
	Dictionaries And encyclopedias on Academician. - URL: http://dic.academic.ru/	Open access
	Official Internet portal of legal information. - URL: http://pravo.gov.ru/	Open access
	Education in Russian: educational portal / State. Institute of Russian language them. A.S. Pushkin. - URL: http://pushkininstitute.ru/	Open access
	History.RF. [The main historical portal of the country]. - URL: https://histrf.ru/	Open access
	Other Open resources can be found at: http://rostgmu.ru → Library → Electronic catalog → Open Internet resources → further by keyword...	