

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

**Federal State Autonomous Educational Institution of Higher Education
«National Research Lobachevsky State University of Nizhny Novgorod»**

Институт клинической медицины

УТВЕРЖДЕНО

решением Ученого совета ННГУ

протокол № 10 от 02.12.2024 г.

Working programme of the discipline

Normal anatomy, head and neck anatomy

Higher education level

Specialist degree

Area of study / speciality

31.05.03 - Dentistry

Focus /specialization of the study programme

Dentistry

Mode of study

full-time

Nizhny Novgorod

Year of commencement of studies 2025

1. Место дисциплины в структуре ОПОП

Дисциплина Б1.О.20 Нормальная анатомия, анатомия головы и шеи относится к обязательной части образовательной программы.

2. Планируемые результаты обучения по дисциплине, соотнесенные с планируемыми результатами освоения образовательной программы (компетенциями и индикаторами достижения компетенций)

Формируемые компетенции (код, содержание компетенции)	Планируемые результаты обучения по дисциплине (модулю), в соответствии с индикатором достижения компетенции		Наименование оценочного средства	
	Индикатор достижения компетенции (код, содержание индикатора)	Результаты обучения по дисциплине	Для текущего контроля успеваемости	Для промежуточной аттестации
ОПК-8: Способен использовать основные физико-химические, математические и естественнонаучные понятия и методы при решении профессиональных задач	ОПК-8.1: Знать основные физико-химические, математические и естественнонаучные понятия и методы ОПК-8.2: Уметь использовать основные физико-химические, математические и естественнонаучные понятия и методы при решении профессиональных задач ОПК-8.3: Владеть опытом использования основных физико-химических, математических и естественнонаучных понятий и методов при решении профессиональных задач	ОПК-8.1: Знает основные физико-химические, математические и естественнонаучные понятия и методы ОПК-8.2: Умеет использовать основные физико-химические, математические и естественнонаучные понятия и методы при решении профессиональных задач ОПК-8.3: Владеет опытом использования основных физико-химических, математических и естественнонаучных понятий и методов при решении профессиональных задач	Коллоквиум	Экзамен: Контрольные вопросы Зачёт: Контрольные вопросы
ОПК-9: Способен оценивать морфофункциональные, физиологические состояния и патологические процессы в организме человека для решения профессиональных задач	ОПК-9.1: Знать принципы оценки морфофункциональных, физиологических состояний и патологических процессов в организме человека ОПК-9.2: Уметь оценивать морфофункциональные, физиологические состояния и патологические процессы в организме человека для решения профессиональных	ОПК-9.1: Знает принципы оценки морфофункциональных, физиологических состояний и патологических процессов в организме человека ОПК-9.2: Умеет оценивать морфофункциональные, физиологические состояния и патологические процессы в	Коллоквиум	Экзамен: Контрольные вопросы Зачёт: Контрольные вопросы

	задач ОПК-9.3: Владеть опытом оценки морфофункциональных, физиологических состояний и патологических процессов в организме человека для решения профессиональных задач	организме человека для решения профессиональных задач ОПК-9.3: Владеет опытом оценки морфофункциональных, физиологических состояний и патологических процессов в организме человека для решения профессиональных задач		
--	--	--	--	--

3. Структура и содержание дисциплины

3.1 Трудоемкость дисциплины

	очная
Общая трудоемкость, з.е.	11
Часов по учебному плану	396
в том числе	
аудиторные занятия (контактная работа):	
- занятия лекционного типа	96
- занятия семинарского типа (практические занятия / лабораторные работы)	96
- КСР	5
самостоятельная работа	127
Промежуточная аттестация	72 Экзамен, Зачёт

3.2. Содержание дисциплины

(структурированное по темам (разделам) с указанием отведенного на них количества академических часов и виды учебных занятий)

Наименование разделов и тем дисциплины	Всего (часы)	в том числе			
		Контактная работа (работа во взаимодействии с преподавателем), часы из них			Самостоятельная работа обучающегося, часы
		Занятия лекционного типа	Занятия семинарского типа (практические занятия/ лабора торные работы), часы	Всего	
	о ф о	о ф о	о ф о	о ф о	о ф о
Introduction	49	16	13	29	20

Osteology and Syndesmology	44	11	13	24	20
Splanchnology	44	11	13	24	20
Cardioangiology	46	11	13	24	22
Neurology	39	11	13	24	15
Anatomy of the head and neck	44	16	13	29	15
The oral cavity	53	20	18	38	15
Аттестация	72				
КСР	5			5	
Итого	396	96	96	197	127

Contents of sections and topics of the discipline

1. Introduction

The subject, tasks and methods of studying human anatomy.

The formation of human sciences. The systematic position of a person.

Levels of organization of living organisms. The concept of organs, organ systems. The structure of the human body. Parts, areas, and surfaces of the body. Conventional axes, planes, lines, landmarks, anatomical terms.

Organs and organ systems. The human body as a whole.

Development of the human body: the concept of ontogenesis and phylogeny; stages of development of the organism (from fertilization to birth; from birth to maturation).

Human tissues

Classification of tissues. Epithelial, connective, muscular and nervous tissues: features of the structure of cells and intercellular matter, location, properties, functions.

General characteristic features of epithelium. Types of epithelium.

Connective tissues. Classification of connective tissues: connective tissue proper (loose and dense fibrous), skeletal (cartilage, bone), blood, lymph, tissues with special properties (fatty, reticular, pigmented).

Muscle tissues: general characteristics, classification (striated, smooth, cardiac), their features.

Nerve tissue. General characteristics of nerve cells and neuroglia. Neuron, classification by form and function.

2. Osteology and syndesmology

The main components and functions of the ODE. The passive and active parts of the ODE.

2.1. Structure and functions of the skeleton – Osteology

Features of the cellular and chemical composition of bone tissue. The structure of bone tissue: bone cells (osteoblasts, osteocytes, osteoclasts) and intercellular substance. Coarse-fibrous and lamellar bone tissue.

Characteristics of a compact and spongy substance. The osteon (Haversov system) is a structural and functional unit of lamellar bone tissue. Changes in the ratio of inorganic and organic substances in the bone depending on age.

Classification of bones: tubular, spongy, flat, mixed, air-bearing and sesamoid. The structure of the long tubular bone. Periosteum and its importance in bone nutrition. Bone growth in thickness and length.

Types of bone connections (synarthrosis, symphysis, diarthrosis) and their characteristics. The structure and functions of the joints. Joint classifications: by the number of articular surfaces, by the shape of the articular surfaces and the number of axes of rotation.

A general overview of the human skeleton. The functions of the skeleton. The axial and additional skeleton. The skeleton of the torso. Spinal divisions and their structure. Spinal bends, their formation during development and their functional significance. The chest. Bones of the trunk and their connections. Human skull: functions, structure. The cerebral and facial parts of the skull. Joints of the skull bones: sutures, temporomandibular joint.

The connection of the spine to the skull. Additional skeleton: the skeleton of the upper and lower extremities.

Upper limb skeleton: shoulder girdle, free upper limb. Joints of the bones of the upper limb. Skeleton of the lower limb: belt of the lower limb, free lower limb.

2.2. Syndesmology

The main joints and other joints of the bones of the lower extremities. Features of the human skeleton associated with upright walking, work and articulate speech. First aid for bruises, sprains, dislocations and fractures.

2.3. The structure and functions of skeletal muscles - Myology

The concept and functions of skeletal muscles. The change in the total mass of skeletal muscles from body weight depending on age. The general structure of the muscle. Classification of skeletal muscles (by shape, direction of muscle fibers, location, functions). Muscle auxiliaries and their significance. The main muscle groups of the human body – head, neck, trunk, limbs – location, functions.

Age-sex characteristics of the musculoskeletal system: patterns of growth and development of bones and muscles: unidirectionality, irreversibility, uneven pace, heterochrony. Periods of ossification. Bone criteria of biological maturity. Age-related features of the skull, vertebral column, chest, pelvis, bones of the upper and lower extremities. Age-related features of the muscular system. The specifics of the bone and muscle systems, taking into account gender.

3. Internal organs - Splanchnology

Hollow (tubular) and parenchymal internal organs. The structure of the walls of hollow organs. General characteristics of internal organs.

The digestive system. The digestive tract and digestive glands. The structure of the walls of the digestive tract. The oral cavity, the structure of its walls. The organs of the oral cavity. The pharynx, its walls. The esophagus. The stomach, the microscopic structure of its wall. Small and large intestines. Features of the structure of their walls. The pancreas. The liver, its microscopic structure. The gallbladder.

The respiratory system. The nasal cavity, its division into olfactory and respiratory parts. The larynx, its cartilages, joints, ligaments, muscles. The larynx as an organ of vocal formation. Trachea and bronchi. Lungs: topography, lobes, surfaces. Microscopic structure of the lungs. Acinus is a structural and functional unit of the lung. Pleural cavity, mediastinum. The relationship between the respiratory and cardiovascular systems.

Organs of excretion. The urinary system. Kidneys, their position, fixation, macro- and microscopic structure. The nephron is a structural and functional unit of the kidney. Features of blood supply to the kidneys. Ureters, bladder, urethra and sphincters, their meaning.

4. Cardioangiology

The cardiovascular system. Meaning. The division of the cardiovascular system into circulatory and lymphatic. The circulatory system. Blood circulation. Circulatory organs: heart, blood vessels. The topography of an adult's heart in connection with the vertical position of the body. The pericardial bag. The external structure of the heart. The internal structure of the heart: walls, cavities, valves. Features of the heart muscle. The heart's own vessels. Blood vessels: capillaries, veins and arteries. The structure of their walls. Circulatory circles. Vessels of the small circle of blood circulation. Arteries and veins of the large circulatory system. Branches of the aortic arch, thoracic and abdominal aorta. The systems of the superior and inferior vena cava. The effect of physical activity on the heart and blood vessels.

The lymphatic system and its significance. Lymphatic capillaries, vessels, nodes, ducts. The structure of the lymph nodes. Central and peripheral organs of the immune system: structure, functions. The central organs of the immune system: bone marrow, thymus (thymus gland). Peripheral organs of the immune system: tonsils, appendix, lymph nodes, spleen, accumulation of lymphoid tissue (lymphoid or Peyer plaques) along the respiratory tract and digestive organs.

5. Neurology

The central nervous system. Functions of the nervous system. Features of the structure of nervous tissue. A neuron is a structural and functional unit of the nervous system. The central and peripheral parts of the nervous system. The concept of the somatic and autonomic nervous system. The membranes of the brain. The structure and functions of the brain and spinal cord. Reflex arcs. The conductive pathways of the spinal cord.

Departments of the brain. Cytoarchitectonics of the cortex.

The peripheral nervous system. Spinal nerves. Cranial nerves.

6. Anatomy of the head and neck

The structure of the head and neck. Anatomy of the head and neck, blood supply and innervation

Colloquium "Anatomy of the head and neck"

7. The oral cavity

The structure and anatomy of the oral cavity

Colloquium "Oral cavity"

4. Учебно-методическое обеспечение самостоятельной работы обучающихся

Самостоятельная работа обучающихся включает в себя подготовку к контрольным вопросам и заданиям для текущего контроля и промежуточной аттестации по итогам освоения дисциплины приведенным в п. 5.

- открытый онлайн-курс МООС "Открытый онлайн-курс МООС "Рабочая тетрадь к семинарским и практическим занятиям по предмету "Нормальная анатомия" раздел "Нейрология" : учебно- методическое пособие / Е. В. Крылова, С. В. Копылова, Д. А. Данилова ; ННГУ им. Н. И. Лобачевского, Институт биологии и биомедицины, Кафедра физиологии и анатомии. - Нижний Новгород : Изд-во ННГУ, 2022. - 65 с. - Текст : электронный"" (<http://e-lib.unn.ru/MegaPro/UserEntry?Action=FindDocs&ids=823931&idb=0>).).

5. Assessment tools for ongoing monitoring of learning progress and interim certification in the discipline (module)

5.1 Model assignments required for assessment of learning outcomes during the ongoing monitoring of learning progress with the criteria for their assessment:

5.1.1 Model assignments (assessment tool - Colloquium) to assess the development of the competency ОПК-8:

1. Explain the differences in the structure of the walls of arteries, veins and capillaries in connection with their functions.
2. Find the relationship between the function performed and the features of the structure of muscle tissues.
3. Explain what kind of disorders occur when the spinal cord is completely or partially severed.
4. Name the functional disorders that occur when I (II, III, IV... XII) pairs of cranial nerves are damaged.
5. Explain how the bones grow in length and thickness.
6. Explain the morphological changes that occur in the musculoskeletal system under the influence of static and dynamic loads.
7. Explain what changes occur in the cardiovascular system during exercise.
8. Find the cause-and-effect relationships between injuries of the musculoskeletal system and neglect of warm-up during physical education.
9. Explain the differences in the structure of the walls of the esophagus, stomach, small and large intestines.
10. Explain the characteristics of the mucous membranes of the respiratory, digestive and excretory systems.

5.1.2 Model assignments (assessment tool - Colloquium) to assess the development of the competency ОПК-9:

1. The external structure and shape of bones. Classification of bones. Tubular bones. Spongy bones. Sesamoid bones. Flat bones. Air-bearing bones. Mixed bones. The internal architecture of the bone. The chemical composition. The structure of the periosteum. Bone embryogenesis. Bone growth.
2. The structure of the joints.
3. Classification of muscles. Long muscles. Short muscles. Broad muscles. Round muscles. Simple muscles. Feathery muscles. Superficial and deep, external and internal, lateral and medial, single-articular, double-articular, multi-articular muscles. Muscles are synergists. Muscles are antagonists. Flexors and extensors. Adductors and abductors. Rotators - supinators and pronators. Levators. Depressors. Sphincters. Constrictors.
4. A large circle of blood circulation. The arteries of the great circle. The aorta. Coronary arteries. The descending aorta. Thoracic aorta. Abdominal aorta.
5. The middle brain. The roof of the midbrain. The four hills. Visual tubercles. Auditory tubercles. The nuclei of gray matter. The red core. A black substance. The white matter of the midbrain. The legs of the big brain. The pathways of the midbrain. The reticular formation of the midbrain. Sylvian water supply.

Assessment criteria (assessment tool — Colloquium)

Grade	Assessment criteria
outstanding	A high level of training, impeccable command of theoretical material, the student demonstrates a creative approach to solving non-standard situations. The student gave a complete and detailed answer to all the theoretical questions of the ticket, confirming the theoretical material with practical examples. The student actively worked in practical classes. 100% completion of control exam tasks.
excellent	High level of training with minor mistakes. The student gave a complete and detailed answer to all the theoretical questions of the ticket, confirms the theoretical material with practical examples. The student actively worked in practical classes. Completion of control exam tasks by 90% and above.
very good	Good preparation. The student gives an answer to all the theoretical questions of the ticket, but there are inaccuracies in the definitions of concepts, processes, etc. The student actively worked in practical classes. Completion of control exam tasks from 80 to 90%.
good	In general, good preparation with noticeable mistakes or shortcomings. The student gives a complete answer to all theoretical questions of the ticket, but there are inaccuracies in the definitions of concepts, processes, etc. Mistakes are made when answering additional and clarifying questions from the examiner. The student worked in practical classes. Completion of control exam tasks from 70 to 80%.
satisfactory	Minimum sufficient level of training. The student shows a minimum level of theoretical knowledge, makes significant mistakes, but when answering leading questions, he can orient himself correctly and give the correct answer in general terms. The student attended practical

Grade	Assessment criteria
	classes. Completion of control exam tasks from 50 to 70%.
unsatisfactory	The preparation is insufficient and requires additional study of the material. The student gives erroneous answers, both to the theoretical questions of the ticket, and to the leading and additional questions of the examiner. The student missed most of the practical classes. Completion of control exam tasks up to 50%.
poor	The preparation is absolutely insufficient. The student does not answer the questions posed. The student was absent from most lectures and practical classes. The completion of control exam tasks is less than 20%.

5.2. Description of scales for assessing learning outcomes in the discipline during interim certification

Шкала оценивания сформированности компетенций

Уровень сформированности компетенций (индикатора достижения компетенций)	плохо	неудовлетворительно	удовлетворительно	хорошо	очень хорошо	отлично	превосходно
	не зачтено			зачтено			
<u>Знания</u>	Отсутствие знаний теоретического материала. Невозможность оценить полноту знаний вследствие отказа обучающегося от ответа	Уровень знаний ниже минимальных требований. Имели место грубые ошибки	Минимально допустимый уровень знаний. Допущено много негрубых ошибок	Уровень знаний в объеме, соответствующем программе подготовки. Допущено несколько негрубых ошибок	Уровень знаний в объеме, соответствующем программе подготовки. Допущено несколько несущественных ошибок	Уровень знаний в объеме, соответствующем программе подготовки. Ошибок нет.	Уровень знаний в объеме, превышающем программу подготовки.
<u>Умения</u>	Отсутствие минимальных умений. Невозможность оценить наличие умений вследствие отказа обучающегося от ответа	При решении стандартных задач не продемонстрированы основные умения. Имели место грубые ошибки	Продemonстрированы основные умения. Решены типовые задачи с негрубыми ошибками. Выполнены все задания, но не в полном объеме	Продemonстрированы все основные умения. Решены все основные задачи с негрубыми ошибками. Выполнены все задания в полном объеме, но некоторые с недочетами	Продemonстрированы все основные умения. Решены все основные задачи. Выполнены все задания в полном объеме, но некоторые с недочетами.	Продemonстрированы все основные умения. Решены все основные задачи с отдельными несущественными недочетами, выполнены все задания в полном	Продemonстрированы все основные умения. Решены все основные задачи. Выполнены все задания, в полном объеме без недочетов

						объеме	
<u>Навыки</u>	Отсутствие базовых навыков. Невозможность оценить наличие навыков вследствие отказа обучающегося от ответа	При решении стандартных задач не продемонстрированы базовые навыки. Имели место грубые ошибки	Имеется минимальный набор навыков для решения стандартных задач с некоторым и недочетами	Продемонстрированы базовые навыки при решении стандартных задач с некоторым и недочетами	Продемонстрированы базовые навыки при решении стандартных задач без ошибок и недочетов	Продемонстрированы навыки при решении нестандартных задач без ошибок и недочетов	Продемонстрирован творческий подход к решению нестандартных задач

Scale of assessment for interim certification

Grade		Assessment criteria
pass	outstanding	All the competencies (parts of competencies) to be developed within the discipline have been developed at a level no lower than "outstanding", the knowledge and skills for the relevant competencies have been demonstrated at a level higher than the one set out in the programme.
	excellent	All the competencies (parts of competencies) to be developed within the discipline have been developed at a level no lower than "excellent",
	very good	All the competencies (parts of competencies) to be developed within the discipline have been developed at a level no lower than "very good",
	good	All the competencies (parts of competencies) to be developed within the discipline have been developed at a level no lower than "good",
	satisfactory	All the competencies (parts of competencies) to be developed within the discipline have been developed at a level no lower than "satisfactory", with at least one competency developed at the "satisfactory" level.
fail	unsatisfactory	At least one competency has been developed at the "unsatisfactory" level.
	poor	At least one competency has been developed at the "poor" level.

5.3 Model control assignments or other materials required to assess learning outcomes during the interim certification with the criteria for their assessment:

5.3.1 Model assignments (assessment tool - Control questions) to assess the development of the competency ОПК-8

1. Development of the digestive system. The relationship of the stomach and intestines with the peritoneum at different stages of ontogenesis (dorsal and ventral mesentery of the stomach and intestines).
2. Oral cavity: lips, vestibule of the mouth, hard and soft palate. Their structure, functions, blood supply and innervation.
3. Teeth are milk and permanent, their structure, changeability. Dentition, formula of milk and permanent teeth. Blood supply and innervation of teeth.

4. Tongue (tongue muscles, papillae), development, structure, functions, its blood supply, innervation. Regional lymph nodes.
5. Sublingual and submandibular salivary glands: topography, structure, excretory ducts, blood supply and innervation.
6. Parotid salivary gland: topography, structure, excretory duct, blood supply and innervation.
7. Pharynx, its topography, structure, blood supply and innervation. Regional lymph nodes. The lymphoid ring of the pharynx.
8. Esophagus: topography, structure, blood supply and innervation. Regional lymph nodes of the esophagus.
9. Stomach: anatomy, topography, X-ray image, blood supply and innervation. Regional lymph nodes.
10. The small intestine, its departments, their topography, relation to the peritoneum, wall structure, blood supply, innervation.
11. Duodenum: its parts, structure, topography, relation to the peritoneum, blood supply, innervation, regional lymph nodes.
12. Mesenteric part of the small intestine (jejunum and iliac), wall structure, blood supply, innervation, regional lymph nodes.
13. The large intestine: its departments, their topography, relation to the peritoneum; wall structure, blood supply, innervation, regional lymph nodes, X-ray image.
14. Caecum: structure, relation to the peritoneum, topography of the appendix. Blood supply, innervation of the caecum and appendix.
15. Rectum: topography, relation to the peritoneum, wall structure, blood supply and innervation, regional lymph nodes,
16. Liver: its development, structure, topography, blood supply and innervation, regional lymph nodes.
17. The gallbladder, its structure, topography, the excretory ducts of the gallbladder and liver. Blood supply and innervation.
18. Pancreas: development, topography, structure, excretory ducts, blood supply, innervation, regional lymph nodes.
19. The topography of the peritoneum in the upper floor of the abdominal cavity is a skillful omentum. Omentum, hepatic, pre-pancreatic bags, their walls.
20. Topography of the peritoneum in the middle and lower floors of the abdominal cavity. A large oil seal. "Pockets", lateral canals, mesenteric sinuses in the walls of the peritoneal cavity.

5.3.2 Model assignments (assessment tool - Control questions) to assess the development of the competency ОПК-9

1. Development of the digestive system.

2. The oral cavity: its sections, lips, hard and soft palate. Their structure, blood supply and innervation.
3. Teeth are milk and permanent, dental formula, blood supply and innervation.
4. Language: structure, functions, its blood supply, innervation, regional lymph nodes.
5. Sublingual and submandibular salivary glands: topography, structure, excretory ducts, blood supply, innervation.
6. Parotid salivary gland: topography, structure, excretory duct, blood supply, innervation.
7. Pharynx: its topography, structure, blood supply, innervation. The lymphoid ring of the pharynx.
8. Esophagus: topography, structure, blood supply, innervation, regional lymph nodes.
9. Stomach: structure, topography, blood supply, innervation, regional lymph nodes, X-ray image.
10. The small intestine: its departments, their topography, relation to the peritoneum, wall structure, blood supply, innervation, regional lymph nodes.
11. Duodenum: its parts, structure, topography, relation to the peritoneum, blood supply, innervation.
12. The large intestine: its departments, their topography, relation to the peritoneum, structure, blood supply, innervation, regional lymph nodes.
13. Caecum: structure, relation to the peritoneum, topography of the appendix, blood supply, innervation.
14. Rectum: topography, relation to the peritoneum, structure, blood supply and innervation, regional lymph nodes.
15. Liver: its development, structure, topography, functions. Excretory ducts of the gallbladder and liver; blood supply and innervation.
16. Pancreas: development, topography, structure, functions, excretory ducts, blood supply and innervation.
17. Topography of the peritoneum of the upper floor of the abdominal cavity. Small oil seal and oil seal bag.
18. Topography of the peritoneum of the middle and lower floors of the abdominal cavity. A large oil seal.
19. Retroperitoneal space: organs located in it, lymph nodes.
20. Nasal cavity (olfactory and respiratory areas), blood supply and innervation of its mucous membrane.
21. Larynx: structure, topography, functions. Its blood supply and innervation.
22. Trachea and bronchi. Their structure, topography, blood supply and innervation.
23. Lungs: development, topography, structure, X-ray image, blood supply, innervation, regional lymph nodes.
24. Pleura: its divisions, borders, pleural sinuses.

25. Mediastinum: departments, organs of the mediastinum.
26. Kidneys: development, topography, structure, membranes, blood supply. Kidney abnormalities.
27. Ureters, bladder. Their structure, topography, blood supply, and innervation.
28. Male external genitalia, urethra, its sexual characteristics.
29. Testicle, an appendage of the testicle. Their development, structure, blood supply, innervation. The shell of the testicle.
30. The spermatic cord, its constituent elements.
31. Prostate gland, seminal vesicles, bulbo-urethral glands; their structure, topography, functions.
32. Ovary: its topography, structure, relation to the peritoneum, blood supply, innervation.
33. Uterus: topography, structure, relation to the peritoneum, blood supply, lymph outflow pathways.
34. Fallopian tube: structure, functions, relation to the peritoneum, blood supply and innervation.
35. Vagina: topography, structure, blood supply.
36. Female external genitalia, their structure, blood supply.
37. Muscles and fascia of the male and female perineum. Their blood supply and innervation.
38. Serous membranes and serous cavities (general characteristics), structure and functions.
39. Peritoneum: its structure and functions. The ratio of organs to the peritoneum.
1. General anatomy of blood vessels, patterns of their location and branching. Main, extraorgan and intraorgan vessels. Age-related changes in blood vessels. Characteristics of the microcirculatory bed.
2. The microcirculatory bed, the patterns of its structure in various organs and tissues.
3. Anastomoses of arteries and anastomoses of veins. Ways of indirect (collateral) blood flow (examples).
4. Venous plexuses. Intersystem and intersystem anastomoses of veins (kava-caval, kava-kava-portal, porto-caval), their structure, topography.
5. Features of fetal blood supply and changes in the hemostatic system after birth.
6. Heart: development, topography, projection of the boundaries and valves of the heart on the anterior chest wall. X-ray image of the heart.
7. Chambers of the heart, their anatomy, relief of the inner surface. Papillary muscles.
8. Features of the structure of the myocardium of the atria and ventricles. The conductive system of the heart.
9. Heart valves, their structure, the mechanism of regulation of blood flow in the heart.

10. Pericardium, its structure, topography, sinuses of the pericardium,
11. Arteries of the heart. Features and variants of their branching. The veins of the heart.
12. Innervation of the heart. Extracardiac and intracardiac nerve plexuses, their topography.
13. Vessels of the large circle of blood circulation (general characteristics). Patterns of distribution of arteries in hollow and parenchymal organs.
14. Vessels of the small (pulmonary) circulatory system (general characteristics). Patterns of distribution of arteries and veins in the lungs.
15. The aorta and its departments. Branches of the aortic arch, their anatomy, topography, areas of branching (blood supply).
16. Branches of the thoracic part of the aorta (parietal and visceral), their anatomy, topography, branching areas.
17. Parietal and visceral (paired and unpaired) branches of the abdominal part of the aorta. Features of their branching and anastomosis.
18. Common, external and internal iliac arteries, their branches, branching areas.
19. The external carotid artery, its topography, branches and areas, their blood supply.
20. The internal carotid artery, its topography, branches and areas supplied by them.
21. Subclavian artery: topography, branches and areas supplied by them.
22. Arteries of the brain. The large arterial (Willisian) circle of the brain. Sources of blood supply to the brain.
23. Axillary and brachial arteries: topography, branches and areas supplied with blood by them. Blood supply to the shoulder joint.
24. Arteries of the forearm, topography, branches, areas supplied with blood by them. Blood supply to the elbow joint.
25. Arteries of the hand. Arterial palmar arches and their branches.
26. Femoral artery: its topography, branches and areas supplied with blood by it. Blood supply to the hip joint.
27. Popliteal artery, its topography and branches. Blood supply to the knee joint.
28. Arteries of the lower leg: topography, branches and areas supplied with blood by them. Blood supply to the ankle joint.
29. Arteries of the foot, topography, branches, areas of blood supply.
30. The superior vena cava, the sources of its formation and topography. Unpaired and semi-paired veins, their tributaries and anastomoses.

31. The brachiocephalic veins, their topography. Venous blood outflow routes from the head, neck and upper extremities.
32. Veins of the brain. Venous sinuses of the dura mater. Venous graduates (emissaries) and diploic veins.
33. Intracranial and extracranial ways of venous blood outflow from the brain.
34. Inferior vena cava, sources of its formation and topography. Tributaries of the inferior vena cava and their anastomoses.
35. Portal vein. Its tributaries, their topography, branching of the portal vein in the liver. Anastomoses of the portal vein and its tributaries.
36. Superficial and deep veins of the upper limb, their anatomy, topography, anastomoses.
37. Superficial and deep veins of the lower extremity, their anatomy, topography, anastomoses.
38. Cava-caval and porto-caval anastomoses, their practical significance.

Assessment criteria (assessment tool — Control questions)

Grade	Assessment criteria
outstanding	A high level of training, impeccable command of theoretical material, the student demonstrates a creative approach to solving non-standard situations. The student gave a complete and detailed answer to all the theoretical questions of the ticket, confirming the theoretical material with practical examples. The student actively worked in practical classes. 100% completion of control exam tasks.
excellent	High level of training with minor mistakes. The student gave a complete and detailed answer to all the theoretical questions of the ticket, confirms the theoretical material with practical examples. The student actively worked in practical classes. Completion of control exam tasks by 90% and above.
very good	Good preparation. The student gives an answer to all the theoretical questions of the ticket, but there are inaccuracies in the definitions of concepts, processes, etc. The student actively worked in practical classes. Completion of control exam tasks from 80 to 90%.
good	In general, good preparation with noticeable mistakes or shortcomings. The student gives a complete answer to all theoretical questions of the ticket, but there are inaccuracies in the definitions of concepts, processes, etc. Mistakes are made when answering additional and clarifying questions from the examiner. The student worked in practical classes. Completion of control exam tasks from 70 to 80%.
satisfactory	Minimum sufficient level of training. The student shows a minimum level of theoretical knowledge, makes significant mistakes, but when answering leading questions, he can orient himself correctly and give the correct answer in general terms. The student attended practical classes. Completion of control exam tasks from 50 to 70%.
unsatisfactory	The preparation is insufficient and requires additional study of the material. The student gives

Grade	Assessment criteria
	erroneous answers, both to the theoretical questions of the ticket, and to the leading and additional questions of the examiner. The student missed most of the practical classes. Completion of control exam tasks up to 50%.
poor	The preparation is absolutely insufficient. The student does not answer the questions posed. The student was absent from most lectures and practical classes. The completion of control exam tasks is less than 20%.

5.3.3 Model assignments (assessment tool - Control questions) to assess the development of the competency ОПК-8

1. Bone as an organ: its development, structure, growth. Classification of bones.
2. Vertebrae: their structure in various parts of the spine, variants and anomalies.
3. Connections between the vertebrae. Atlanto-occipital joint.
4. The spinal column as a whole: the structure, the formation of its bends, movements; the muscles that produce these movements.
5. Ribs and sternum: their development, structure, development options. Rib joints with vertebrae and sternum, biomechanics of these joints. The chest as a whole, its typological features.
6. The development of the skull in phylogeny and ontogenesis. Age and sex characteristics of the skull.
7. Variants and anomalies of the skull bones.
8. Bones of the facial skull.
9. Bones of the cerebral skull (frontal, parietal, occipital).
10. The temporal bone, its parts, openings, channels and their contents.
11. The sphenoid bone, its parts, holes, and their purpose.
12. The pterygoid fossa, its walls, holes and their contents.
13. Nasal cavity, paranasal sinuses. Their meaning, variants of the structure.
14. The inner surface of the base of the skull: holes and their purpose.
15. The outer surface of the base of the skull: holes and their purpose.
16. Anatomical and biomechanical classification of bone joints. Continuous bone connections.

17. The structure of the joint. Classification of joints according to the shape of the articular surfaces, the number of axes and function.
18. Temporomandibular joint: the structure, shape, muscles acting on it, their blood supply, innervation.
19. Development and structure of the skeleton of the upper limb.
20. The bones of the shoulder girdle, their connections.
21. Shoulder joint: structure, shape, biomechanics; muscles acting on it, their innervation and blood supply.
22. Bones of the forearm and hand, their X-ray image.
23. The elbow joint, the features of its structure. The muscles acting on it, their innervation and blood supply.
24. Wrist joint and hand joints: structure, shape, movements; muscles acting on the joints of the hand, their blood supply and innervation.
25. Development and structure of the skeleton of the lower limb, features of the anatomy of the lower limb as an organ of support and locomotion.
26. Pelvic bones and their joints. The pelvis as a whole. Age and gender characteristics; the size of the female pelvis.
27. Hip joint: structure, shape, biomechanics. The muscles acting on it, their blood supply and innervation. His X-ray image.
28. Knee joint: the structure, the volume of movements, the muscles acting on it, their blood supply and innervation, X-ray image of the joint.

5.3.4 Model assignments (assessment tool - Control questions) to assess the development of the competency ОПК-9

1. The outer nose. Nasal cavity (olfactory and respiratory areas). Blood supply and innervation of the nasal mucosa.
2. Larynx: cartilages, their connection. The elastic cone of the larynx. Relief of the inner surface of the mucous membrane of the larynx.
3. Laryngeal muscles, their classification, functions. Innervation and blood supply to the larynx.
4. Trachea and bronchi. Their structure, topography, blood supply and innervation.
5. Lungs: development, topography. Segmental structure of the lungs, acinus. X-ray image of the lungs.
6. Blood supply and innervation of the lungs. Lymph outflow routes from the right and left lungs, their regional lymph nodes.
7. Anatomy and topography of the roots of the right and left lungs. Anatomy and topography of tracheobronchial lymph nodes.

8. Pleura, its divisions, borders; pleural cavity, pleural sinuses.
9. Mediastinum: departments, their topography; mediastinal organs.

Assessment criteria (assessment tool — Control questions)

Grade	Assessment criteria
pass	The level of knowledge in the volume corresponding to the training program. Several gross mistakes were made.
fail	The level of knowledge is below the minimum requirements. There were gross mistakes.

6. Учебно-методическое и информационное обеспечение дисциплины (модуля)

Основная литература:

1. Анатомия человека : в 2 томах. Т. I : учебник / Сапин М.Р.; Никитюк Д.Б.; Николенко В.Н.; Ключкова С.В. - Москва : ГЭОТАР-Медиа, 2024. - 528 с. - ISBN 978-5-9704-8136-3., <https://e-lib.unn.ru/MegaPro/UserEntry?Action=FindDocs&ids=878725&idb=0>.
2. Привес М.Г. Анатомия человека : учебник / Привес М.Г.; Лысенков Н.К.; Бушкович В.И. - Москва : ГЭОТАР-Медиа, 2023. - 896 с. - ISBN 978-5-9704-7496-9., <https://e-lib.unn.ru/MegaPro/UserEntry?Action=FindDocs&ids=838603&idb=0>.

Дополнительная литература:

1. Сапин М.Р. Атлас анатомии человека для стоматологов : учебное пособие / Сапин М.Р.; Никитюк Д.Б.; Литвиненко Л.М. - Москва : ГЭОТАР-Медиа, 2009. - 600 с. - ISBN 978-5-9704-0926-8., <https://e-lib.unn.ru/MegaPro/UserEntry?Action=FindDocs&ids=772356&idb=0>.

Программное обеспечение и Интернет-ресурсы (в соответствии с содержанием дисциплины):

ЭБС «Юрайт». Режим доступа: <http://biblio-online.ru>.
 ЭБС «Консультант студента». Режим доступа: <http://www.studentlibrary.ru>.
 ЭБС «Лань». Режим доступа: <http://e.lanbook.com/>.
 ЭБС «Znaniy.com». Режим доступа: www.znaniy.com.

7. Материально-техническое обеспечение дисциплины (модуля)

Учебные аудитории для проведения учебных занятий, предусмотренных образовательной программой, оснащены мультимедийным оборудованием (проектор, экран), техническими средствами обучения.

Помещения для самостоятельной работы обучающихся оснащены компьютерной техникой с возможностью подключения к сети "Интернет" и обеспечены доступом в электронную информационно-образовательную среду.

Программа составлена в соответствии с требованиями ФГОС ВО по направлению подготовки/специальности 31.05.03 - Dentistry.

Авторы: Жданова Мария Леонидовна, кандидат медицинских наук, доцент.

Заведующий кафедрой: Тиунова Наталья Викторовна, доктор медицинских наук.

Программа одобрена на заседании методической комиссии от 28 ноября 2024, протокол № 9.