THE MINISTRY OF SCIENCE, HIGHER EDUCATION AND INNOVATIONS OF KYRGYZ REPUBLIC
OSH STATE UNIVERSITY
INTERNATIONAL MEDICAL FACULTY
Department of anatomy, histology and normal physiology

SYLLABUS

of discipline: "Clinical anatomy of vessels and nerves"
for full-time students, teaching in the direction of:
"560001 – General medicine" (GM)

Специальность (направление)	**Лечебное дело (GM)**	**Код курса**	
Язык обучения	**английский**	**Дисциплина**	**Clinical anatomy of vessels and nerves**
Академический год	**2025-2026гг.**	**Количество кредитов**	**4 кредита**
Преподаватели	**Нуруев М.К. Джолдубаев С.Дж. Ашимов У.А.**	**Семестр**	**3-семестр**
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Консультация (время/ауд.)	**15-00 №102**	**Место (здание/ауд.)**	**102**
Форма обучения (дневная/заочная, вечерняя/дистанционная)	**Дневная**	**Тип курса (обязательный/ элективный)**	**элективный**

Date: ***2025-2026-academic year***

Osh, 2025

1. The purpose of the discipline:

The acquisition of a comprehensive understanding of the relationship between vessels, nerves and surrounding tissues, as well as the formation of general professional medical competence in matters of the structural organization of the basic processes of the body.

2. Learning outcomes (LO) and student competencies formed in the process of studying the discipline "Clinical anatomy of vessels and nerves". In the process of mastering the discipline, the student will achieve the following learning outcomes (**LO**) and will have the appropriate competencies:

Code LO BEP and its wording	Competencies	*LO discipline and its wording*
LO$_{BEP}$-1: is able to use basic knowledge of the humanities, natural sciences and economics in professional work;	**GC-1:** is able to analyze socially significant problems and processes, to use in practice the methods of the humanities, natural sciences, biomedical and clinical sciences in various types of professional and social activities;	**LO$_{D}$-1:** able and ready to analyze the main physical phenomena and biological laws underlying the processes occurring in the human body, the origin and development of life, anthropogenesis and human ontogenesis;
LO$_{BEP}$-8: able to assess morphofunctional, physiological conditions and pathological processes and apply methods of investigation of adult and pediatric patients to solve professional problems;	**AC-3:** is able and ready to assess morphological and functional and physiological states and pathological processes in the human body, taking into account their age and sex groups for solving professional problems;	**LO$_{D}$-2:** able and ready to understand the issues of the structural and functional organization of organs and systems, determining their location and projection onto the surface of the body, correct description using anatomical terms used in modern medical practice, taking into account age, sex and individual characteristics of the human body;
LO$_{BEP}$-11: ready on their own how to apply basic knowledge in the field of research activities to solve professional problems	**IC-4:** willingness to work with information from various sources. **PC-27:** ready to study scientific and medical information, domestic and foreign experience on the research topic.	LO$_{D}$-3: is able and ready to use educational, scientific, popular science literature to carry out scientific research using anatomical methods, as well as anatomical terminology when maintaining medical records in accordance with international standards.

3. Prerequisites course

In accordance with the curriculum, the study of clinical anatomy of nerve vessels is carried out in the third semester. The basic knowledge required to study the discipline is formed:

* in the cycle of natural science, medical and biological disciplines: biology; normal anatomy, histology, embryology, Cytology; normal and pathological physiology.

4. Postrequisites of the course

The foundations are laid for students to study propaedeutics of clinical disciplines and develop skills to apply knowledge of clinical anatomy of blood vessels and nerves in the process of further study of all clinical disciplines and in future professional activities. Based on the requests and requirements of clinical - internal diseases, surgical diseases, obstetrics and gynecology, etc., as well as medical and preventive disciplines, the teaching of clinical anatomy of blood vessels and nerves pays special attention to applied aspects.

5. Map of competencies of the discipline "Clinical anatomy of vessels and nerves"

№	Competence / Topic	GC-1	AC-3	PC-27	Number
1.	Introduction to the clinical anatomy of blood vessels and nerves. Vessels and nerves of the mediastinum	+	+	+	3
2.	Superficial and deep vessels and nerves of the head and neck	+	+	+	3
3.	Vessels and nerves of the upper limb	+	+	+	3
4.	Vessels and nerves of the abdominal cavity.	+	+	+	3
5.	Pelvic vessels and nerves	+	+	+	3
6.	Vessels and nerves of the lower limb	+	+	+	3

6. TECHNOLOGICAL MAP OF THE 2ND YEAR, SPECIALTY: "GENERAL MEDICINE" DISCIPLINE "CLINICAL ANATOMY OF BLOOD VESSELS AND NERVES»

№	Full name students, group	Lesson №1						
		date			2025y.			Total
		Attend/ class	drawings	summary	tasks	Practical part		
						CH.	rework	
		8	12	10	10	20p		60p.

7. COURSE SUMMARY

- Introduction to the clinical anatomy of blood vessels and nerves.
- Clinical anatomy of the vessels and nerves of the mediastinum
- Clinical anatomy of blood vessels and nerves in the head and neck
- Clinical anatomy of vessels and nerves of the upper limb
- Clinical anatomy of abdominal vessels and nerves
- Clinical anatomy of pelvic vessels and nerves
- Clinical anatomy of vessels and nerves of the lower limb

8. THEMATIC PLAN FOR THE DISTRIBUTION OF HOURS BY CLASS TYPE

№	*Name of sections, topics of the discipline*	Total	Classroom lesson			SWS	Educational technology	Estimated funds
			lectures	Practical lessons				
	Semester III							
	Module 1							
1	Introduction to the clinical anatomy of blood vessels and nerves. Clinical anatomy of mediastinal vessels and nerves	10	2	2	-	6		
2	Clinical anatomy of the vessels and nerves of the head and neck.	12	2	4	-	6		
3	Clinical anatomy of vessels and nerves of the upper limb	10	2	2	-	6		

4	Clinical anatomy of abdominal vessels and nerves	12	2	6	-	4		
5	Clinical anatomy of pelvic vessels and nerves	8	2	2	-	4		
6	Clinical anatomy of vessels and nerves of the lower limb	8	2	2	-	4		
	Total Module 1:	**60 h**	**12h**	**18h**	-	**30h**		
	Total	**60 h**	**12h**	**18h**	-	**30h**		

9. EDUCATIONAL AND METHODOLOGICAL SUPPORT OF THE DISCIPLINE

A) Technical training tools:

Use of sectional (study) halls, museums, bone rooms and preparation rooms to familiarize students with natural (corpses and cadaver material) and artificial materials. Tables, models, anatomical tools.

Multimedia complex (laptop, projector, screen), TV, video camera, slide show, video recorder, video and DVD players, monitors, multimedia presentations, tables. Sets of slides for various sections of the discipline. A set of tables for various sections of the discipline. Situational tasks, videos. Wood boards.

B) Educational and informational materials

Main literature:

1. Clinical anatomy. Snell. 2014.
2. Atlas human anatomy. Netter. 2010.
3. Clinical anatomy of blood vessels and nerves. Textbook. Edition 6-E. I. V. Gaivoronsky, G. I. Nichiporuk-St. Petersburg: "medkniga", 2007. - 144 p.
4. Vessels and nerves of internal organs. Textbook. Edition 6-E. I. V. Gaivoronsky, G. I. Nichiporuk-St. Petersburg: "medkniga", 2010. - 56 p.

Additional literature:

1. Atlas of human anatomy in sections, CT and MRI images / Harold Ellis, Bari M. Logan, Adrian K. Dixon; translated from English By V. Y. Khalatov; ed. Akad. L. L. Kolesnikova, A. Yu. Vasilyeva, E. A. Egorova-M.: publishing house of the GEOTAR-Media group, 2010. - 288 p.
2. Sobotta. Atlas of human anatomy edited by R. Putz, R. Pabst - in 2 vols. Read elsiver LLC, 2010. - 432 p.
3. human Anatomy: Atlas-in 3 t. G. L. Bilich, V. A. Kryzhanovsky, - M.: Publishing group "GEOTAR-Media", 2013. - 624 p.
4. International anatomical nomenclature. - . M, 2003
5. Pocket Atlas of human anatomy. H. Fenish., Minsk, 1996

C) Software, electronic sources:

- http://anatom.hl.ru.
- http://anatom.hut.ru.
- http://anatomia.ru
- http://anatomy-portal.info
- http://db.informika.ru/
- http://doctor.ru/
- http://graphic.org.ru
- http://highwire.stanford.edu/
- http://med.pfu.edu.ru/
- http://medline.mmascience.ru/
- http://uroweb.ru
- http://www.doclad.ru
- http://www.doctorvisus.ru
- http://www.els.net/
- http://www.encyclopedia.ru
- http://www.fbm.msu.ru/
- http://www.infamed.com
- http://www.intra.ru

10. Information by rating

Rating (point)	Letter system	GPA digital equivalent	Traditional system
87 - 100	A	4.0	Fine
74 - 86	B	3.33	Good
	C	3.0	
61 - 73	D	2,33	Satisfactorily
	E	2.0	
31-60	Fx	0	Unsatisfactory
0-30	F	0	Traditional system

11. SCORE POLICY

Grading in exams is based on the principles of objectivity, justice, a comprehensive analysis of the quality of students 'knowledge, and other provisions that contribute to increasing the reliability of assessing students' knowledge and eliminating subjective factors. Assessment of students' knowledge is carried out according to a 100 point system as follows

Assessment is the final stage of the student's educational activity aimed at determining the success of training.

The discipline score is set as the arithmetic average of the grades for the modules for which the discipline is structured (60 points), and from the grades in the final control –exam (40 points).

The grade for the module is defined as the sum of the grades of the current educational activity and the grades of the intermediate modular control, expressed on a multi-point scale (60 points).

I. Module Evaluation

The grade for the module is defined as the sum of the grades of the current educational activity (in points) and the grades of the intermediate modular control (in points), which is set when assessing theoretical knowledge and practical skills. The maximum number of points that a student can gain when studying each module is 30 points (see the appendix).

A) Assessment of current learning activities.

When assessing the mastery of each topic of the module, the student is given points for attendance and for passing the control papers. This takes into account all types of work provided for by the methodological development for studying the topic.

The weight (price in points) of each test in the framework of one module is the same, but may be different for different modules and is determined by the number of practical exercises in the module (see appendix).

The main difference between the control works and the current practical classes is that the student must demonstrate the ability to synthesize theoretical and practical knowledge acquired in the framework of one control work (semantic module). During the tests, control questions, tests, the lexical minimum and situational tasks proposed in the methodological developments for students are considered, and practical skills are fixed and controlled on the topics of the semantic module. The previously studied educational elements are analyzed in terms of morphofunctional relationships and their role in the structure and function of the system, the organism as a whole.

B) Milestone control (colloquium) of semantic modules takes place in two stages:

* oral interview on natural anatomical preparations there.
* written or computer test control;

For testing, 200-250 tests on each topic are offered, of which a computer or a teacher randomly selects 50 tests for 5-6 options. An oral interview is held on the basis of materials from a practical, lecture and extracurricular course with a mandatory demonstration on local drugs. The price in points of midterm control is the same as the price of the current practical training in the framework of this module of discipline. Evaluation criteria for foreign control are set out in the appendix.

Students are only allowed to retake unsatisfactory grades; positive grades are not retaken.

Final control - exam.

Final control is carried out upon completion of the study of all topics of the academic discipline. Students who have attended all classroom classes provided by the curriculum (practical classes,

lectures) are admitted to the final control and, while studying the module, scored no less than the minimum number of points, i.e. 31 points (see OshSU Newsletter No. 19.) .

A score of "1.0" is given to a student who has thoroughly and firmly mastered the material of the sections passed, who expounds it exhaustively, competently and logically. At the same time, the student does not find it difficult to answer when modifying the question, and freely copes with the questions posed.

A score of "0.8" is awarded to a student who has a solid knowledge of the material passed, competently and substantially presents it, does not allow significant inaccuracies in the answer, and does not experience difficulties in answering questions.

A score of "0.6" is awarded to a student who has knowledge of only part of the material, has not mastered its details, covers issues schematically, without analysis and generalizations, admits inaccuracies, insufficiently correct wording, violations of the sequence in the presentation of the program material.

A score of "0.4" is given to a student who has not mastered a significant part of the material and makes significant mistakes.

12. THE POLICY OF COURSE

The educational process is organized on the basis of a credit-modular system in accordance with the requirements of the Bologna process, using a modular rating system for evaluating student performance using the AVN information system.

Students are presented with the following systems of requirements and rules of behavior in the classroom:

1. Compulsory attendance of classes;
2. Activity during classes;
3. Preparation for classes, homework and SRS;
4. Turnout for self-training;

Not allowed:

* Being late and leaving classes
• Use of cell phones during classes
• Fraud and plagiarism
• Late delivery of tasks

The credit-modular system for organizing the educational process is based on the systematic work of students during the entire academic year. Types of training sessions on human anatomy in accordance with the curriculum are:

1. Lectures;
2. Practical training;
3. Independent work of students;
4. Individual work by choice

The topics of the lecture course reveal the problematic issues of the relevant sections of human anatomy.

Practical classes include mastering:

• knowledge of Latin terminology;
* knowledge of the sources and patterns of embryonic development, the structure of human organs and organ systems, and clinical methods of their research (x-ray anatomical method, computed tomography, magnetic resonance imaging (MRI), ultrasound (ultrasound), endoscopy, etc.);
* skills of preparation, demonstration of anatomical formations on natural preparations, models, models;
* assessment of age, gender and individual features of the structure of human organs;
* solving situational problems that have a clinical and anatomical justification.

Independent work involves mastering the ability to:

* anthropometric (macroscopic) description of organs;
* demonstrate organs, parts of organs, and other structures on drugs;
* draw diagrams and drawings based on the topic material;
* interpret the visualized results of clinical research methods (read x-rays, MRI, ultrasound, etc.);

Individual educational and research (uirc) or research (R & d) work of students (optional) involves:

* preparation of a review of scientific literature (abstract);
* preparation of illustrative material on the topics under consideration (presentation, set of tables, diagrams and drawings, etc.);
* production of educational and Museum natural preparations, models;
* participation in Olympiads, etc.

Mastering the topic is monitored in practical classes in accordance with specific goals. It is recommended to use the following forms of current monitoring of students ' level of training:

* written (computer) testing in the scope of control works;
• answers on the tickets and the decision of situational tasks;
* control of practical skills of dissection and demonstration of anatomical preparations, followed by analysis and evaluation of the structure of human organs;
* analysis of topographical and anatomical relationships of human organs and systems (knowledge of the basics of clinical anatomy);

The final control of learning modules is carried out upon their completion and includes:

* computer or written test control on the scope of tests and situational tasks of control works;
* oral interview on anatomical preparations (control of practical skills).

13. LIST OF QUESTIONS AND TASKS ON TOPICS AND FORMS OF CONTROL

Main issues of the ADR "CARDIOVASCULAR SYSTEM"

"Heart and arterial system"

A) questions for students ' classroom work (ARS)

The heart and arteries of the trunk (name, show, and tell):

1. Heart: structure of cavities. Valvular heart apparatus.
2. The structure of the wall of the heart. Conducting system of the heart.
3. Arteries of the heart: branches, areas of blood supply. Heart veins. Types of blood supply.
4. Branches of the thoracic and abdominal aorta, the area of their blood supply.
5. The celiac trunk. Superior mesenteric artery. Inferior mesenteric artery: topography, branches, area of blood supply, anastomoses.
6. Internal iliac artery: topography, branches, blood supply area, anastomoses.
7. External iliac artery: topography, branches.
8. Arteries of upper limb.
9. Axillary artery: topography, departments, branches, areas of blood supply.
10. Brachial artery: topography, branches, blood supply area. Arterial network of the elbow joint.
11. Forearm Arteries: topography of the ulnar and radial arteries, their branches on the forearm, blood supply areas.
12. Arterial network of the wrist.
13. Arteries of the hand: topography, areas of blood supply.
14. Arteries of lower limb
15. Femoral artery: topography, branches, blood supply area.
16. Arterial network of the knee joint.
17. Popliteal artery: topography, branches.
18. Posterior tibial artery: topography, branches, blood supply area
19. Anterior tibial artery: topography, branches, blood supply area
20. Fibular artery: topography, branches, blood supply area.
21. Arteries of the plantar surface of the foot: topography, branches, anastomoses.
22. Artery of the dorsal foot: topography, branches, blood supply area, anastomoses.

B) The arteries of the head and neck (to call, to show and tell):

1. Aorta: parts, branches of the aortic arch: brachiocephalic trunk, common carotid artery.
2. External carotid artery: topography, groups of branches, areas of blood supply.
3. Anterior branches of the external carotid artery, their blood supply areas.

4. Posterior branches of the external carotid artery, their blood supply areas.
5. Medial branch of the external carotid artery, blood supply area.
6. Terminal branches of the external carotid artery, areas of their blood supply.
7. Maxillary artery: departments, branches, blood supply area.
8. Facial artery: branches, blood supply area.
9. Lingual artery: branches, blood supply area.
10. Internal carotid artery: parts, their topography, branches, areas of blood supply.
11. Ocular artery: branches, areas of blood supply.
12. Anterior and middle cerebral arteries: branches, areas of blood supply.
13. Terminal branches of the internal carotid artery. Arterial circle of the brain.
14. Subclavian artery: topography, bilateral differences, divisions, branches, areas of blood supply.
15. Vertebral artery: topography, parts, branches, areas of blood supply.
16. The basilar artery. Posterior cerebral artery. Anastomoses with branches of the internal carotid artery.
17. Internal thoracic artery: branches, blood supply area.
18. Shield-neck trunk, branches, blood supply area.
19. Costal-cervical trunk; branches, areas of blood supply. Transverse artery of the neck.
20. Intersystem anastomoses of the internal carotid with the external carotid and vertebral arteries.
21. Arterial circle of the big brain: structure, variants and anomalies.

C) Questions for students ' classroom independent work (SRSP):
(schematically, draw, call, show and tell):

1. The blood supply of the esophagus.
2. The blood supply of the stomach
3. The blood supply of the duodenum.
4. blood Supply to the jejunum and ileum.
5. The blood supply of the cecum and the vermiform Appendix.
6. The blood supply of the colon.
7. The blood supply of the rectum.
8. The blood supply of the liver and gallbladder.
9. The blood supply of the pancreas.
10. The blood supply of the spleen.
11. The blood supply of the trachea and bronchi.
12. The blood supply of the lung and pleura.
13. Blood flow to the kidneys and ureters.
14. The blood supply of the bladder.
15. The blood supply of the prostate gland.
16. Blood flow to the male internal genital organs.
17. blood Supply to the male external genitals.
18. The blood supply of the uterus and fallopian tubes.
19. The blood supply to the ovary.
20. The blood supply of the vagina.
21. The blood supply of the external female genitalia.
22. The blood supply of the perineum.
23. The blood supply of the adrenal gland.
24. The blood supply of the thymus gland.
25. The blood supply of the heart and pericardium.
26. The blood supply of the breast.
27. The blood supply of the anterior abdominal wall.
28. The blood supply of the tongue.
29. The blood supply of the parotid gland.
30. blood Supply to the submandibular salivary gland.

"Venous and lymphatic systems"
Questions for students ' classroom work (ARS):
Superior Vena cava system (name, show, and tell):

1. Veins of the great circle of blood circulation. The upper hollow vein: topography, roots, branches.
2. Brachiocephalic veins: the roots and tributaries.
3. Internal jugular vein: formation, topography, intracranial tributaries (list).
4. Unpaired sinuses of the Dura mater: structure, topography.
5. Paired sinuses of the Dura mater: structure, topography.
6. Diploic and emissary veins of the skull. Anastomoses with the sinuses of the Dura mater.
7. Veins of the Dura mater of the brain. Brain veins. Veins of the eye socket and labyrinth. Their roots and tributaries
8. Internal jugular vein: formation, topography, extracranial tributaries. Anastomoses with intracranial tributaries.
9. Facial and submandibular veins. Formation, their anastomoses.
10. Superficial veins of the neck. External and anterior jugular veins. Their roots and tributaries.
11. Unpaired and semi-paired veins. Their roots and tributaries.
12. Superficial veins of the upper limb.
13. Deep veins of the upper limb.

Inferior Vena cava system (name, show, and tell):

1. inferior Vena cava System: topography, roots, tributaries.
2. Internal iliac vein: topography, tributaries. Venous plexus of the pelvis.
3. External iliac vein: topography, tributaries.
4. Superficial veins of the lower extremity.
5. Deep veins of the lower extremity.
6. Cava-caval anastomoses.

The system of the portal vein (to call, to show and tell):

The system of the portal vein: topography, roots, branches.
Porto-caval anastomoses.
The circulation of the fetus. Changes in the cardiovascular system after birth.

Lymphatic system (name, show, and tell):

1. Thoracic lymphatic duct: topography, variants of formation and confluence.
2. Right lymphatic duct: topography, variants of formation and confluence.
3. Lymph nodes: structure, location patterns, classification.
4. Lymphatic vessels and nodes of the head. The path of the outflow and the confluence point.
5. Lymphatic vessels and nodes of the neck. The path of the outflow and the confluence point.
6. Parietal lymphatic vessels and nodes of the chest cavity.
7. Visceral lymphatic vessels and nodes of the chest cavity.
8. Parietal lymphatic vessels and nodes of the abdominal cavity.
9. Visceral lymphatic vessels and nodes of the abdominal cavity.
10. Lymphatic vessels and pelvic nodes.

The path of the outflow and the confluence point.

b) Questions for extracurricular independent work of students (SRS):
Venous and lymphatic systems (topics for literature reviews and abstracts)

1. Venous system. Regularities of formation of venous plexuses.
2. Venous anastomoses within the anterior abdominal wall and their age-related changes.
3. Diploetic veins, their significance in the outflow of venous blood from the brain.
4. The lymphatic system. Age characteristics.
5. Options for laying and developing the thoracic duct.
6. Features of lymph outflow from the breast.
7. Central organs of immunogenesis: development, structure, age features, developmental abnormalities.

8. Peripheral organs of immunogenesis: development, structure, age features, developmental abnormalities.
9. Possibilities of x-ray examination of blood and lymphatic vessels.
10. About the spleen capsule and spleen pulp.

C) Questions for students ' independent work in the classroom:
(draw, name, show, and tell schematically):

1. Venous and lymphatic outflow from the esophagus.
2. Venous and lymphatic outflow from the stomach
3. Venous and lymphatic outflow from the duodenum.
4. Venous and lymphatic outflow from the jejunum and ileum.
5. Venous and lymphatic outflow from the caecum and Appendix.
6. Venous and lymphatic outflow from the colon.
7. Venous and lymphatic outflow from the rectum.
8. Venous and lymphatic outflow from the liver and gallbladder.
9. Venous and lymphatic outflow from the pancreas.
10. Venous and lymphatic outflow from the spleen.
11. Venous and lymphatic outflow from the trachea and bronchi.
12. Venous and lymphatic outflow from the lung and pleura.
13. Venous and lymphatic outflow from the kidneys and ureters.
14. Venous and lymphatic outflow from the bladder.
15. Venous and lymphatic outflow from the prostate.
16. Venous and lymphatic outflow from the male internal genitals.
17. Venous and lymphatic outflow from the male external genitals.
18. Venous and lymphatic outflow from the uterus and fallopian tubes.
19. Venous and lymphatic outflow from the ovary.
20. Venous and lymphatic outflow from the vagina.
21. Venous and lymphatic outflow from the external female genital organs.
22. Venous and lymphatic outflow from the perineum.
23. Venous and lymphatic outflow from the adrenal gland.
24. Venous and lymphatic outflow from the thymus gland.
25. Venous and lymphatic outflow from the heart and pericardium.
26. Venous and lymphatic outflow from the breast.
27. Venous and lymphatic outflow from the anterior abdominal wall.
28. Venous and lymphatic outflow from the tongue.
29. Venous and lymphatic outflow from the parotid salivary gland.
30. Venous and lymphatic outflow from the submandibular salivary gland.

«PERIPHERAL NERVOUS SYSTEM. THE AUTONOMIC NERVOUS SYSTEM"

Peripheral nervous system

Questions for ARS (name, show, and tell)

1. The structure of the nerve. Motor, sensory, and mixed nerves.
2. Cranial nerves. Classification. Regularities of projections of nuclei on a rhombus. hole.
3. Olfactory nerves. Conducting path of the olfactory analyzer.
4. The optic nerve. Topography. Conducting path of the visual analyzer.
5. III, IV, VI pairs of cranial nerves: nuclei, topography, branches, areas of innervation.
6. V pair of cranial nerves: nuclei, topography, branches, areas of innervation.
7. Ocular nerve: topography, branches, areas of innervation.
8. Maxillary nerve: topography, branches, areas of innervation.
9. Mandibular nerve: nuclei, topography, branches, areas of innervation.
10. VII pair of cranial nerves: nuclei, topography, branches, area of innervation.
11. VIII pair of cranial nerves. Conducting path of the auditory analyzer.
12. VIII pair of cranial nerves. The pathway of the vestibular analyzer.
13. IX pair of cranial nerves: nuclei, topography, branches, areas of innervation.
14. X pair of cranial nerves: nuclei, topography, divisions, bilateral differences, branches of the brain and neck, areas of innervation.
15. XI and XII pairs of cranial nerves: nuclei, topography, branches, areas of innervation. Neck loop.
16. Spinal nerves. The patterns of branching. Posterior branches of the cervical nerves.
17. Cervical plexus: formation, area of innervation, skin branches. Neck loop.
18. Phrenic nerve: topography, area of innervation, bilateral differences.
19. Brachial plexus: formation, area of innervation, skin branches.
20. Lumbar plexus: formation, innervation area, skin branches.
21. Sacral plexus: formation, innervation area, skin branches.

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