

The Department of Human Anatomy
with Topographic Anatomy and Operative Surgery

METHODOLOGICAL GUIDE

OF THE DISCIPLINE

HUMAN ANATOMY – ANATOMY OF THE HEAD AND NECK

the main professional educational program of higher education -
specialty program in the specialty 31.05.03 Dentistry,
(Educational program, partially implemented in English)

(Methodical instructions to practical employment and to performance of out-of-class independent work
for classroom and extracurricular work of students for the students of 2 course)

3 semester

PART 2-1

ORGANS AND VESSELS OF THE HEAD AND NECK

Student's surname and name

group and faculty

Vladikavkaz

METHODICAL RECOMMENDATIONS TO PRACTICAL EMPLOYMENT AND
METHODICAL RECOMMENDATIONS FOR PERFORMANCE OF OUT-OF-CLASS
INDEPENDENT WORK FOR THE STUDENTS OF 2 COURSE (3 SEMESTER) OF
DISCIPLINE “HUMAN ANATOMY – ANATOMY OF HEAD AND NECK” THE
MAIN PROFESSIONAL EDUCATIONAL PROGRAM OF HIGHER EDUCATION -
SPECIALTY PROGRAM IN THE SPECIALTY 31.05.03 DENTISTRY
(EDUCATIONAL PROGRAM, PARTIALLY IMPLEMENTED IN ENGLISH)

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Semester 3

№	The name of theme
1.	Skull development. Bones of the brain skull. Bones of the facial skull. Развитие черепа. Кости мозгового черепа. Кости лицевого черепа.
2.	Temporal bone. Sphenoid bone. Височная кость. Клиновидная кость.
3.	Skull as a whole. Joints of the bones of the skull. Muscles of the head. Fascia of the head. Fiber space. Череп в целом. Соединения костей черепа. Мышцы головы. Фасции головы. Клетчаточные пространства.
4.	Neck muscles. Fascia of the neck. Fiber space. Мышцы шеи. Фасции шеи. Клетчаточные пространства.
5.	FINAL LESSON ON THE TOPIC: "BONES AND MUSCLES OF THE HEAD AND NECK" ИТОГОВОЕ ЗАНЯТИЕ ПО ТЕМЕ: "КОСТИ И МЫШЦЫ ГОЛОВЫ И ШЕИ"
6.	Mouth, development of the mouth. Oral organs. Pharynx. Teeth. Their structure. dental formulas. Signs of teeth. Рот, развитие рта. Органы полости рта. Глотка. Зубы. Их строение. Зубные формулы. Признаки зубов.
7.	Incisors, fangs. Large and small molars. Baby teeth. Timing of teeth replacement. dental segments. Articulation, occlusion, bites. The dental system as a whole. Rh-anatomy of teeth. Резцы, клыки. Большие и малые коренные зубы. Молочные зубы. Сроки смены зубов. Зубочелюстные сегменты. Артикуляция, окклюзии, прикусы. Зубная система как целое. Rh-анатомия зубов.
8.	Vessels of the head and neck. Common carotid artery. External carotid artery. Internal carotid artery. Their topography, parts, branches, areas of blood supply. Subclavian artery. Topography, branches, area of blood supply. Extrasystemic and intrasystemic anastomoses of the arteries of the head and neck. X-ray anatomy of the arteries of the head. Сосуды головы и шеи. Общая сонная артерия. Наружная сонная артерия. Внутренняя сонная артерия. Их топография, части, ветви, области кровоснабжения. Подключичная артерия. Топография, ветви, область кровоснабжения. Внесистемные и внутрисистемные анастомозы артерий головы и шеи. Рентгеноанатомия артерий головы.
9.	Veins and venous formations of the cerebral part of the head. Sinuses of the dura mater. Diploic and emissary veins. Veins of the cranial vault, eye sockets. Deep and superficial veins of the face and neck. Mandibular vein, facial vein. Pterygoid venous plexus. Topography, tributaries, anastomoses. Superficial veins of the neck - external and anterior jugular. Internal jugular and subclavian veins. Inflows, anastomoses, topography. Lymphatic vessels and nodes of the head and neck. The outflow of lymph from the organs of the head and neck. Вены и венозные образования мозгового отдела головы. Синусы твердой мозговой оболочки. Диплоические и эмиссарные вены. Вены свода черепа, глазницы. Глубокие и поверхностные вены лица и шеи. Занижнечелюстная вена, лицевая вена. Крыловидное венозное сплетение. Топография, притоки, анастомозы. Поверхностные вены шеи – наружная и передняя яремные. Внутренняя яремная и подключичные вены. Притоки, анастомозы, топография. Лимфатические сосуды и узлы головы и шеи. Отток лимфы от органов головы и шеи.
10.	FINAL LESSON ON THE TOPIC: "ORGANS AND VESSELS OF THE HEAD AND NECK" ИТОГОВОЕ ЗАНЯТИЕ ПО ТЕМЕ: "ОРГАНЫ И СОСУДЫ ГОЛОВЫ И ШЕИ"
11.	Nerves of the head and neck. Features of the anatomy of O, I and II pairs of cranial nerves. III, IV, VI pairs of cranial nerves. V pair. Nuclei, roots, knot. 1st branch of the trigeminal nerve. Area of innervation, branches, functions. Eyelash node. Its topography, roots. Нервы головы и шеи. Особенности анатомии О, I и II пары черепных нервов. III, IV, VI пары черепных нервов. V пара. Ядра, корешки, узел. I ветвь тройничного нерва. Область иннервации, ветви, функции. Ресничный узел. Его топография, корешки.
12.	Maxillary nerve. Branches, topography, area of innervation, superior dental plexus. Wing knot. Its topography, roots. Mandibular nerve. Structure. area of innervation. Lower dental plexus. Autonomous nodes: ear, submandibular, sublingual. Roots, topography, connections with the branches of the trigeminal nerve and with other cranial nerves. Верхнечелюстной нерв. Ветви, топография, область иннервации, верхнее зубное сплетение. Крылонебный узел. Его топография, корешки. Нижнечелюстной нерв. Состав. Область иннервации. Нижнее зубное сплетение. Автономные узлы: ушной, поднижнечелюстной, подъязычный. Корешки, топография, связи с ветвями тройничного нерва и с другими черепными нервами.
13.	Facial nerve. Its nuclei, roots, branches, area of innervation. Glossopharyngeal nerve. Nuclei, branches. Nervus vagus. Its nuclei, topography, branches of the intracranial and cervical regions, areas of innervation. VIII, XI, XII pairs of cranial nerves. Nuclei, branches, area of innervation. Лицевой нерв. Его ядра, корешки, ветви, область иннервации. Языкоглоточный нерв. Ядра, ветви. Блуждающий нерв. Его ядра, топография, ветви внутричерепного и шейного отделов, области иннервации. VIII, XI, XII пары черепных нервов. Ядра, ветви, область иннервации.
14.	Neck plexus. Its formation, topography, branches, area of innervation. Cranial division of the parasympathetic nervous system. Cervical region of the sympathetic trunk. Innervation of the walls of the oral cavity, salivary glands, teeth and tongue. Шейное сплетение. Его формирование, топография, ветви, область иннервации. Краниальный отдел парасимпатической нервной системы. Шейный отдел симпатического ствола. Иннервация стенок полости рта, слюнных желез, зубов и языка.
15.	Elements of topographic anatomy of the head and neck. Topography of vessels and nerves of the head and neck. Areas, triangles. Элементы топографической анатомии головы и шеи. Топография сосудов и нервов головы и шеи. Области, треугольники.
16.	Topography and contents of the openings of the skull base, infratemporal, pterygopalatine and temporal fossae, nasal cavity, orbit, oral cavity. Топография и содержимое отверстий основания черепа, подвисочной, крылонебной и височной ямок, полости носа, глазницы, полости рта.
17.	FINAL LESSON ON THE TOPIC: "NERVES OF THE HEAD AND NECK" ИТОГОВОЕ ЗАНЯТИЕ ПО ТЕМЕ: «НЕРВЫ ГОЛОВЫ И ШЕИ».

METHODICAL RECOMMENDATIONS TO PRACTICAL CLASSES ON THE SUBJECT: "ANATOMY AND TOPOGRAPHY OF THE ORAL CAVITY, TEETH, TONGUE AND SALIVARY GLANDS, SOFT PALATE. ANATOMY AND TOPOGRAPHY OF THE PHARYNX. AGE PECULIARITIES. X-ray anatomy"

The digestive system is a complex of organs, the function of which is the mechanical and chemical processing of food, absorption of nutrients and the release of the remaining undigested components of food. The digestive system consists of the digestive tract and digestive glands. The structure of the digestive canal is determined by the quality of food consumed by man.

The digestive canal has a length of 8-10 m and consists of the following sections: oral cavity, pharynx, esophagus, stomach, small and large intestine. The oral cavity is limited by the walls formed by various tissues, contains a muscular organ-tongue, it opens the ducts of large and small salivary glands, so the functions of the oral cavity are diverse: mechanical processing of food, initial digestion of carbohydrates, the formation of articulate speech, etc. Many diseases of the gastrointestinal tract are associated with a defect of the dentition, pathological processes of salivary glands, a violation of taste, slowing the timing of teething. Pathological types of bites lead to violations of articulation of speech. Inflammatory processes of lymphoid formations of the oral cavity lead to a decrease in the immune protection of the body. Therefore, knowledge of the anatomical structure of the structures of the oral cavity and dentoalveolar apparatus is necessary for students for the subsequent assimilation of the material in the departments of dentistry, otolaryngology, therapy, gastroenterology and other clinical disciplines.

I. Objectives:

The student needs to know:	<ol style="list-style-type: none"> 1 The structure of the walls of the oral cavity. 2. Structure and function of salivary glands. 3. Structure and function of tongue. 4. Structure and function of the dentition. 5. Topography of pharynx, its structure and functions. 6. The component parts of lymphoepithelial ring of Waldeyer-Pirogov.
The student needs to know:	<ol style="list-style-type: none"> 1. To characterize the body according to the following scheme: 2 Latin (Greek) name; 3 source of development; 4 topography (holo -, skeleto -, syntopia); 5 external morphological data: shape, configuration, dimensions, density (consistency, weight); 6 anatomical structure: parts, departments, edges, surfaces, poles, furrows; 7 histological structure (structural elements 8 lobes, segments, slices, acinuses, etc.); 9 function, data of in vivo research methods: x-ray, computer and magnetic resonance imaging. 10. Name and show the walls of the oral cavity on the sagittal saw cut of the head and skull. 11. Show all formations of the oral cavity on the sagittal cut of the head. 12. Find the holes of the excretory ducts of the large salivary glands. 13. According to the characteristic features to determine the types of teeth and their belonging to the right or left half of the alveolar arch. 14. Name and show on the wet preparation of the pharynx, list the walls of each Department and the structural formations on them (tonsils, tube roller) 15. Indicate and show the ways of pharynx communication with other cavities (nasal cavity, middle ear, mouth, esophagus, larynx). 16. Name the layers of the pharynx wall, explain the features of the mucous membrane of its different departments. 17. To name and show on the preparation of the muscles of the pharynx. 18. To prepare the esophagus and show on the preparation of its contractio
The student must possess:	<ol style="list-style-type: none"> 1) Medical and anatomical conceptual apparatus; 2) Anatomical knowledge for understanding pathology, diagnosis and treatment 3) the Simplest medical instruments – a scalpel and tweezers. 4) the technique of preparation of the studied organs (under the supervision of the teacher).

II. The required level of knowledge:

(a) related disciplines:

- 1) Development of the digestive system.
- 2) Histological structure of the tooth

b) of the preceding:

- 1). The structure of the bones of the facial skull.
- 2). Mimic and chewing muscles.
- 3). Neck muscle.

C) from the current lesson:

- 1). The structure of the hard palate, the muscles of the soft palate.
- 2). The walls of the vestibule of the mouth and the oral cavity itself, the diaphragm of the mouth.
- 3). Muscle circumference of the mouth.
- 4). The boundaries of the submandibular triangle of the neck.
- 5). The structure of the upper and lower jaw (alveolar arches).

- 6). The main functions of the digestive system and its stages of development
- 7). The General plan of the structure of the digestive system.
- 8). Layers of the digestive tube wall.
- 9). The anatomical structure of the tooth. The histological structure of the solid substance of the tooth. Tooth pulp.
- 10). Tooth surface. Signs of the tooth: root, angle and curvature of the crown.
- 11). Formula of milk and permanent teeth
- 12). The structure of the language. Muscles of the tongue, papillae of the tongue.
- 13). Lymphoid formations of the oral cavity, their localization.
- 14). Topography, structure, nature of the secret of large salivary glands. Their ducts.
- 15). Topography, structure of the pharynx.
- 16). Topography structure of the esophagus.

III. Object of study:

Skull, sagittal section of the head with the salivary glands, the tongue with the hyoid bone, set of teeth, a corpse, a complex of organs, sagittal section of head and neck, drugs in the pharynx and esophagus.

IV. Information part:

The oral cavity consists of two parts: the vestibule, limited from the outside by the lips and cheeks and from the inside by the teeth and gums and the oral cavity itself, which has five walls:

1. Upper-sky
2. The lower diaphragm of the mouth
3. Front and side – gums and dentition
4. Back-yawn, which is limited to the top of the Palatine curtain, below-the root of the tongue, on the sides-Palatine-lingual arches, behind which lie the Palatine tonsils.

The soft palate forms the posterior third of the upper wall of the oral cavity, formed by the fold of the mucous membrane with the muscles lying in it.

Muscles of the soft palate: Palatine pharyngeal, Palatine-lingual, lifting the Palatine curtain, straining the Palatine curtain, tongue.

Teeth are ossified papillae of the mucous membrane and serve for mechanical processing of food. The tooth consists of crown, neck and root. The cavity of the tooth is filled with a soft tissue-pulp. The hard part of the tooth is formed by dentin, which is covered with enamel (in the crown) or cement (root). The connective tissue that surrounds the root and provides fixation of the tooth in the alveoli is called periodontium. All tissues surrounding the neck and root of the tooth, with the inclusion of the gums, alveoli and forming its part of the alveolar process of the jaw are considered as a whole anatomical and functional system called periodontal.

The dentition segment includes: 1) the tooth; 2) the dental alveolus and the adjacent part of the jaw covered with a mucous membrane; 3) the ligamentous apparatus fixing the tooth to the alveolus; 4) vessels and nerves.

Types of teeth: incisors, fangs, small and large molars. Formula milk (2102) and permanent (2123) teeth. The surface of the dental crown, there are five: vestibular, lingual, contact (medial and distal) and chewing (for molars). For incisors and fangs, this is the incisive edge.

To establish the belonging of the tooth to the right or left half of the alveolar arc are three signs of the tooth: a sign of the root, the angle of the crown and the curvature of the crown. To determine whether the tooth belongs to the upper or lower jaw, use the shape of the dental crown and the number of tooth roots.

The position of the dentition when they are closed is called occlusion. The position of the dental arches in the Central occlusion (middle closure of the dentition) is called bite. There are physiological and pathological types of bites. To physiological occlusion include: orthognatha, progeny, upregulate and direct. To pathological-extreme degrees of physiological bites (prognathia and progeny), as well as open, closed and cross bites.

The tongue is a muscular organ. Parts of the tongue: the root with which the tongue is attached to the lower jaw and hyoid bone, body and tip. Muscles are divided into two groups: private (upper and lower longitudinal, vertical and transverse) and have skeletal attachment (Seleziona, chin-lingual and lingual-lingual). One of the main functions of the language is to recognize the taste characteristics of food. This process is carried out by the papillae of the tongue. 1. Нитевидные 2. conical 3. Mushroom-shaped 4. Gutter 5. Foliaceous

Lymphoid formation of the posterior part of the back of the tongue forms the lingual amygdala. In the oral cavity, the ducts of three pairs of large salivary glands open: parotid (serous), submandibular (mixed) and sublingual (mucous). By its structure, the parotid gland is a complex alveolar, submandibular and sublingual – complex alveolar-tubular.

Pharynx consists of 3 parts: nasopharynx, oropharynx and larynx. The nasopharynx is its respiratory Department, which is communicated through the Hoan (anterior wall of the nasopharynx) with the nasal cavity and with the tympanic cavity through the auditory tubes, which are opened by the pharyngeal holes on the lateral walls of the nasopharynx. In this Department there are unpaired accumulation of lymphoid tissue-pharyngeal amygdala (especially well expressed in early childhood) and paired tubal amygdala. These, together with the Palatine tonsils and lingual tonsils form a lymphoepithelial ring of Waldeyer-Pirogov. The walls of the nasopharynx do not fall down. The oropharynx is common to the respiratory and digestive systems. In this Department, the mucous membrane becomes characteristic of the digestive tube flat epithelium, in contrast to the shimmering in the nasopharynx. Through the throat, this part of the pharynx communicates with the oral cavity. The laryngeal part is a purely digestive part that passes at the level of 6-7 cervical vertebrae into the esophagus.

The outside of the pharynx is covered with adventitial membrane. The submucosa (tela submucosa) in the upper part is represented by a fibrous plate – pharyngeal-basilar fascia with the help of which the pharynx is fixed to the base of the skull, and in the lower part of the pharynx has the structure of loose connective tissue.

The muscular layer of the pharynx has three compressors: the upper, middle and lower, which are connected on the back wall, forming a pharynx seam along the middle line. Podnimatele pharynx - stylopharyngeus and velopharyngeal - formed the longitudinal muscle fibres. Pharyngeal muscles together with the Palatine muscles and the muscles of the tongue provide a swallowing act.

The esophagus is a narrow and long active tube inserted between the pharynx and stomach and promotes food in the stomach. It begins at level VI of the cervical vertebra, which corresponds to the lower edge of the cricoid cartilage of the larynx, and ends at level XI of the thoracic vertebra.

The esophagus has three parts cervical, thoracic and abdominal. It has the presence of longitudinal folds of the mucous membrane in the absence of food, as well as the presence of the muscular membrane and its gradual transition from the striated (arbitrary) muscles to smooth (involuntary).

Topography of the esophagus. Cervical part of the esophagus is projected in the range of from VI cervical to the second thoracic vertebra. In front of him is the trachea, the side are recurrent nerves and common carotid arteries.

The syntopia of the thoracic part of the esophagus is different at different levels: the upper third of the thoracic esophagus lies behind and to the left of the trachea, the left recurrent nerve and the left a lie in front of it. carotis communis, posterior vertebral column, right mediastinal pleura. In the middle third of the esophagus adjacent the front and to the left at the level of IV thoracic vertebra the aortic arch, slightly below the (V thoracic vertebra), bifurcation of the trachea and left bronchus; behind the gullet lies the thoracic duct; on the left and somewhat posterior to the esophagus adjacent descending aorta, right - right vagus nerve, right and rear - v. azygos. In the lower third of the thoracic esophagus, behind and to the right of it lies the aorta, anteriorly - the pericardium and the left vagus nerve, to the right - the right vagus nerve, which at the bottom shifts to the back surface; several posteriorly lies v. azygos; left-left mediastinal pleura.

The abdominal part of the esophagus in front and on the sides is covered with the peritoneum; the front and right to it lies the left lobe of the liver, the left - the upper pole of the spleen, at the site of the transition of the esophagus to the stomach is a group of lymph nodes.

Age features

In newborns in the corner of the mouth and on the back edge of the red border of the lips there are special growths – the esophagus is a narrow and long active tube inserted between the pharynx and stomach and promotes food in the stomach. It begins at level VI of the cervical vertebra, which corresponds to the lower edge of the cricoid cartilage of the larynx, and ends at the level of XI thoracic vertebra.

The esophagus has three parts cervical, thoracic and abdominal. It has the presence of longitudinal folds of the mucous membrane in the absence of food, as well as the presence of the muscular membrane and its gradual transition from the striated (arbitrary) to smooth muscles (involuntary).

Topography of the esophagus. Cervical part of the esophagus is projected in the range of from VI cervical to the second thoracic vertebra. In front of him is the trachea, the side nerves are recurrent and common carotid arteries.

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The abdominal part of the esophagus in front and on the sides is covered with the peritoneum; the front and right to it lies the left lobe of the liver, the left - the upper pole of the spleen, at the site of the transition of the esophagus to the stomach is a group of lymph nodes. the epithelial villi, which help to hold the nipple of the mother. In the thickness of the cheeks of the child there is a significant accumulation of adipose tissue, the so-called fat body of the cheek, which reduces the impact of atmospheric pressure on it during the act of sucking. The mucous membrane of the hard palate is poor in glands.

Baby teeth appear at 6-8 months in the following sequence: medial incisors, lateral incisors (7-9 months), first molars (12-15 months), canines (16-20 months), second molars (20-24 months). Milk teeth only 20. Their dental formula is 2012/2102. Milk teeth are smaller, have less tubercles and divergent roots, between which lie the rudiments of permanent teeth.

Change of milk teeth on permanent begins with 6 years. It ends with the replacement of each milk tooth and permanent eruption of new additional teeth. By 12-13 years, the eruption of permanent teeth ends, with the exception of the third molar tooth (wisdom tooth), which erupts by 18-20 years.

The tongue occupies the entire cavity, speaking on the eve of the mouth. Well-marked papillae, lingual tonsil is poorly developed. Salivary glands are also poorly developed. Their intensive growth begins after 4 months during the first two years of life.

The Palatine tonsils are relatively large in size, are made from almond pits.

The length of the pharynx of the newborn is about 3 cm, the projection of the lower edge at the level of the intervertebral disc between the bodies of 3 and 4 cervical vertebrae, by 11-12 years – at the level of 5-6 vertebrae, by 16 years – at the level of 6-7 vertebrae. The size of the nasopharynx to two years increased twice. Tonsils develop as much as possible during the first two years, and then their growth slows down.

The esophagus of a newborn with mild contractions. The muscle shell is poorly developed, the mucous membrane is poor in glands up to 1 year. Longitudinal folds appear to 2-2. 5 years.

X-ray anatomy.

X-ray examination of teeth is performed mainly intraorally, i.e. the film is inserted into the oral cavity, where it is pressed against the lingual surface of the teeth with a finger or bitten by teeth. Teeth can also be studied on extraoral images and facial images. The x-ray clearly shows all the anatomical details of the tooth with enlightenment in place of the tooth cavity. On the

periphery of the part of the tooth that is immersed in the alveoli, there is a thin rim of enlightenment corresponding to the periodontium.

X-ray examination of the digestive tube is performed using the method of creating artificial contrasts, because without the use of contrast media it is not visible. To do this, the study is given a "contrast food" - a suspension of a substance with a large atomic mass, best of all insoluble barium sulfate.

The esophagus is investigated in oblique positions. In x-ray examination, the esophagus containing a contrasting mass has the form of an intense longitudinal shadow, clearly visible on a light background of the pulmonary field located between the heart and the vertebral column. This shadow is the silhouette of the esophagus. On the basis of x-ray data, it can be seen that the esophagus of a living person is different from the esophagus of the corpse, mainly due to the presence of a living in vivo muscle tone. As for the position of the esophagus, on the corpse, it forms bends: in the cervical part, the esophagus first goes along the middle line, then slightly deviates from it to the left, at the level of the V thoracic vertebra, it rotates to the middle line, and below it again deviates to the left and in front of the diaphragmatic slit. On the living bends of the esophagus in the cervical and thoracic regions are less pronounced. Fluoroscopy of the esophagus of a living person and serial images taken at intervals of 1 second., allow you to explore the act of swallowing and peristalsis of the esophagus.

V. Practical work:

Task № 1. On the sagittal cut of the head, find the oral cavity, consider its walls and messages with the external environment through the oral slit, and with the pharynx through the throat. Spend the division of the oral cavity on the threshold and the actual oral cavity (the border passes through the teeth and gums). Examine the walls of the vestibule (lips and cheeks in front and sides, gums and teeth behind) and the oral cavity itself (the upper - hard and soft palate, the lower - the bottom of the oral cavity, the front - teeth and gums, posterior oral cavity through the throat communicates with the throat).

The task № 2. On the preparations of natural teeth and their models, study the structure of the tooth. Find the parts of the tooth: crown-the upper part of the tooth, root - the lower part of the tooth, between them-the neck of the tooth. On the tables and figures, find the cavity of the tooth in the crown and neck, which continues into the root canal. Note that the cavity of the tooth is made by pulp, and the root canal ends with a hole on its top. Note that the substance of the tooth consists of dentin, which is covered with enamel in the crown area, and cement in the root area. Then determine the types of teeth. On each half of the jaw find 2 incisors, 1 canine, 2 molars small and 3 large molars. In total, there are 18 teeth on the upper and lower jaw. On the table-meet with the formula of permanent and deciduous teeth, the laying of the permanent teeth, order of eruption and exfoliation of primary teeth.

Task number 3. On the sagittal cut of the head, find the actual oral cavity located behind the teeth and gums, determine its contents - the language. Way of the tongue: the apex, body, back, root of the tongue, the lower surface of the edge. In the middle of the tongue mark the median groove, at the site of the transition of the body to the root-a blind hole and a borderline groove. Between the lower surface of the tongue and floor of the mouth is the frenulum of the tongue, on the sides of her find the strap folds with the sublingual papillae. On the surface of the mucous membrane, consider the papillae of the tongue; threadlike, mushroom-shaped, conical, leaf-shaped and grooved. In the mucous root of the tongue, find the lingual amygdala, between the root of the tongue and epiglottis - the middle and Bo-kovye lingual-epiglottic folds, and between them the fossa of the epiglottis. On the tables, pictures, learn the muscles of the tongue, pay attention to their beginning, attachment and function.

The task № 4. On the skull and the sagittal section of the head, locate the upper wall of the oral cavity - hard palate, posteriorly passing into the soft palate with palatal curtain hanging and tongue. At the edges of the soft palate trace the arms: Palatine-pharyngeal, going from the soft palate to the back of the pharynx, and Palatine-lingual, going from the sky to the side of the tongue. Between the arms find the amygdala and in it - the amygdala (if preserved). The muscles of the soft palate study on the table, or figures in the Atlas, paying attention to the beginning, attachment and function of them. On the preparation of the sagittal cut of the head, find Zev, determine its boundaries: from below-the root of the tongue, from the side-the arms, from above-the Palatine curtain.

The task № 5. On the sagittal sawing of the head from its surface in the mandibular fossa, find the salivary parotid gland, its duct crossing the chewing muscle along its outer surface, and flowing into the vestibule of the oral cavity at the level II of the upper large molar. In the submandibular triangle on the neck, consider the submandibular salivary gland, note that it is covered with skin, fascia and subcutaneous muscle of the neck and is well defined by palpation. The excretory duct of the gland opens into the actual oral cavity on the hyoid papilla. On the drugs and tables, consider the structure of the sublingual salivary gland, note that from the oral cavity, the iron is covered only with the mucous membrane and is clearly visible when examining the oral cavity. From the submandibular gland it is separated by the maxillofacial muscle. Indicate that the gland has a large sublingual duct and small sublingual ducts opening into the oral cavity on the sublingual fold.

Task number 6. On the sagittal sawing of the head and neck, note that the pharynx is located in the area of the head and neck, starting from the base of the skull (pharyngeal tubercle of the main part of the occipital bone and medial plates of the pterygoid processes of the sphenoid bone) stretches to the level of the sixth vertebra, located anteriorly from the cervical spine and deep neck muscles, behind the nasal cavity, mouth and larynx; on the side of it passes the vascular-nerve bundle of the neck (common carotid artery, internal jugular vein and wandering nerve). On the same drug, consider and examine the parts of the pharynx (nasal, oral and laryngeal) and individual details of their structure. Locate and show a message of the nasopharynx with the nasal cavity through the choanae. On the side wall of the nasopharynx, locate the pharyngeal opening of the auditory tube, surrounded by a tube roller, which leads to the auditory tube connecting the nasopharynx with the middle ear cavity. Note that the oral part of the pharynx communicates with the oral cavity through the pharynx. In the larynx, find the entrance to the larynx and esophagus.

The task № 7. Studying the structure of the pharyngeal wall on the drug, the table and the figure in the Atlas, note that it has a well-defined fibrous layer, inside covered with a mucous membrane, and outside the muscle. The muscular coat on the outside is covered with adventitia. It should be emphasized that the fibrous membrane of the pharynx is of great importance in fixing it to the base of the skull. The mucous membrane of the nasopharynx, due to its respiratory function, is lined with a shimmering epithelium, in the oral and laryngeal parts of the pharynx of the epithelium of the mucous membrane - a multilayer flat. When

considering the muscles of the pharynx, pay attention to the fact that they are located in two layers: longitudinal (dilators) and circular (narrowers). The circular layer is more pronounced, find three constrictors in it: upper, middle and lower. Note the places of their beginning and the fact that the fibers of the constrictors of each side go back and connect with each other, forming a seam along the middle line of the posterior wall of the pharynx. The longitudinal muscle fibers of the pharynx is formed by two muscles: the velopharyngeal and awl-pharyngeal.

The task № 8. On the preparation of the sagittal cut of the head and neck in the mucous membrane of the pharynx in the nasal part on the border of the upper and posterior walls, find the pharyngeal tonsil, and between the pharyngeal opening of the auditory tube and the soft sky - the tubal tonsil (steam room). Note that these tonsils together with Palatine (paired) and lingual (unpaired) form a lymphoepithelial ring.

The task № 9. On the body or the organs of study the topography and structure of the esophagus. In this case, note that the esophagus is located in the neck, chest (posterior mediastinum) and abdomen, starting at level VI of the cervical vertebra from the pharynx and passes into the stomach at level XI of the thoracic vertebra. In this regard, select the following parts: neck, chest and abdomen. Studying the cervical part of the esophagus, note that it lasts up to II thoracic vertebra, in front of it lies the trachea, behind-the pre-vertebral plate of the cervical fascia and muscles, sideways are recurrent laryngeal nerves and common carotid arteries. Note that the neck of the esophagus deviates to the left. On the corpse find and show in the back of the mediastinum of the chest of the esophagus. Note that his position in the chest cavity at different levels is different. Thus, in the upper third of the thoracic part of the esophagus lies to the left of the trachea, in front of it lies the left recurrent laryngeal nerve and the left common carotid artery, behind - the spine with muscles, on the right - the mediastinal pleura. In the middle third of the thoracic part of the esophagus in front and to the left at the level of IV thoracic vertebra adjacent aortic arch, somewhat lower (V thoracic vertebra), bifurcation of the trachea and the left bronchus, behind the esophagus passes from the thoracic duct to the left and somewhat posteriorly - thoracic part of the aorta, on the right - right vagus nerve, right and rear - azygos vein. In the lower third of the thoracic part of the esophagus behind and to the right of it lies the thoracic part of the aorta, anterior - pericardium and the left vagus nerve forming a plexus, to the right - the right vagus nerve, somewhat posteriorly - an unpaired vein. The esophagus passes through the esophageal opening of the diaphragm into the abdominal cavity. Note that the abdominal part of the esophagus front and sides are covered with peritoneum in front and to the right to it adjacent the left lobe of the liver, left upper pole of the spleen.

Task number 10. On the preparation of an isolated esophagus and tables, study the structure of the esophageal wall: mucous membrane, muscle and external connective tissue membrane. The muscular coat consists of two layers: the outer longitudinal and inner circular. Note that in the upper parts, both layers are formed by striated muscle fibers, and below they are gradually replaced by smooth muscle cells and the lower 1/3 of the muscular membrane of the esophagus is formed by smooth muscle tissue. In the study of the esophagus, pay attention to its narrowing, among which there are anatomical (farinreal, bronchial and diaphragmatic) and physiological (aortic-bifurcation and cardiac).

VI. Control question:

1. What are the departments of the gastrointestinal tract, the sources of their development.
2. What are the walls of the vestibule of the mouth and the actual oral cavity.
3. Name the muscles of the soft palate.
4. describe the structure of the tooth, list the surface of the dental crown.
5. Describe the deciduous and permanent teeth, their formulas and the timing of the eruption.
6. Describe the physiological and pathological types of bites.
7. What are the salivary glands, their location and function, histology, structure.
8. Tell us the structure of the language and its functions. Muscles of the tongue.
9. Features of childhood.
10. Describe anomalies and malformations.
11. Review evaluation of the results of clinical research methods.
12. Sources of development of the considered bodies.
13. Topography of pharynx.
14. What parts of the pharynx consists of what it is reported?
15. Features of the pharyngeal wall structure.
16. What are the departments of the esophagus, their topography.
17. What are the narrowing of the esophagus

VII. Learning objective:

Problem number 1. When working in the oral cavity, the dentist closes the duct of the parotid salivary gland with a cotton swab to reduce the accumulation of saliva in the oral cavity.

1. Where does the parotid salivary gland duct open?
2. Where is the parotid salivary gland itself located?

Answer:

1. The duct of the parotid salivary gland opens in the vestibule oral cavity at the level of the second upper large molar tooth.
2. The parotid salivary gland is located anteriorly and downwards from the ear shells, on the lateral surface of the branch of the mandible and posterior margin masseter.

Problem number 2.

X-ray examination of the esophagus at level V a foreign body was found in the wall of the thoracic vertebra.

1. In the area of narrowing of the esophagus is a foreign body?
2. What other narrowing of the esophagus are there?

Answer:

1. Foreign body found in the bronchial constriction esophagus (place of contact with the posterior surface of the left bronchus).
2. There are also: pharyngeal narrowing - at the junction of the pharynx in the esophagus (at the level of VI – VII cervical vertebra), and diaphragmatic – in place passage of the esophagus through the diaphragm.

VIII. Control tests:

1. Specify the muscles that constrict the throat.
 - a muscle tenses palatal curtain;
 - b-Palatine muscle;
 - b - medium constrictor (constrictor) of the pharynx;
 - g-Palatine pharyngeal muscle.

Answer: b, d

2. Specify the taste buds located on the side surfaces of the tongue.
 - a-fungiform papillae;
 - b-grooved papillae;
 - b-leaf-shaped papillae;
 - g-thready papillae.

Answer:

3. What anatomical structures limit positivation space?
 - a-anterior surface of cervical vertebral bodies;
 - b-pre-vertebral muscles;
 - in the rear surface of the pharynx;
 - g - deep lamina of the cervical fascia

Answer: d

4. In the composition of each tooth there is no next part:
 - a-crown
 - b-head
 - V-neck
 - g-root

Answer: b

5. The pharynx passes into the esophagus in adults at the level of:
 - a – IV-V cervical vertebrae
 - b – VI-VII cervical vertebrae
 - in – I-II thoracic vertebrae
 - g – III-IV thoracic vertebrae

Answer:

6. Specify the anatomical formations that form the walls of the pharynx.
 - a-soft palate;
 - b-pipe roller;
 - in-epiglottis;
 - g-Palatine-lingual arms.

Answer: a, g

7. Specify the anatomical narrowing of the esophagus.
 - a-diaphragmatic opening of the esophagus;
 - b-transition of the esophagus into the stomach;
 - b-at the aortic arch level,
 - g-pharyngeal-esophageal junction.

Answer: b, C, d

8. The hardest tissue of the tooth is:
 - a-dentin
 - b-enamel
 - in the pulp
 - g-cement

Answer: b, C

9. In the pharynx is missing the next part of:
 - a – bow -
 - b-mouth
 - b-esophageal
 - g-laryngeal

Answer:

10. In what place of the oral cavity opens the duct of the submandibular salivary gland?
 - a - tongue-tie;
 - b - the frenulum of the lower lip;
 - in the sublingual papilla;

g-sublingual fold.

Answer: a

IX Анатомическая терминология

Русское название	Латинское название
cavity	cavitas oris
mouth threshold	vesribulum oris
the mouth slit	rima oris
lips	labia oris
lower lip	labium inferius
Lip spike	commissura labiorum
the angle of the mouth	angulus oris
cheek	bucca
actually the oral cavity	cavitas oris propria
sky	palatum.
hard palate	palatum durum
the soft palate (velum)	palatum molle (velum palatinum)
gums	gingivae
small salivary glands	glandulae salivatoriae minores
lip glands	gll labiales
cheek glands	gll buccales
molar glands	gll molares
Palatine glands	gll palatinae
lingual glands	gll linguales
large salivary glands	glandulae salivatoriae majores
teeth	dentes
tooth crown	corona dentis
the tip of the sharp	apex cuspidis
tooth root	radix dentis
tooth cavity (pulpar)	cavitas dentis (pulparis)
crown cavity	cavitas coronae
tooth pulp	pulpa dentis
upper dentition	arcus dentalis superior
the lower dental arch	arcus dentalis inferior
incisor teeth	denies incisivi
fangs	denies canini
the pre-molars, small molars	denies premolares
molars, large molars	denies molares
wisdom tooth	dens serotinus
primary teeth	denies decidui
permanent teeth	denies permanentes
language	lingua
body language	corpus linguae
root of tongue	radix linguae
the back of the tongue	dorsum linguae
throat	pbarinx
fauces	fauces
the soft palate (velum)	palatum tone (vellum palatinum)
uvula	uvula palatina
palatal-lingual arch	arcus palato-glossus
velopharyngeal shackle	arcus palato-haryngeus
Palatine tonsil	tonsila palatina
arch of pharynx	fornix pharyngis
nasal part of the pharynx	pars nasalis pharyngis
the oral part of the pharynx	pars oralis pharyngis
esophagus	oesophagus
the chest part	pars thoracica
the ventral portion of the	pars abdominalis

X. Drugs and tutorials: Skull, sagittal section of the head with the prepared by the salivary glands, the tongue with the hyoid bone, set of teeth, a corpse, a complex of organs, sagittal section of head and neck, drugs in the pharynx and esophagus. Textbook. Atlas of human anatomy. The level II tests and standards of answers to them. Tables. Radiographs

EXTRACURRICULAR INDEPENDENT WORK.
METHODICAL RECOMMENDATIONS TO OUT-OF-CLASS INDEPENDENT WORK ON THE TOPIC:
ANATOMY AND TOPOGRAPHY OF THE ORAL CAVITY, TEETH, SALIVARY GLANDS.

1. Questions to check the initial level of knowledge:

1. The concept of the system of organs. General characteristics of the digestive system.
2. Bone basis of the oral cavity
3. Classification of salivary glands.

2. Targets

The student needs to know:

1. The oral cavity and its walls.
2. Teeth. Their classification. Part of the tooth, the tooth formula.
3. The structure of the tongue, its mucous membrane, the tonsils of the tongue, the muscles of the tongue.
1. 4. Salivary glands and their excretory ducts and places of confluence in the oral cavity.

The student must be able to:

1. To be able to call in Latin and show on the drug the organs of the oral cavity.
2. Show the oral cavity, parts of the oral cavity.
3. To show teeth. Part of the tooth.
4. Tongue, tonsils of the tongue, muscles of the tongue.
5. Show salivary glands: parotid, submandibular, sublingual. Their excretory ducts and places of confluence in the oral cavity.

1. Append:

A) each tooth consists of the following parts _____

B) Anatomical formations forming the walls of the pharynx _____

C) what are the anatomical features of the upper and lower lips and gums of newborns contributes to the act of sucking

2. Make a scheme of classification of salivary glands:

3. Fill in the table:

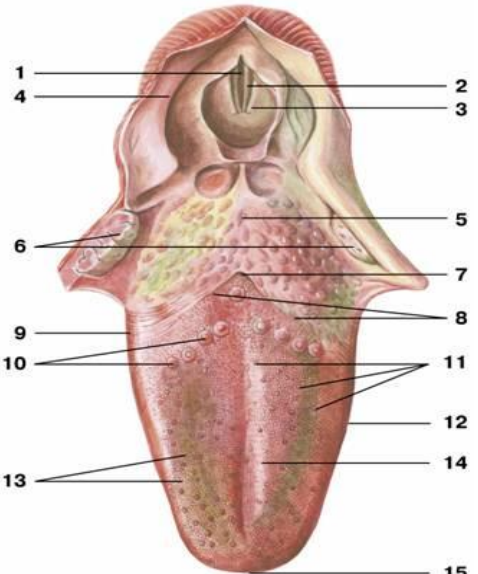
Differences teeth
Permanent Dairy

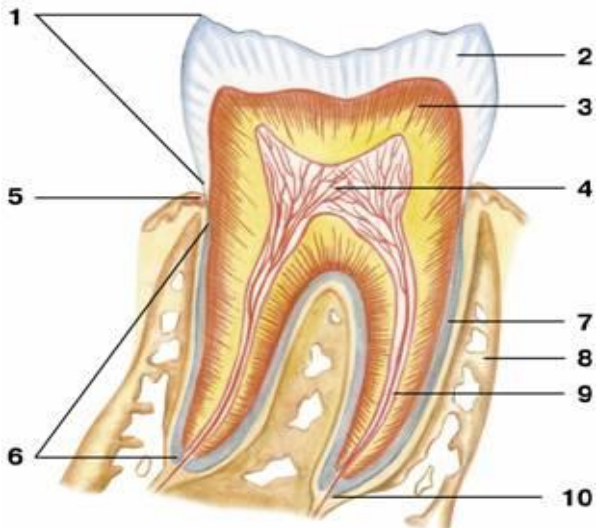
4. To depict schematically teeth formula:

IV. Questions for self-control:

1. What muscles constrict the throat _____
2. What taste buds are located on the side surfaces of the tongue _____
3. What anatomical formations form the walls of the pharynx _____
4. What are the anatomical structures that form the walls of the oral cavity _____
5. What glands on the nature of branching is the parotid salivary gland _____

V. Make symbols for figures:

Language	
	1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.
	9.
	10.
	11.
	12.
	13.
	14.
	15.

The structure of the tooth	
	1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.
	9.
	10.

Guidelines for out-of-class independent work on the ANATOMY AND TOPOGRAPHY of the SOFT PALATE. THROAT. ESOPHAGUS.

1. Questions to check the initial level of knowledge:

1. General characteristics of the digestive system. Digestion in the mouth.
2. Boundaries of the pharynx.
3. Sellotape throat.

2. Targets:

The student needs to know:

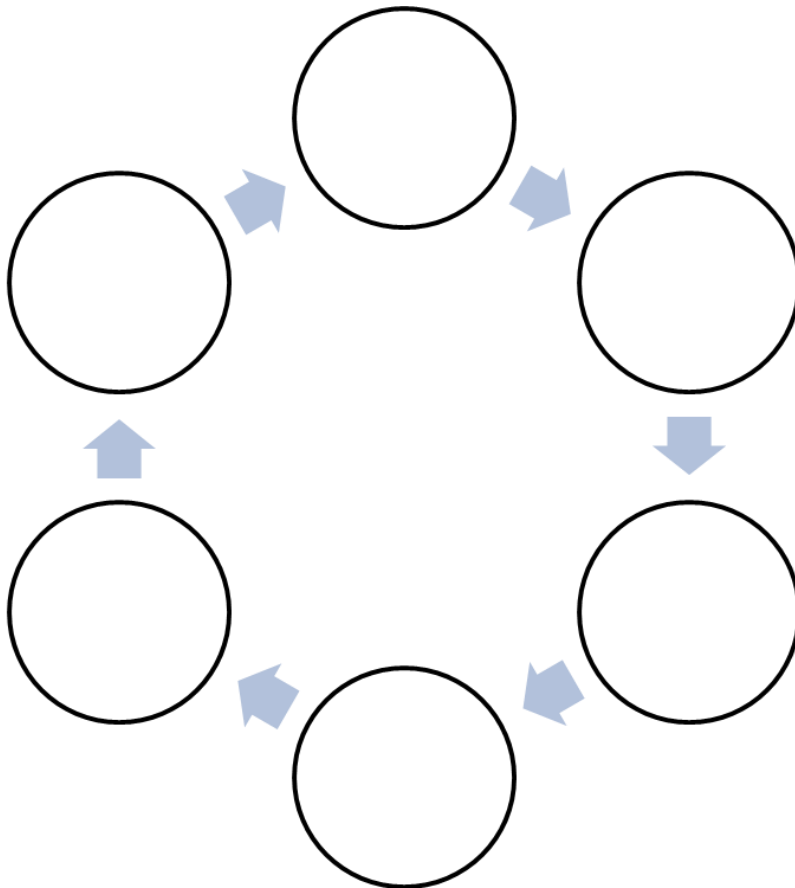
1. Soft and firm palate. The Palatine curtain, the tongue.
2. Folds, sinus tonsils. Palatine aponeurosis, Palatine tonsils. Muscles of the soft palate.
3. The throat and part of it. The message of the pharynx. Layers of pharyngeal wall. The muscles of the pharynx. Lymph-epithelial ring of Pirogov-Waldeyer.
4. The esophagus and its departments. The layers of the esophageal wall. Folds of mucosa. Narrowing of the esophagus.

The student must be able to:

1. Show the boundaries of the pharynx.
2. Show parts of the pharynx.
3. Show messages of the nasopharynx with the nasal cavity.
4. Show on the side wall of the nasopharynx the opening of the auditory tube connecting the nasopharynx with the cavity of the middle ear.
5. Show the laryngeal entrance to the larynx and esophagus.
6. Show parts and constrictions of the esophagus.

III. Assignment for independent work:

1. Fill in the diagram lymph-epithelial ring of Pirogov-Waldeyer:



2. Append:

A) in the throat distinguish the following parts _____

B) the nasal part of the pharynx communicates with the nasal cavity through _____

IV. Questions for self-control:

1. What anatomical structures limit positivation space

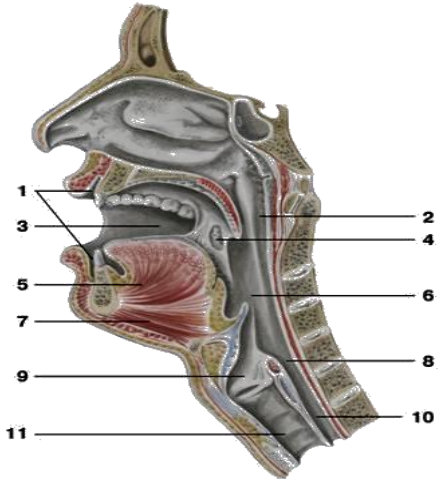
2. What muscles simultaneously strain the Palatine curtain in the transverse direction and expand the lumen of the auditory tube _____ - _____

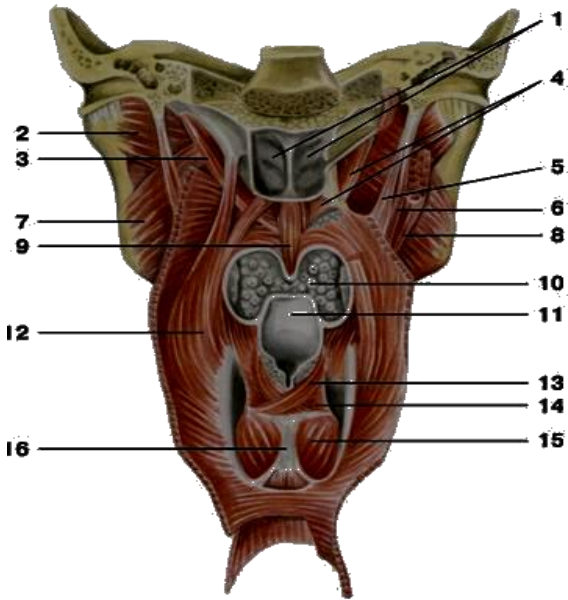
3. Specify the anatomical formations on the skull to which the pharynx is attached

4. What structures form the sky _____

5. Specify the place of the beginning of the muscle-the upper constrictor of the pharynx _____

V. Make symbols for figures:

	1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.
	9.
	10.
	11.

	Глотка
	1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.
	9.
	10.
	11.
	12.
	13.
	14.
	15.
16.	

METHODICAL RECOMMENDATIONS TO PRACTICAL CLASSES ON THE SUBJECT:
 "ANATOMY AND TOPOGRAPHY OF THE NASAL CAVITY AND LARYNX. ANATOMY AND TOPOGRAPHY OF
 THE TRACHEA, BRONCHI AND LUNGS. THE COURSE OF THE AIR JET. ANATOMICAL AND PHYSIOLOGICAL
 DEAD SPACE. ANATOMY AND TOPOGRAPHY OF THE PLEURA AND THE MEDIASTINUM. AGE
 PECULIARITIES. RENTGENOGRAFIJA".

In the process of studying the respiratory system, the student must learn to name, find and show the respiratory organs on the prepared corpse and organ complex. Represent their location and the link between themselves and bodies other systems. The importance of the structure of the organs of this system will allow to correctly understand the development of relevant diseases and ways to implement their treatment and prevention.

I.Цели.

The student needs to know:	1).The structure of the external nose and its cartilage. 2).The structure of the own nasal cavity (nasal shells, nasal passages). 3).The message of the nasal cavity and paranasal cavities. 4).The structure of the cavity of the larynx. 5).Paired and unpaired cartilage of the larynx. 6).The connection of the cartilage of the larynx and ligaments. 7).Classification of laryngeal muscles. 8).The structure of the trachea and major bronchi. 9).The structure of the lungs. 10).Structural and functional unit of the lungs (acinus). 11).The structure of the bronchial and alveolar tree. 12).The structure of the pleural sheets. 13).The boundaries of the lungs and pleura. 14).Departments and organs of the mediastinum.
The student needs to know:	1).Show on sagittal cutting of the head the nasal cavity and its formation. 2).Show the cavity of the larynx on the sagittal sawing of the head and name its departments. 3).Correctly place the cartilage of the larynx relative to each other. 4).Show the joints and ligaments of the larynx. 5).Show the muscles that widen the glottis. 6).Show muscles narrowing the glottis. 7).Show muscles straining the vocal cord. 8).Show the place of division of the trachea into two main bronchi. 9).To show the root of the lung. 10).To call the contents of the gate of the lung. 11).Show the surfaces, lobes and cracks of the right and left lungs. 12).Show parts of the pleura and its dome. 13).Determine the boundaries of the lungs and pleura. 14).Show the mediastinum on the drug and name its parts.
The student needs to know:	1) Medical and anatomical conceptual apparatus; 2) Anatomical knowledge for understanding pathology, diagnosis and treatment 3) the Simplest medical instruments – a scalpel and tweezers. 4) the technique of preparation of the studied organs (under the supervision of the teacher).

II. The required level of knowledge:

(a) related disciplines

1)the Phylogenesis of the respiratory system.

2)Ontogenesis of the respiratory system.

b) of the preceding:

1) Know the structure and topography of the skull bones.

2) Know the structure of the nasal cavity and its communication with the paranasal sinuses.

3) Know the structure and topography of the chest

C) from the current lesson:

1) Know the structure of the cartilage of the nose and nasal septum.

2) Know the parts of the nasal cavity, nasal passages and their messages.

3)Sellotape, syntopia and holotape of the larynx.

4)Joints, ligaments and muscles of the larynx.

5) the mechanism of voice formation.

6)the process air stream.

7)Homotopia, syntopia and skeletopy of the trachea and main bronchi.

8) parts of the cartilage of the trachea.

9) Know the structure and topography of the lungs.

10) Know the structure and value of the bronchial and alveolar tree.

11) Segmental structure of the lungs.

12) Know the structure of pleural sacks and their boundaries, pleural cavity, pleural sinuses.

13) Know the definition of the mediastinum, its parts and organs in it.

III. Object of study:

Organs of the respiratory system. Nose cartilage, nasal cavity and its walls, nasal passages and paranasal sinuses. The larynx, its holotape, sellotape and syntopia. Cartilage of the larynx: cricoid, thyroid, arytenoid, horn-shaped, wedge-shaped, epiglottis. The connection of the cartilage of the larynx: the joints and ligaments. Elastic cone, and quadrangular membrane of the larynx. Cavity of the larynx and its departments. Laryngeal muscles and their function. Trachea, its holotape, sellotape, syntopia. Part of trachea: cervical and thoracic. Cartilage of the trachea; ring ligaments; membranous wall; bifurcation of the trachea. Main bronchus. The shape of the lungs, the surface, the root and the gate of the right and left lungs, their lobes and segments. The division of the main bronchi into equity, and the latter into segmental and then - lobular. Bronchial and alveolar tree. Segments, acinus. The boundaries of the right and left lungs. The visceral and parietal pleura. Pleural cavity. The sinuses of the pleura. The dome of the pleura. The boundaries of the pleural sacs. Interpleural fields. 2. Mediastinum, its constituent organs, boundaries, division into parts.

IV. Information part.

The nose includes the external nose, which is located inside the nasal cavity. The outer nose includes the root, back, tip, and wings of the nose. The wings of the nose at their lower edges, restrict the nostrils, serving for the passage of air into the nasal cavity. The external nose has bony and cartilaginous skeleton. The root of the nose, the upper part of the back and sides of the external nose has a bony skeleton, with the middle and lower parts of the back and sides – cartilaginous. The nasal cavity is divided by the nasal septum into two parts. In each half of the nasal cavity, a vestibule is isolated, which is limited to the thresholds of the nasal cavity from above. Most of the nasal cavity is represented by nasal passages, with which the paranasal sinuses communicate. There are upper, middle and lower nasal passages.

The larynx is located at the level of 4 to 6-7 cervical vertebrae. The laryngeal cavity can be divided into three sections: the vestibule of the larynx, the interventricular Department and the subfoliate cavity. The mucous membrane of the larynx is covered by ciliated columnar epithelium that contains many serous-mucous glands. The secret glands - moistens the vocal folds. The skeleton of the larynx form paired and unpaired cartilage. To unpaired include thyroid, cricoid cartilage and epiglottis, to the pair – arytenoid, horn-shaped and wedge-shaped. Cartilages of the larynx are connected to each other, as well as to the hyoid bone with the help of joints and ligaments. The mobility of the cartilage of the larynx is provided by the presence of two paired joints: cricoid and cricoid. Along with the joints cartilage of the larynx among themselves are connected by a ligament (thyrohyoid, hyoid-epiglottic, secondharmonic, sticks, partnermeeting).

The muscles of the larynx are divided into three groups:

- a) the Dilators of the glottis
- (b) voice slit Narrowers
- c) Straining the vocal cords

The muscles-dilators of the glottis include only one muscle-the posterior cricoid muscle.

The muscles of the narrower of the glottis include the lateral cricoid, thyroid, transverse and oblique arytenoid muscles

To muscles, straining the vocal cords, are cricoid and vocal muscles.

The trachea begins from the lower border of the larynx at the level of the lower edge of the 6 cervical vertebra and ends at the level of the upper edge of the 5 thoracic vertebra, where it is divided into two main bronchi (bifurcation of the trachea). The trachea has two parts: the cervical and thoracic. The wall of the trachea consists of the mucous membrane, submucosa, fibrous - muscular-cartilaginous and connective tissue membranes. The main trachea are 16-20 hyaline cartilaginous half-rings connected by a fibrous annular ligament.

The main bronchi (right and left), depart from the trachea at the level of the upper edge of the 5 thoracic vertebra and are directed to the gate of the corresponding lung. The right main bronchus has a more vertical direction, it is shorter and wider than the left. The wall of the main bronchi in its structure resembles the wall of the trachea. Their skeleton is cartilaginous semicircles (6-8 in the right bronchus, 9-12 in the left).

The lungs are located in the chest cavity. At the bottom of the lungs lie to the diaphragm. Since the right dome of the diaphragm is higher than the left, the right lung is shorter than the left and wider. The left lung is narrower and longer. Easy to distinguish the top and bottom. Each lung has three surfaces separated by edges. The leading edge separates the costal surface from the medial surface, the lower edge separates the costal and medial surface from the diaphragmatic. On the front edge of the left lung has a cardiac tenderloin, limited tongue. Each lung with the help of deeply indented cracks (oblique and horizontal) is divided into shares, which the right three (upper, middle, lower), the left two (upper and lower). On the medial surface of each lung are the gates through which the lung includes the main bronchus, pulmonary artery, nerves, and out pulmonary veins, lymph vessels. These formations make up the root of the lung. In the gate of the lung, the main bronchus splits into lobe bronchi, they in turn segmental. Segmental bronchi are divided into branches of a smaller order (9-10) to lobular. Inside the pulmonary lobules, these bronchi are divided into 18-20 terminal bronchioles. End divided into respiratory bronchioles. They depart from the alveolar passages, ending in alveolar sacs. The bronchi of different orders, ranging from primary bronchi to terminal bronchioles to constitute a bronchial tree. Respiratory bronchioles, as well as alveolar passages, sacs and alveoli form an alveolar tree (pulmonary acinus), which is a structural and functional unit of the lung

The pleura is a serous membrane of the lung, consisting of two leaves: the pleura visceral, and the pleura parietal. Visceral pleura, tightly fuses with the tissue of the organ and, covering it in all directions, enters the cracks between the lobes of the lung. Down from the root of the lung, the visceral pleura forms a vertically located pulmonary ligament. Parietal pleura is a continuous leaf that fuses with the inner surface of the chest wall and in each half of the chest cavity forms a closed bag. The parietal pleura has three parts: costal, mediastinal and diaphragmatic. Between the parietal and visceral pleura there is a slit-like closed space-the pleural cavity. In the area of the tops of the lungs, the parietal pleura forms the dome of the pleura, which in the upper parts adjoins dorsally to the head of 1 rib, and the anterolateral surface adjoins the stair muscles. In places

of transition of a costal pleura in diaphragmatic and mediastinal formed recesses – pleural sinuses (costal-diaphragmatic; diagrammatically; rib-mediastinal).

The mediastinum is a complex of organs located between the right and left pleural cavities. In front, the mediastinum is limited by the sternum, behind by the thoracic part of the vertebral column, from the sides – by the right and left mediastinal pleura. Mediastinum is divided into two departments: upper and lower. The latter, in turn, is divided into the front, middle and rear mediastinum.

Anatomical and physiological dead spaces.

With every breath man draws to itself, being at rest is about 500 ml of air, and exhales the same. This value is called the tidal volume (D. O.). Unfortunately, not all the air components DO, used for its intended purpose, ie involved in gas exchange. Part of it remains in his trachea and throughout the branched system of the bronchial tree. Therefore, it is said that about 150 ml of air from the DO goes to fill the anatomical dead space. In recent years, it has been determined that not all alveoli have contact with capillaries, which means that these alveoli are meaningless for gas exchange, despite the fact that they are ventilated on a level with others. Anatomic dead space together with the not washed by the blood by the alveoli forms the physiological dead space.

Age features of organs of breathing. The nasal cavity of the newborn is low (its height is about 17.5 mm) and narrow. The nasal conchae are relatively thick, the nasal passages are poorly developed. The lower nasal shell touches the bottom of the nasal cavity. Common nasal passage remains free, haani low. To 6 months. the height of the nasal cavity increases to 22 mm and an average nasal passage is formed, by 2 years the lower one is formed, after 2 years the upper nasal passage is formed. By 10 years, the nasal cavity increases in length by 1.5 times, and by 20 years — 2 times, compared with that of a newborn. From the paranasal sinuses of the newborn there is only the maxillary, it is poorly developed. The remaining sinuses begin to form after birth. The frontal sinus appears on the 2nd year of life, wedge-to 3 years, the cells of the ethmoid bone — to 3-6 years. By 8-9 years, the maxillary sinus occupies almost the entire body of the bone. The frontal sinus to 5 years has the size of a pea. The size of the sphenoid sinus in a child 6-8 years reach 2-3mm. the Sinuses of the ethmoid bone at 7 years of age are tightly attached to each other; by 14 years of age they are similar to the lattice cells of an adult.

The larynx of a newborn is short, wide, funnel — shaped, located higher than that of an adult (at the level of II-IV vertebrae). The plates of the thyroid cartilage are located under the blunt fracture to each other. The projection of the larynx was missing. Due to the high location of the larynx in newborns and children of grud-tion age, the epiglottis is slightly higher than the root of the tongue, so when swallowing the food lump (liquid) bypasses the epiglottis on the sides of it. As a result, the child can breathe and swallow (drink) at the same time, which is important in the act of sucking. The entrance to the larynx of a newborn is relatively wider than that of an adult. The threshold is short, so the glottis is high. It has a length of 6.5 mm (3 times shorter than an adult). The glottis markedly increases in the first three years of life of the child, and then — during puberty. Laryngeal muscles in the newborn and in childhood are poorly developed. The larynx grows rapidly during the first four years of a child's life. During puberty (after 10 — 12 years) again begins its active growth, which lasts up to 25 years in men and up to 22 — 23 years in women. Along with the growth of the larynx in childhood, it gradually falls, the distance between its upper edge and the hyoid bone increases. By the age of 7, the lower edge of the larynx is at the level of the upper edge of the VI cervical vertebra. After 17 -20 years, the larynx occupies a position characteristic of such an adult. Sexual differences of the larynx at an early age are not observed. In the future, the growth of the larynx in boys is somewhat faster than in girls. After 6 — 7 years the larynx in boys is larger than in girls of the same age. In 10 -12 years boys becomes noticeable protrusion of the larynx. Cartilages of the larynx, thin in a newborn, become thicker with age, but retain their flexibility for a long time. In the elderly and senile age in the cartilage of the larynx, in addition to the epiglottis, calcium salts are deposited. Cartilage ossify, become brittle and brittle. The trachea and the main bronchi of the newborn are short. Length of the trachea is 3.2 — 4.5 cm, width of the lumen in the middle portion is about 0.8 cm of the Membranous wall of the trachea is relatively wide, the cartilages of the trachea are weak, thin, soft. In the elderly and senile age (after 60 — 70 years) cartilage trachea become dense, fragile, compression easily broken. After birth, the trachea grows rapidly during the first 6 months., then its growth slows down and accelerates again during puberty and adolescence (12 — 22 years). By Z-4 years of life of the child the width of the lumen of the trachea increases by 2 times. The trachea in a child 10-12 years is twice as long as in a newborn, and by 20 -25 years its length triples. The mucous membrane of the tracheal wall of the newborn is thin, tender; the glands are poorly developed. In a child 1-2 years the upper edge of the trachea is located at the level of IV-V cervical vertebrae, in 5 -6 years anteriorly from V-VI vertebrae, and in adolescence — at the level of V cervical vertebra. Bifurcation of the trachea by 7 years of the child's life is anterior to the IV V thoracic vertebrae, after 7 years it is gradually established at the level of the V thoracic vertebra, as in an adult. Lungs in a newborn of irregular conical shape; upper lobes of relatively small size. The middle lobe of the right lung in size equal to the upper lobe and the lower is relatively large. Weight of both lungs in a newborn is 57 g (39 to 70 g), volume — 67 cm³. Density podeshevelo easy equal 1,068 (light nadyshavshis stillborn child sink in water). The density of the lung of the breathing child is 0.490. Bronchial tree at the time of birth is mainly formed. On the 1st year of life there is an intensive growth (the size of the lobed bronchi increase by 2 times, and the main — by 1.5 times). During puberty, the growth of the bronchial tree increases again. The size of all its parts (bronchi) to 20 years increased by 3.5 — 4 times (compared with the bronchial tree of the newborn). In people 40 — 45 years bronchial tree has the largest size. Age-related bronchial involution begins after 50 years. In the elderly and senile age, the length and diameter of the lumen of many segmental bronchi slightly decreases, sometimes there are clearly shaped protrusion of their walls. Pulmonary acinuses in a newborn have a small number of small pulmonary alveoli. During the second year of the child's life and later acinus grows due to the emergence of new alveolar passages and the formation of new pulmonary alveoli in the walls of existing alveolar passages. The formation of new branches of the alveolar passages ends by 7 — 9 years, pulmonary alveoli — by 12 -15 years. By this time, the size of the alveoli is doubled. The formation of the lung parenchyma completes the 15 — 25 years. In the period from 25 to 40 years, the structure of the pulmonary acini is almost the same. After 40 years, the gradual aging of the lung tissue begins. Pulmonary alveoli become larger, part of the interalveolar septum disappears. In the process of growth and development of the lungs after birth, the volume of alveoli increases: during the 1st year-4 times, to 8 years — 8 times, to 12 years — 10 times, to 20 years — 20 times (compared to the volume of the lungs of

the newborn). The boundaries of the lungs also change with age. The tip of the newborn's lung is at the level of the first rib. Further it protrudes above the first rib and to 20 -25 years will be above the first rib (2 cm above the clavicle). The lower border of the right and left lungs in a newborn is one rib higher than in an adult. As the age of the child increases, this limit gradually decreases. In the elderly (after 60 years), the lower limits of the lungs are 1 — 2 cm lower than in people aged 30 — 40 years.

X-ray of the trachea, bronchi, lungs and pleura. On the radiograph, the trachea and the main bronchi are visible due to the presence of air in them — the trachea in the form of a light cylindrical formation against the background of the shadow of the spine. Main bronchi form the light stripes on the shadow heart. The study of the other parts of the bronchial tree (bronchography) is possible after the introduction of a contrast agent into the trachea and bronchi. Lungs in a living person with fluoroscopy or radiography are visible against the background of the chest in the form of air pulmonary fields (right and left), separated from each other by an intense median shadow formed by the spine, sternum, protruding to the left heart and large vessels. On the pulmonary field layered shadows of the clavicles (above) and ribs. In the intervals between the ribs, a mesh-like pulmonary pattern is visible, on which spots and strands are layered — shadows from the bronchi and blood vessels of the lung. In the area of the roots of the lungs (at the level of the anterior ends of the II—V ribs), shadows from larger bronchi and vessels with thicker walls are more pronounced. When x-ray examination during inhalation, pulmonary fields are seen better, and the pulmonary pattern is seen more clearly. With the help of tomography (layer-by-layer radiography), you can get pictures of individual deep layers of the lung with its bronchi and vessels.

V / Practical work:

Task №1. Start with learning vozduhoprovodyaschih ways: look at the sagittal section of the head cavity of the nose; then the throat, located behind it along the cervical spine; the larynx lying in front of the laryngeal part of the pharynx at the level of IV-VI of the cervical vertebrae.

The task №2. On the sagittal section of the head to locate the proper cavity of the nose. On its lateral wall, find three hanging nasal shells: the lower, middle and upper. Find also the nasal passages: the bottom - between the hard palate and the lower turbinate, the average between the lower and middle nasal shells of the upper between the middle and upper nasal turbinates and the General - between the septum of the nose and edges of the shells, determine the confluence of the nasolacrimal canal, as well as find messages okolonosovyh sinuses.

Task number 3. On the complex of organs, consider the tongue, the hyoid bone, below which feel and consider the larynx (its thyroid and cricoid cartilage, below which the cartilage of the trachea is located). In front of the larynx, locate the thyroid gland and neck muscles. Consider the back wall of the larynx, separating it from the pharynx, and examine the entrance to the larynx. Closer to the root of the tongue locate the epiglottis, posterior to it last paired cherpalonadgortannoy folds, reaching to the arytenoid cartilages, between which is visible mezhcherpalovidnaya fold, bounding the entrance to the larynx.

The task №4. On the drug with the prepared cartilage and laryngeal compounds, using the textbook, study the cartilage, their structure, mutual location and connections. To the upper edge of the cricoid cartilage, an elastic cone is fixed, which continues upwards and is located inside of the thyroid cartilage, ending with two free edges - the vocal cords. In front, they converge and attach to the inner surface of the angle of the thyroid cartilage, and behind them diverge and attach to the vocal processes of the arytenoid cartilage. Immediately above the vocal cords, parallel to them, the vestibular ligaments stretch, which continue upward into the quadrangular membranes and end at the top with a free edge, which with the mucosa covering it forms a scooped fold stretched between the arytenoid cartilages - behind and the edges of the epiglottis - in front. Note that the quadrangular membrane and elastic cone cause the shape of the larynx cavity - in the form of an "hourglass". Thanks to them can be divided into three sections in the larynx. Examine these departments on the preparation of the larynx with the opening of the rear wall.

The task №5. On a collapsible model of the larynx and laryngeal muscle preparations using a textbook of anatomy and Atlas, study the muscles, their fixation and function, causing a change in the width of the glottis and the tension of the vocal cords.

Task number 6. Then proceed to the study of the trachea and large bronchi. On the complex of the thoracic cavity, find the bifurcation of the trachea, the main bronchi (or bronchi of the 1st order) and follow them to the roots, and then the gates of the right and left lungs located on the medial surfaces of the lungs. Then, from the medial surface of the lung, go down to the diaphragmatic, and from the front and back to the rib surface of the lungs. Considering the edge surface, find the slanting slit, which on the left lung divides the upper and lower lobes, and on the right - the lower lobe separates from the upper and middle. Along the middle axillary line, a horizontal slit is separated from the oblique slit, passing anteriorly along the IV rib and separating the upper and middle lobes of the right lung.

The task №7. The internal structure of the lungs and branching bronchi study in the figures in the Atlas and in the textbook. Follow the sequential division of the main bronchi into lobular, segmental, lobular, terminal, which end the Airways of the respiratory system. Next, study the structure of the alveolar tree that performs respiratory function (gas exchange function). Draw a diagram of branching terminal bronchioles on respiratory bronchioles, alveolar passages, alveolar sacs and alveoli, forming a structural unit of the lung - acinus.

The task №8. Next, proceed to the study of the boundaries of the lungs. Chalk apply to the skeleton all auxiliary lines and mark the upper front, lower and rear borders of the right and left lung. Note that due to the position of the heart on the left lung, a cardiac tenderloin is formed, which is projected on the anterior chest wall to the left of the sternum between the IV and VI ribs. The lower and posterior borders of the right and left lungs pass at the same level.

The task №9. On the opened corpse find the right and left pleural sacks, which are lungs. Find the visceral pleura, which tightly fuses with the surface of the lung and lines the interstitial cracks. It forms the inner wall of the pleural cavity and passes through the root of the lung into the parietal pleura, which forms the outer wall of the pleural cavity. Enter the hand into the pleural cavity and find the parts of the parietal pleura lining the walls of the chest cavity from the inside: the mediastinal from the mediastinum, the diaphragmatic on the diaphragm and the rib on the inner surface of the chest wall and the dome of the pleura. Then find the places of transition of the diaphragmatic pleura in the rib on the right and left

and study the right and left costal-diaphragmatic sinuses. In the left pleural SAC, find the places of transition of the mediastinal pleura into the rib (front); and into the diaphragmatic (bottom) pleura and consider respectively the costal-mediastinal and diaphragmatic-mediastinal sinuses.

Task number 10. Next, proceed to the study of the boundaries of the pleural sacs and their projection on the surface of the chest.

VI. Control question:

1. What are the functions of the nasal cavity?
2. What areas are isolated in the nasal cavity?
3. Which departments allocate in the cavity of the larynx?
4. Specify the value of the elastic cone and the quadrangular membrane.
5. Which of the cartilage of the larynx are hyaline, and which to elastic?
6. What muscles are straining their vocal cords?
7. What is the mucosa of the trachea and major bronchi?
8. At the level of which vertebra does the tracheal bifurcation occur?
9. Which of the bronchi is shorter and wider, and why?
10. What is the surface fraction and the cracks are light?
11. What is the structural and functional unit of the lung?
12. List the segments of the lungs.
13. What formations enter the gates of the lungs?
14. What is the pleura?
15. What are the sinuses in the pleura secrete and what is their functional significance?
16. What departments is the mediastinum.

VII. Learning objective:

Problem number 1. The patient has inflammation of the pleura, accompanied by the release of the pleural cavity of inflammatory fluid. What pleural sinus will accumulate in the first place? Give an anatomical explanation.

Answer. The deepest is the costal-diaphragmatic sinus. Here, the most often accumulates, this so-called exudate.

Problem number 2. Why is the swelling of the nasal mucosa in patients, as a rule, watery eyes? Give an anatomical explanation.

Answer. Swelling of the nasal mucosa can lead to narrowing of the nasolacrimal canal, which in turn leads to difficulty in the outflow of lacrimal fluid from the lacrimal SAC to the lower nasal passage and thus to lacrimation.

Problem number 3. Child, playing, has breathed pea. In what bronchus is it most likely to get stuck? Give an anatomical explanation.

Answer. Most often in the right main bronchus. He almost continues the course of the trachea is shorter and wider than the left. There is a more intense flow of air that can captivate a foreign body.

VIII. Control tests:

1. Which of the following cartilage refers to the outer nose?
a-small cartilages of the nose wing;
b-lateral cartilage of the nose;
in-cartilage of the nasal septum;
Mr. Soshnikov - nasal cartilage
2. Specify the cartilage of the larynx, built of hyaline cartilage:
a-wedge-shaped cartilage;
b-thyroid cartilage;
C-cricoid cartilage;
g-arytenoid cartilage
3. Specify anatomical formations that limit the entrance to the ventricle of the larynx:
a-folds of the vestibule;
b-vocal folds;
in - recruit - epiglottic folds;
l-tear bone
4. Specify the anatomical formations in front of the trachea:
a-unpaired vein;
b - pretracheal plate cervical fascia;
b-sternum-hyoid muscle;
g-thoracic lymphatic duct
5. Specify segmental bronchi formed during branching of the right upper lobe bronchus:
a-anterior basal;
b-apical;
in the rear;
g-front
6. Specify, when branching, what structures are formed respiratory bronchioles:
a-segmental bronchi.;
b-lobular bronchi.;
in the end the bronchioles;
g-lobe bronchi.
7. Specify the anatomical formations that limit the cardiac tenderloin of the left lung from the bottom:

A-tongue;

B-slanting slit;

In - gate of light;

G-horizontal slit

8. Specify the place of coincidence of projections of the boundaries of the lungs and pleura:

a-the dome of the pleura and the tip of the lung;

b-posterior border of the lung and pleura;

b - anterior border of the lung and pleura on the right;

g-anterior border of the lung and pleura on the left

9. Specify the anatomical formations with which the mediastinal pleura borders on the right:

a-thoracic aorta;

b-superior Vena cava;

b-unpaired vein;

g-esophagus

10. Specify the parts of the mediastinum in which the diaphragmatic nerve passes:

a-upper division;

b-front Department;

in-back Department;

g-middle Department

Ответы к тестам:

1	2	3	4	5	6	7	8	9	10
а, б	б, в,	а, б	б, в,	б, в, г	в	а	а, б, в	б, в, г	а, г

IX.Анатомическая терминология.

Русская терминология	Латинская терминология
1. Nasal cavity	cavitas nasi
2. The root of the nose	radix nasi
3. The back of the nose	dorsum nasi
4. The tip of the nose	apex nasi
5. Nose wing	alae nasi
6. Nostrils	nares
7. The lateral cartilage of the nose	cartilago nasi lateralis
8. Large cartilage of nose wings	cartilagine alares majores
9. Small wing cartilages	cartilagine alares minores
10. The cartilage of the nasal septum	cartilago septi nasi
11. Nasal septum	septum nasi
12. Common nasal meatus	meatus nasi communis
13. The olfactory region	regio olfactoria
14. Larynx	larynx
15. Thyroid cartilage	cartilago thyroidea
16. Upper thyroid notch	incisura thyroidea superior
17. Inferior thyroid notch	incisura thyroidea inferior
18. Cricoid	cartilago cricoidea
19. Arch of cricoid cartilage	arcus cartilaginis cricoidea
20. Signet ring-shaped cartilage plate	lamina cartilaginis cricoidea
21. Arytenoid cartilage	cartilago arytenoidea
22. Vocal process (arytenoid cartilage)	processus vocalis
23. Muscle bone (articular cartilage)	processus muscularis
24. Epiglottis	epiglottis
25. The stalk of the epiglottis	petiolus epiglottidis
26. Shield-epiglottis ligament	lig.thyroepiglotticum
27. Horn-shaped cartilage	cartilago corniculata
28. Wedge-shaped cartilage	cartilago cuneiformis
29. The ring-thyroid joint	articulatio cricothyroidea
30. The ring-arytenoid joint	articulatio cricoarytenoidea
31. The thyroid-hyoid membrane	membrana thyrohyoidea
32. Median thyrohyoid ligament	lig.thyrohyoideum medianum
33. Lateral of thyroid-hyoid ligament	ligg.thyrohyoidea lateralia
34. Sublingual-epiglottic ligament	lig.hyoepiglotticum
35. Shield-epiglottis ligament	lig.thyroepiglotticum
36. The ring-thyroid ligament	lig.cricothyroideum
37. Ring-tracheal ligament	lig.cricotracheale
38. Cavity of the larynx	cavitas laryngis
39. The folds of the vestibule	plicae vestibulares

40. The crack of the vestibule	rima vestibuli
41. The ventricles of the larynx	ventriculi laryngis
42. The vocal folds	plicae vocales
43. Subband cavity	cavitas infraglottica
44. Fibro-elastic membrane	membrana fibroelastica laryngis
45. Quadrangular membrane	membrana quadrangularis
46. Ligament of the vestibule	ligg.vestibularia
47. Elastic cone of the larynx	conus elasticus
48. Vocal cords	ligg.vocales
49. The ring-thyroid muscle	m.cricothyroideus
50. Voice muscle	m.vocalis
51. Posterior ring-arytenoid muscle	m.cricoarytenoideus posterior
52. Lateral ring-arytenoid muscle	m.cricoarytenoideus lateralis
53. The thyroid-arytenoid muscle	m.thyroarytenoideus
54. Transverse arytenoid muscle	m.arytenoideus transversus
55. Oblique arytenoid muscle	m.arytenoideus obliquus
56. Epiglottic-arytenoid muscle	m.aryepiglotticus
57. Trachea	trachea
58. The Carina of the trachea	carina tracheae
59. The bifurcation of the trachea	bifurcatio tracheae
60. Annular ligament	ligg.anularia
61. Webbed wall of the trachea	paries membranaceus
62. Bronchi	bronchi
63. The right main bronchus	bronchus principales dexter
64. Right upper lobe bronchus	bronchus lobaris superior dexter
65. Middle and lower lobe bronchi.	bronchus lobaris medius dexter et bronchus lobaris inferior dexter
66. The left main bronchus	bronchus principales sinister
67. The upper and the lower left lobar bronchi	bronchus lobaris superior sinister et bronchus lobaris inferior sinister
68. Easy	pulmones
69. The tip of the lung	apex pulmonis
70. Diaphragmatic surface of the lung (lower	facies diaphragmatica
71. The costal surface of the lung (side	facies costalis
72. Mediastinal surface of the lung (medial)	facies mediales
73. Cardiac depression	impressio cardiaca
74. Easy gate	hilum pulmonis
75. Cardiac notch	incisura cardiaca
76. Tongue of lung	lingula pulmonis
77. Slanting slit	fissura obliqua
78. A horizontal gap	fissura horizontalis
79. Terminal bronchioles	bronchioli terminales
80. Respiratory bronchioles	bronchioli respiratorii
81. Alveolar passages	ductuli alveolares
82. Alveolar sacs	sacculi alveolares
83. Pleura	pleura
84. The visceral pleura	pleura visceralis
85. Pulmonary ligament	ligg.pulmonale
86. Parietal pleura	pleura parietalis
87. The costal pleura	pleura costalis
88. Mediastinal pleura	pleura mediastinalis
89. Diaphragmatic pleura	pleura diaphragmatica
90. The dome of the pleura-	cupula pleurae
91. Pleural cavity	cavitas pleuralis
92. Pleural sinuses	recessusc pleurales
93. Costal-diaphragmatic sinus	recessus costodiaphragmaticus
94. Rib-mediastinal sinus	recessus costomediastinalis
95. Diaphragmatic-mediastinal sinus	recessus phrenicomediastinalis
96. Mediastinum	mediastinum

X. Preparations and manuals:

- 1) the organs of the respiratory system. A prepared corpse .
- 2) Sagittal saw cut of the head.

- 3) the Skull.
- 4) Preparations of the larynx: cartilage, ligaments, muscles.
- 5) complex organs of the chest cavity.
- 6) Textbook, Atlas of human anatomy.

EXTRACURRICULAR INDEPENDENT WORK.

GUIDELINES FOR OUT-OF-CLASS INDEPENDENT WORK ON THE SUBJECT: THE ANATOMY AND TOPOGRAPHY OF THE NASAL CAVITY AND LARYNX.

1. QUESTIONS TO TEST YOUR BASELINE:

1. BONES OF THE FACIAL SKULL
2. THE STRUCTURE OF THE NASAL CAVITY.
3. THE GENERAL ANATOMY AND FUNCTION OF THE RESPIRATORY SYSTEM. UPPER AIR PASSAGES.
4. THE COURSE OF THE AIR JET.
5. FEATURES OF THE STRUCTURE OF THE LARYNGEAL PHARYNX
6. TOPOGRAPHY OF THE LARYNX

2. Targets

The student needs to know:

1. The structure of the walls and messages of the nasal cavity. External nose.
2. Paired and unpaired cartilages of the nose.
3. The structure of the nasal shells and nasal passages.
4. Paranasal sinus messages
5. Divisions of the larynx.
6. Classification and structure of cartilage of the larynx.
7. The connection of the cartilage of the larynx and ligaments. The cricothyroid membrane and the quadrangular membrane.
8. Classification and functions of muscles of the larynx. Mechanism of action.
9. The mechanism of voice formation.
10. Age features of topography and structure of the larynx.

The student must be able to:

1. Show on drug cavity nose and his education.
2. Show and name the messages of the paranasal sinuses with nasal passages.
3. Show on the sagittal cut of the head the nasal cavity, vestibular vocal folds, laryngeal ventricles.
4. Correctly place the cartilage of the larynx relative to each other and show the joints of the larynx and the volume of their movements.
5. Show ligaments of the larynx.
6. Show muscles that widen and narrow the glottis.
7. Show muscles straining the vocal cord.
8. Be able to name all the formations in Latin transcription.

III the Task for independent work

1. Make a diagram of the location and formation of nasal passages.

2. Continue phrases:

(a) the upper respiratory tract includes _____

b) to the lower respiratory tract include _____

C) the outlet holes of the nasal cavity are _____

d) the Larynx is located at the level _____

e) departments of the larynx are _____

f) paired cartilage of the larynx include _____

g) to unpaired cartilages of the larynx include _____

h) the arytenoid cartilage has processes: 1 - _____ 2 - _____,
to which the following muscles are attached: _____

IV self-monitoring Issues.

1.Specify the walls of the nasal cavity?

2.Describe the olfactory region of the nasal cavity:

3.What are the nasal messages? _____

4.Specify the value of the elastic cone and quadrangular membrane?

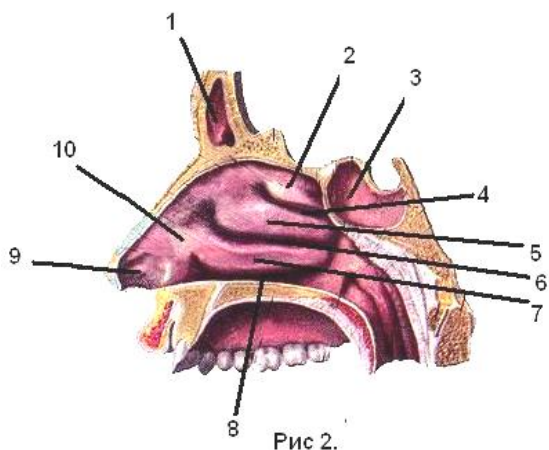
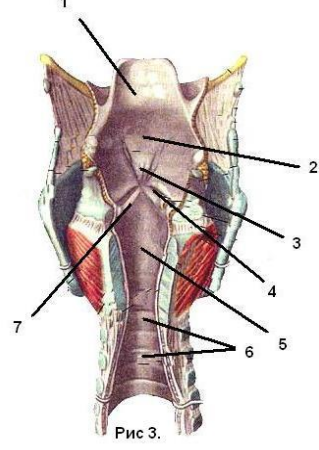
5.How is the mobility of the cartilage of the larynx ensured? _____

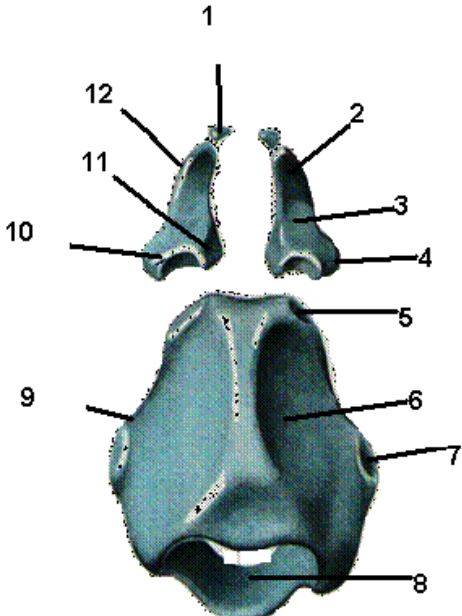
6.Specify the muscles that expand the glottis? _____

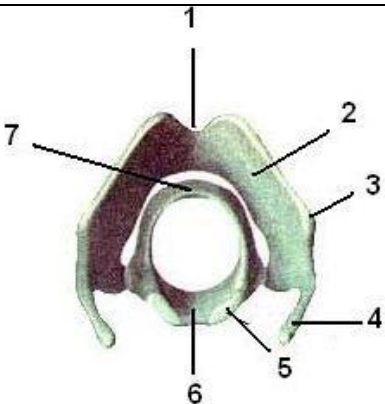
7.What are the muscles that constrict the glottis? _____

8.Specify the muscles straining the vocal cords? _____

V. Make symbols for figures

NASAL CAVITY	CAVITY OF THE LARYNX
	
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	
9	
10	

The cartilage of the larynx	
	1.
	2.
	3.
	4.
	5.
	6.
	7.
	8.
	9.
	10.
	11.
	12.

Thyroid and cricoid cartilage	
	1.
	2.
	3.
	4.
	5.
	6.
	7.

Guidelines for out-of-class independent work on the subject:
the ANATOMY AND TOPOGRAPHY of the TRACHEA

Questions to check:

The General anatomy of the respiratory system. lower respiratory tract.

Topography of trachea, bronchi, lungs.

Age features of the trachea and major bronchi.

The structure and topography of the pleura.

Departments and organs of the mediastinum. Their topography.

2.Targets

The student needs to know:

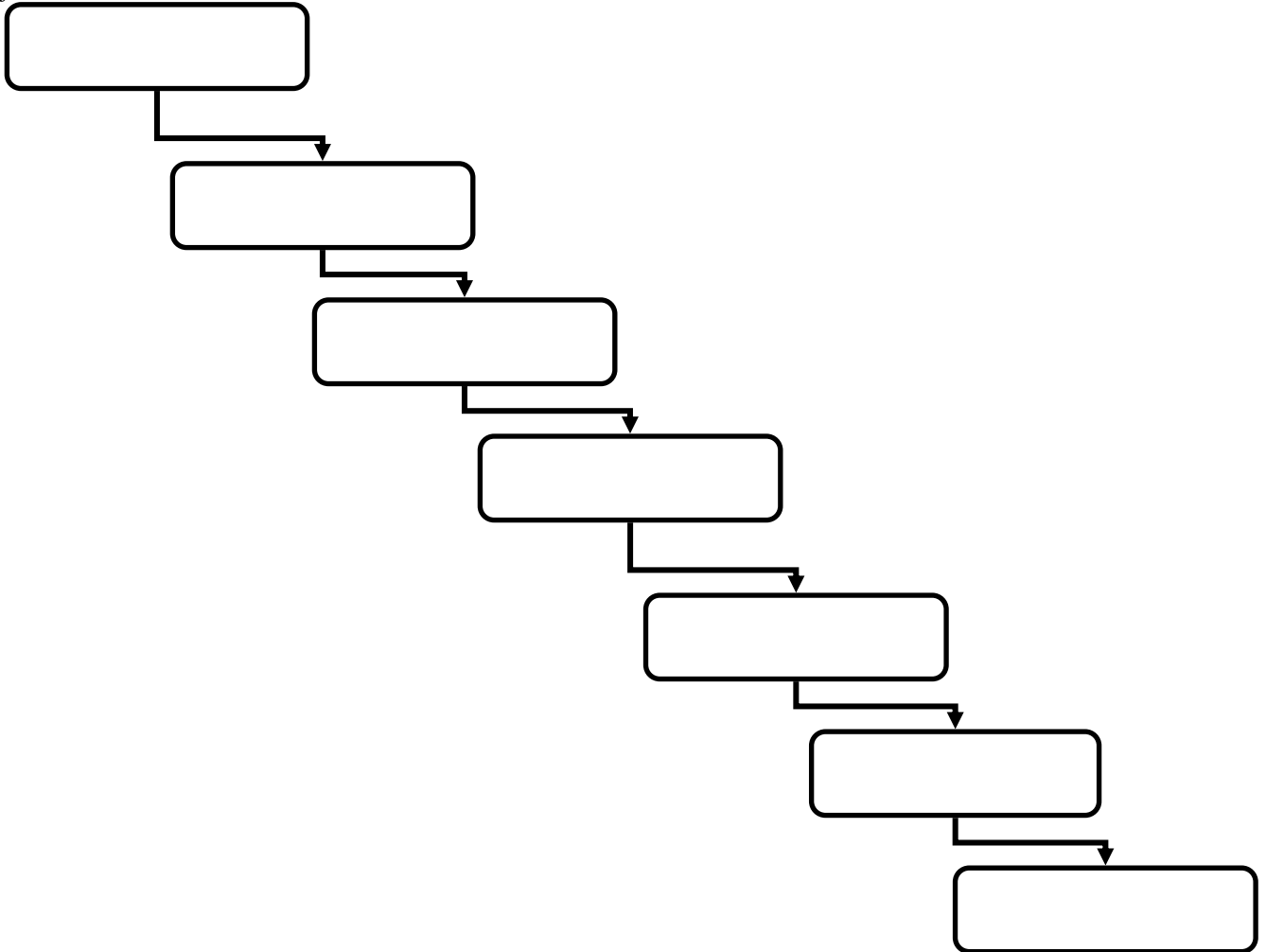
1. The structure of the trachea.
2. The structure of the bronchial and alveolar tree.
3. Structure of acinus-structural and functional unit of the lung.
4. Surfaces, lobes and cracks of the lung.
5. Segmental structure of the lungs.
6. Features of the location of arteries, veins and bronchi in the gates of the lungs.
7. The boundaries of the lungs.
8. The structure of the pleural sacs.
9. The location of the pleural cavity, sinuses and interpleural fields.
10. The boundaries of the pleural sacs.
11. Departments and organs of the mediastinum.

The student must be able to:

1. Determine the drug departments of the trachea.
2. Show the place of division (bifurcation) of the trachea into 2 main bronchi.
3. Trace the course of the main bronchi from the bifurcation of the trachea to the gates of the lungs.
4. Show the surface of the lungs.
5. Show the lobes of the left and right lung and the cracks forming them.
6. Determine the boundaries of the lungs and pleura.
7. Show the drug parts of the pleura, pleural cavity, its dome and pleural sinuses.
8. Show on the drug mediastinum.
9. Identify parts of the mediastinum and the organs in them.
10. Name the organs in Latin and Russian transcription.

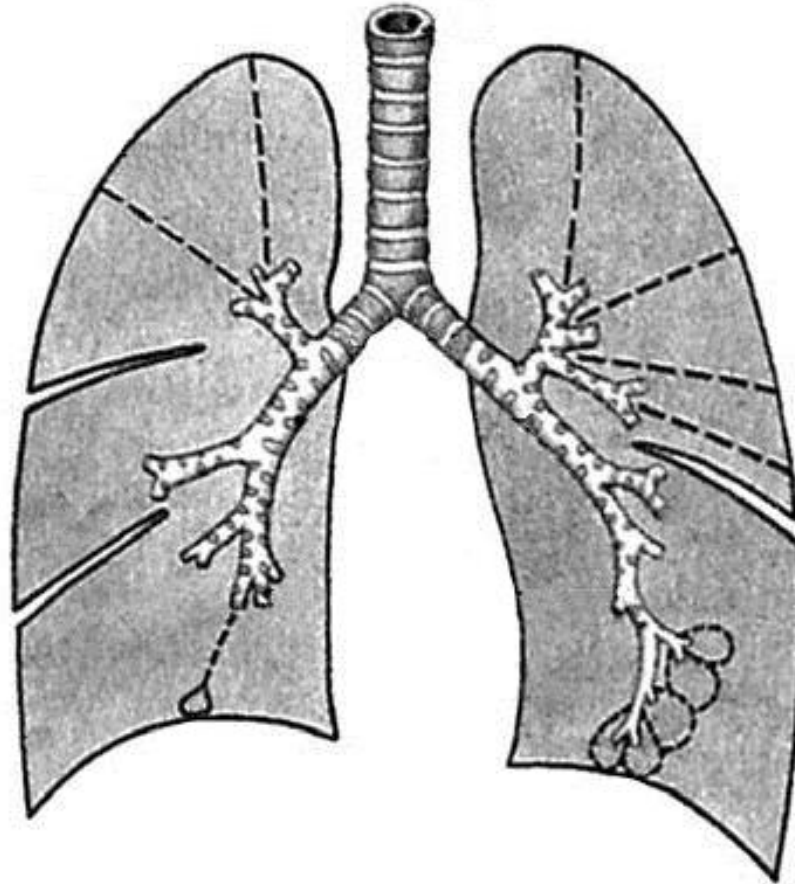
III the Task for independent work.

1. Make a diagram of the passage of the air jet.



2. Make a diagram of branching bronchi.

1. 1. Draw the pleura stroke and comment on the drawing:



2. What structures are attached to the trachea _____

3. Specify the surface of the lungs _____

4. Continue phrases:

a) on the sides of the trachea is _____

b) at level V of the thoracic vertebra is located _____

c) Right and left main bronchi differ from each other: _____

d) at the gates of every lung _____

and go out _____

e) between the parietal and visceral pleural leaves is located

e) Enter the sinuses of the pleura

g) the Mediastinum is

IV self-monitoring Issues.

1.What is the structural and functional unit of the lung?

2.What are the right lung segments?

3.Specify the segments of the left lung?

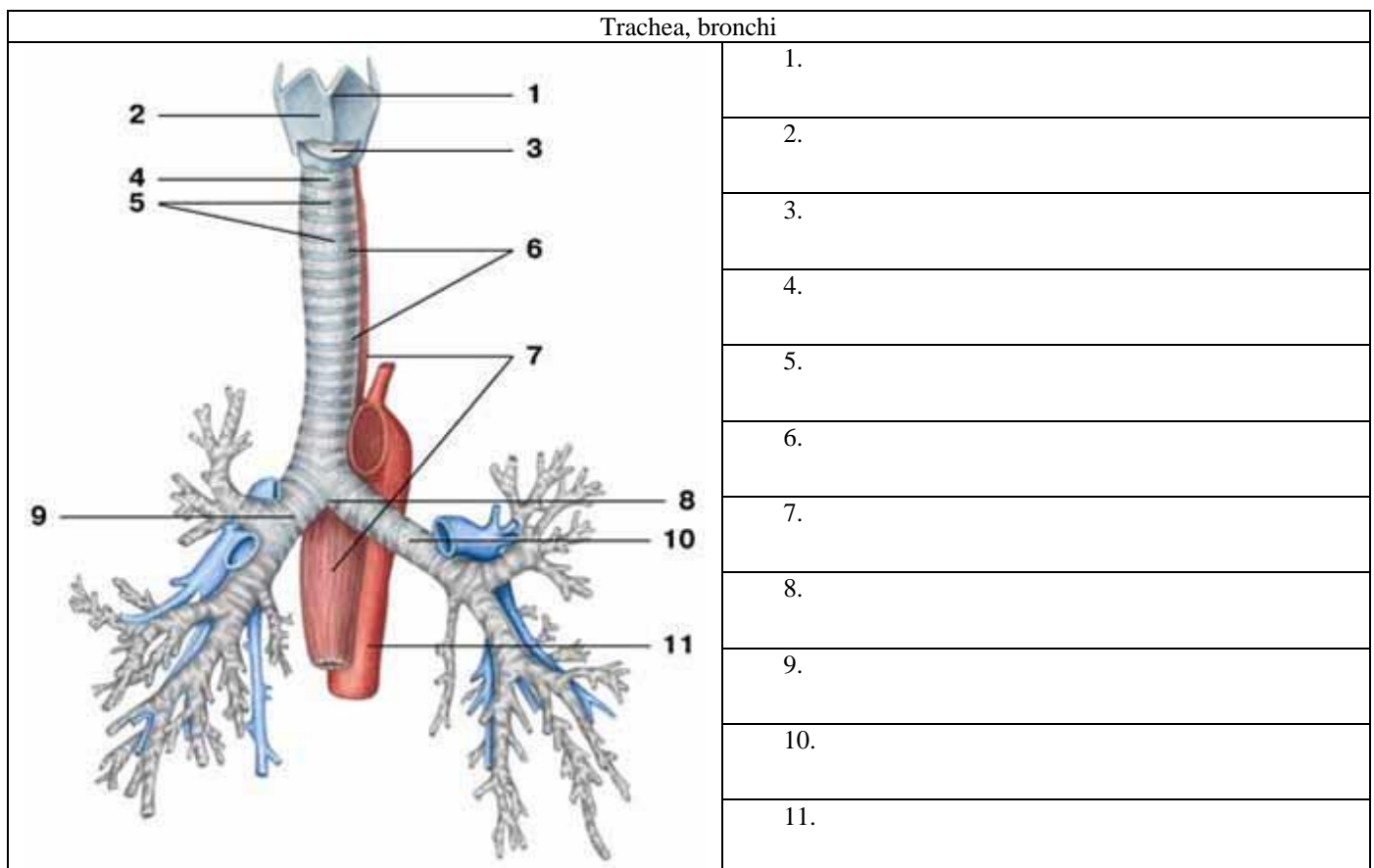
4.Specify the topographic differences in the location of the elements in the gate of the right and left lung?

5.Specify what is the pleura?

6.What depressions are formed in the places of transition of the pleura and what diagnostic value does it have?

7.Specify the place of coincidence of projections of the boundaries of the lungs and pleura?

V. Make a designation to the figures.



List of literature:

Basic:

п/ №	Наименование	Автор (ы)	Год, место издания	Кол-во экземпляров	
				в библиотеке	на кафедре
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>7</i>	<i>8</i>
1.	Textbook of human anatomy : For medical students. In 2 volumes-	Sapin M. R., Kolesnikov L. L., Nikitjuk D. B.	М. : New Wave Publishing Agency, 2015	Vol.1 – 35 Vol.2 – 35	
2.	Textbook of human anatomy : For medical students. In 2 volumes-	Sapin M. R., Kolesnikov L. L., Nikitjuk D. B.	М. : New Wave Publishing Agency, 2017	Vol.1 – 40 Vol.2 – 40	
3.	Атлас анатомии человека в 4 т.	Синельников Р. Д. Синельников Я. Р., Синельников А. Я.	М. : Новая волна : Издатель Умеренков, 2007-2017	Т. 1 – 25 Т. 2 – 19 Т. 3 – 17 Т. 4 - 15	1
4.	Textbook of Human Anatomy. In 3 vol. Vol. 1. Locomotor apparatus	Kolesnikov L.L, Nikitiuk D.B., Klochkova S.V., Stelnikova I.G.	М.: - ГЭОТАР-Медиа, 2018	http://www.studmedlib.ru/book/ISBN9785970440384.html	

Additional:

п/ №	Наименование	Автор (ы)	Год, место издания	Кол-во экземпляров	
				в библиотеке	на кафедре
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>7</i>	<i>8</i>
1.	Атлас анатомии человека: учеб. пособие	Неттер Ф.	М. : ГЭОТАР-Медиа, 2003, 2007, 2015	22	1
2.	Human developmental anatomy	Kurt E. Johnson.	Baltimore: Williams & Wilkins, 1991	1	
3.	Clinically oriented anatomy	Moore K.	Baltimore : Williams & Wilkins, 1992	1	